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RELATIONSHIPS OF FOOD COSTS, EXPENDITURES, AND PRICES, 1960-74

Alden C. Manchester

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RELATIONSHIPS OF FOOD COSTS, EXPENDITURES, AND PRICES, 1960-74. By Alden C. Manchester, Economic Research Service, U.S. Department of Agriculture, Agricultural Economic Report No. 329.

ABSTRACT

Per capita expenditures for food for use at home leaped 86 percent between 1960 and 1974. Price increases were mainly responsible. Changes in household composition also contributed. Slightly moderating factors included small apparent declines in quantities consumed and shifts among foods consumed. Price movements between low-priced and high-priced foods are examined through the calculation of special price indexes. Time series measures, three consumer expenditure surveys, and the ARS food plans are discussed.

KEYWORDS: Food costs, food consumption, expenditures, prices.

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SUMMARY

Changes in food costs, prices, and expenditures since 1960 have been numerous, particularly since 1971.

Prices of food for use at home rose fairly modestly during the 1960's and by 1971 were nearly 30 percent above 1960. In the next 3 years, the prices, as measured by the Bureau of Labor Statistics' Consumer Price Index (CPI) for Food at Home, increased rapidly, reaching by 1974 a level 81 percent above 1960. These are the official measures based on 1960-61 buying patterns of families and individuals. Since prices of various foods differ from this gross measure, food price indexes based on other sets of weights exhibit moderately different patterns of change over time.

Food purchasing patterns have changed over the years, and the use of 1972-73 weights rather than those for the 1960-61 period produces an index which shows a little less rapid rise than the CPI. However, the difference between the two indexes by 1974 was less than 1 percent.

Although based on weights somewhat different from those used in the CPI, the Agricultural Research Service's (ARS's) food plans are also measures of change in food prices. The cost of the liberal food plan--the most expensive of the four plans--rose more slowly than the CPI in most years except 1973. The cost of the low-cost and moderate-cost food plans generally rose a bit slower than the CPI. In 1974, the cost of the low-cost plan was about 1 percent below the CPI and the moderate-cost plan nearly 3 percent lower. The cost of the economy food plan (actually the lowest in cost) rose a little more rapidly than the CPI in the early 1960's but by 1970 was a little lower. In the 1970's it rose at the same rate as the CPI.

During the late 1960's, the prices of relatively low-priced foods had increased a bit more rapidly than those of relatively high-priced foods, but the differences in year-to-year movements thereafter are dramatic. In 1971, low-priced foods rose 1.3 percent and high-priced foods 4.9 percent. The price rises were almost identical at a little over 4 percent in 1972, while in 1973, low-priced foods rose 20.6 percent and high-priced foods 11.3 percent. The 1974 rises became more apace again, with low-priced foods rising 17.1 percent and high-priced foods 16.0 percent.

Food expenditures have increased sharply since 1960. Per capita expenditures for food used at home increased 98 percent between 1960 and 1974. Most of this increase was due to the rise in prices,

with a modest increase due to changes in household composition. These increases were moderated a little by small declines in quantities consumed. There was a shift to more expensive foods in every year from 1960 to 1972 except in 1966. The shift to less expensive foods in 1973 and 1974 did not completely offset the upgrading of the earlier years. Between 1971 and 1974, there was a decrease in consumption and a substantial shift to less expensive foods.

Comparing annual per capita expenditures for food from the time series and from three surveys of expenditures or consumption since 1960 involves many problems, since the surveys were based on different methodologies. In the 1960/61 period, survey figures were about 2 percent lower than those in the time series. In 1965/66, survey figures were nearly 10 percent above, and in 1972/73 about 22 percent below the time series figures.

Another approach would be to compare the costs of the ARS food plans for a family of four (calculated on the basis of all meals being consumed at home) with time series average expenditures for four persons. The latter reflect only that portion of meals actually eaten at home, so in a comparison of this type the absolute costs would be less significant than the relative changes. In 1968 and 1969, the cost of the ARS economy food plan was 75 to 76 percent of average expenditures, declining to about 71 percent in 1972 and then increasing to 76 percent in 1974. The cost of the ARS low-cost plan was about 94 percent of average expenditures in 1968 and 1969, dropping to 89 percent in 1972, and then rising to nearly 95 percent in 1974. The ARS moderate food plan's cost ranged from 14 to 21 percent above average expenditures, and that of the liberal food plan from 41 to 48 percent above average expenditures for food to be used at home.

RELATIONSHIPS OF FOOD COSTS,
EXPENDITURES, AND PRICES, 1960-74

by

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Measures of food costs, prices, and expenditures are compared for the years 1960 through 1974. A number of major changes took place in this period, not the least of which was an increase of approximately 80 percent in the price of food purchased for use at home. Also, there was the introduction and subsequent growth of the Food Stamp Plan; bonus food stamps (those going free to recipients) now account for 0.7 percent of all food expenditures.

PRICE MOVEMENTS

U.S. food price data available over time are gathered by the Bureau of Labor Statistics (BLS). These data can be made to tell somewhat different stories, depending on how they are combined (weighted). The Consumer Price Index (CPI) uses a set of weights for an average urban wage earner or clerical household based on expenditure patterns determined in 1950 (until December 1963) and in 1960/61 (since December 1963).

The Agricultural Research Service (ARS) food plans also measure price change. The commodity prices are the same but the weights used by each are different. The procedures for obtaining the weights involve both nutritional adequacy of diets and patterns of consumption in 1955 and prices in a base period. ^{1/} For this analysis, we have linked the 1957 and 1964 ARS food plans and constructed indices. The cost of the economy food plan is calculated as 80 percent of that of the low-cost food plan in 1969 and later years, so the low-cost and economy plans move identically over that period. However, the economy food plan starts from a slightly higher point in 1968, so the index numbers remain higher through 1974.

The CPI for food used at home rose 20.8 percent from 1960 to 1969 (table 1). It rose more sharply in the 1970's, reaching 181.3 percent of the 1960 level in 1974. An index calculated with weights from the 1972/73 Consumer Expenditure Survey conducted by the BLS shows the same pattern of price change as the CPI, but a slightly slower rise in prices. Between 1960 and 1971, the CPI rose only one index point more than the reweighted index. By 1974, the difference had widened to two index points, slightly more than 1 percent (hardly a major difference).

^{1/} Betty Peterkin, USDA Family Food Plans, 1974. Paper at the 1975 National Agricultural Outlook Conference, December 12, 1974, 28 pp., Agricultural Research Service, Washington, D.C.

Table 1--Measures of food costs and prices, 1960-74

Year	Prices for food at home			ARS food plans			
	CPI 1/	Recent weights 2/	Comprehensive index 3/	Economy 4/	Low-cost 5/	Moderate cost 5/	Liberal 5/
<u>1960=100</u>							
1960	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1961	100.9	100.6	100.9	100.5	100.7	100.6	100.5
1962	101.6	101.4	101.6	100.9	101.3	101.0	101.3
1963	102.9	102.2	102.9	102.1	102.6	102.4	102.7
1964	104.0	103.8	104.0	105.2	103.4	103.1	103.4
1965	106.6	106.3	106.7	105.9	105.5	105.0	105.2
1966	112.0	111.4	112.2	112.1	110.5	109.9	110.2
1967	111.6	110.9	112.3	110.3	109.3	108.6	109.0
1968	115.2	114.2	115.8	113.4	113.7	112.9	113.2
1969	120.8	119.8	121.2	119.2	119.5	119.5	120.1
1970	126.9	125.9	127.5	124.0	124.3	124.1	124.5
1971	129.9	128.9	131.6	127.0	127.3	127.0	127.9
1972	137.5	134.7	137.1	132.0	132.3	132.6	133.6
1973	157.8	156.1	158.6	155.2	155.6	156.2	156.5
1974	181.3	179.3	184.8	179.0	179.5	176.7	175.7

1/ Using 1960-61 weights (as calculated by BLS).

2/ Using 1972-73 weights for food groups (calculated using weights from 1972-73 Consumer Expenditures Survey).

3/ Includes additional foods not in CPI, 1964-74.

4/ Cost of 1964 economy food plan in January or December adjusted to annual figure using CPI for food at home, 1960-68. Later years, 80 percent of cost of low-cost food plan.

5/ 1957 food plan, 1960-63; 1964 food plan, 1964-67; 1964 food plan with 1965 survey data base within food groups of plan, 1968-74. Linked on relative costs of the food plans in June 1964 and March 1968.

In general, costs of the ARS food plans followed the same pattern through the sixties and early seventies. In the last few years, the movements have been somewhat different. In 1974, costs of the low-cost and economy food plans rose 15.4 percent, while that of the moderate cost plan went up 13.1 percent and the cost of the liberal plan rose 12.3 percent.

To further examine the differences in price movements during this period of rapid change, we have calculated some special price indexes. For these indexes, we separated the commodities priced into two groups--those relatively low priced and those relatively high priced in 1970. The division was made within commodity groups where possible. For example, meat, poultry, and fish were treated as one category. Low-priced foods in this category were those with a retail price of less than \$1 per pound (boneless weight) in 1970. Cereal and bakery products, fresh fruits, and fresh vegetables were similarly divided on the basis of 1970 retail prices. The other foods--most of which incorporate more stages of processing--required more of an element of judgment in sorting.

All foods whose retail prices were available from either BLS or the Statistical Reporting Service were included. Where prices were available from both agencies, the BLS prices were used. When available, BLS weights were used as a basis for combining the foods in each group. Comparable weights were developed for the foods not included in the BLS index.

Prices of low-priced foods rose about 1 percent more between 1967 and 1970 than did those of high-priced foods (table 2). In 1971, the prices of high-priced foods increased much more than did low-priced foods. Prices of food in both groups increased at about the same rate in 1972, but in 1973 prices of low-priced foods rose much faster than those for high-priced food.

Table 2--Price increases for relatively low-priced and high-priced foods, 1970-74

Year	Indexes			Year-to-year rise		
	: Low-priced:High-priced: : foods : foods : foods	All	: Low-priced:High-priced: : foods : foods : foods	All		
:						
: -----1967=100-----			-----Percent-----			
1970	113.5	112.1	112.8	--	--	--
1971	115.0	117.6	116.4	1.3	4.9	3.2
1972	119.9	122.5	121.3	4.3	4.2	4.2
1973	144.6	136.4	140.3	20.6	11.3	15.7
1974	169.3	158.2	163.5	17.1	16.0	16.5
:						

-- = Not applicable.

Then in 1974, the rate of increase for both groups was again fairly close. These movements left the low-priced foods 69 percent above the 1967 level and the higher-priced foods 58 percent higher in 1974. By July 1975 (the latest date for which prices were available when this report was compiled), the price indexes for those items priced by BLS (the Statistical Reporting Service does not collect prices monthly) were almost at the same level.

EXPENDITURES

A number of factors obviously contributed to the changes in food expenditures over the 15-year period. Increased population was, of course, a major contributor, so the data have been reduced to a per capita basis. Other, somewhat more subtle demographic factors were also at work. Average household size was fairly constant until the mid-1960's, and then declined significantly (table 3). While the exact magnitude of the economies of scale in family food procurement, preparation, and consumption are in dispute, their presence is generally conceded. In addition, even more widely conceded are the significant differences in food consumption among persons of different ages and sexes.

Table 3--Estimated number and size of housekeeping households in the United States and food expenditures, 1960-74

Year	: Persons in : Number of : Persons per : Expenditures for purchased			
	: housekeeping:housekeeping:housekeeping: food used at home 1/			
	: households : households : household : Total 2/ : Per person 3/			
	----- <u>Thousands</u> -----	Number	Million dollars	Dollars
1960	: 174,564	51,597	3.38	54,643
1961	: 177,812	52,226	3.40	56,370
1962	: 179,855	53,347	3.37	58,114
1963	: 182,485	53,878	3.39	59,699
1964	: 185,365	54,631	3.39	62,629
1965	: 187,733	55,743	3.37	66,072
1966	: 189,844	56,509	3.36	70,061
1967	: 191,497	57,246	3.35	71,180
1968	: 193,646	58,741	3.30	75,973
1969	: 195,494	59,997	3.26	81,436
1970	: 197,513	61,003	3.24	87,577
1971	: 200,138	62,383	3.21	92,382
1972	: 202,167	64,543	3.13	98,635
1973	: 203,560	66,040	3.08	111,117
1974	: 204,834	67,520	3.03	127,298

1/ Excluding alcoholic beverages and pet food. 2/ ERS estimates. Excludes alcoholic beverages and pet food. 1968-74 based on changes in sales of food by retailers and home delivery of milk including an adjustment to 1972 Census of Business levels. 3/ Per person in housekeeping households.

Both of these effects have been incorporated in this analysis. In the second column of table 4, the effects of U.S. changing family size and age-sex distribution on average per capita food expenditures are shown. The effects have been estimated using the relative costs of the moderate cost food plan in 1974. If other years had been used, the results would have been a little different.

Table 4--Effects of prices, quantity, and household composition on food expenditures, average U.S. household, 1960-74

Year	Change from the preceding year in per capita expenditures for food for use at home				
	Total	Due to change in:			Shift to more :(+) or less (-) :expensive foods
		Household composition	Price	Quantity	
<u>Percent</u>					
1961	1.3	0.1	0.9	-0.1	+1.1
1962	1.9	.3	.7	-.6	+1.6
1963	1.3	.0	1.3	-.1	.1
1964	1.5	.1	1.1	.2	.1
1965	7.3	.3	2.6	-.3	+4.6
1966	4.9	.3	5.1	.9	-1.4
1967	.7	.3	.1	-.1	.4
1968	5.6	.5	3.1	1.3	.5
1969	6.2	.3	4.6	.1	+1.0
1970	6.4	.2	5.2	.1	.9
1971	4.1	.3	3.2	.2	.4
1972	5.7	.4	4.2	.1	+1.0
1973	11.9	.3	15.7	-.7	-2.9
1974	13.9	.8	16.5	-.9	-2.2

If we remove the effects of changes in household composition (age-sex ratios and household size), food prices (including those for foods not in the CPI), and food consumption (pounds of food eaten excluding food produced in home gardens), by appropriate measures we have left a measure of the "upgrading" or "downgrading" of the average American diet (table 4). "Upgrading" and "downgrading" refer only to shifting toward or from somewhat more expensive foods--there is no nutritional connotation.

Looked at this way, there was considerable shifting from year to year. But there was an upgrading from 1960 to 1972, except for a drop in 1966. The cumulative effect was that the 1972 diet was upgraded 9.7 percent from that of 1960; 1974 was 3.9 percent higher than 1960 and 5.3 percent below 1972.

COMPARISONS OF STUDY RESULTS

Three national studies have provided additional information on food expenditures or consumption--the 1960/61 and 1972/73 Consumer Expenditures Surveys of BLS and the 1965/66 Household Food Consumption Survey of ARS. Each survey used a different methodology, so the results are not strictly comparable. To make comparisons with the average expenditures from the time series, we have converted expenditures per family or household to a per capita basis and weekly figures to annual ones. The assumption that the average household buys food for use at home 52 weeks per year probably overstates annual purchases somewhat, since many families are away from home visiting relatives or on vacations for periods of one or more weeks during the year. However, we lack data for a more appropriate adjustment.

Expenditures for purchased food to be used at home in the 1960/61 Consumer Expenditures Survey are only about 2 percent below those in the time series (table 5). Annual food expenditures, estimated from the 1965/66 Household Food Consumption Survey were nearly 10 percent higher than time series figures. The 1972/73 Consumer Expenditures Survey, which utilized a diary approach unlike that in the other surveys, estimated annual expenditures per person only 2 percent higher than those from the 1965/66 Household Food Consumption Survey and 22 percent below estimated expenditures from the time series.

Similar comparisons of away-from-home food purchases tell a different story. The 1972/73 figures from the survey and the time series were very similar. The 1965/66 figures were also reasonably close although the survey figures exceeded those from the time series, in contrast to the situation in 1972/73. However, for 1960/61 figures from the time series were 19 percent above those from the survey.

The cost of ARS food plans for a family of four can be compared over time with average time series expenditures for four persons. The costs of the food plans are calculated on the basis that all meals are consumed at home, while the time series figures reflect only that portion of meals actually eaten at home. Thus, the absolute levels are of less significance than the relative changes in this comparison. These comparisons were started in 1968 when the ARS food plans were revised.

The cost of the economy food plan declined a little in 1971 and 1972 from about 75 percent of average expenditures in 1968 and 1969, and then increased to about 76 percent in 1974 (table 6). The cost of the low-cost plan was about 94 percent of average expenditures in 1972, and 95 percent in 1974. The pattern of cost for the moderate cost and liberal food plans were generally similar.

In general, the pattern of costs for the ARS food plans were similar through the sixties and early seventies. In the last few

Table 5--Average food expenditures from different sources, 1960/61, 1965/66, and 1972/73

Items and year	Surveys	Time series	Time series as percentage of surveys
		<u>Number</u>	
Persons per housekeeping household or family			<u>Percent</u>
1960/61	1/ 3.2	2/ 3.40	
1965/66	1/ 3.4	2/ 3.36	
1972/73	1/ 2.9	2/ 3.08	
		<u>Dollars</u>	
Purchased food for use at home, excluding alcoholic beverages			
Per household per week			
1960/61	19.02	3/ 20.60	
1965/66	25.54	3/ 23.22	
1972/73	22.17	3/ 31.79	
Per person per year			
1960/61	4/ 309.08	315.02	101.9
1965/66	4/ 390.61	358.22	91.7
1972/73	4/ 397.53	509.20	128.1
Purchased meals and snacks including nonalcoholic beverages			
Per household per week			
1960/61	3.79	3/ 4.81	
1965/66	6.24	3/ 5.92	
1972/73	8.15	3/ 8.88	
Per person per year			
1960/61	4/ 61.59	73.51	119.4
1965/66	4/ 95.44	91.61	96.0
1972/73	4/ 146.14	149.95	102.6

1/ Persons per family.

2/ Persons per housekeeping household.

3/ Annual expenditures divided by 52 weeks, times average number of persons.

4/ Weekly expenditures divided by average number of persons, times 52 weeks.

Sources: 1960/61 and 1972/73, Consumer Expenditures Survey, BLS; 1965/66, Household Food Consumption Survey, ARS.

Table 6--Annual food expenditures and costs of ARS food plans, 1968-74 1/

Year	Average expenditures of:		ARS food plans 3/		
	four persons	for food at home 2/	Economy	Low cost	Moderate cost
					Liberal
<u>Dollars</u>					
1968	1,569	1,176	1,470	1,871	2,289
1969	1,634	1,236	1,546	1,980	2,429
1970	1,740	1,286	1,608	2,057	2,518
1971	1,811	1,317	1,647	2,105	2,586
1972	1,914	1,369	1,711	2,197	2,701
1973	2,142	1,610	2,013	2,590	3,165
1974	2,438	1,857	2,321	2,929	3,553
<u>Percent of average food expenditures</u>					
1968	---	75.0	93.7	119.2	145.9
1969	---	75.6	94.6	121.2	148.7
1970	---	73.9	92.4	118.2	144.7
1971	---	72.7	90.9	116.2	142.8
1972	---	71.5	89.4	114.8	141.1
1973	---	75.2	94.0	120.9	147.8
1974	---	76.2	95.2	120.1	145.7

1/ Excluding alcoholic beverages.

2/ Per capita expenditures (table 3) times 4.

3/ For a family of four including two school children. Provides enough money for all meals to be eaten at home. The cost of the food plans for the entire population would be 3 to 4 percent less than for this family of four.

years, the movements have been somewhat different. In 1974, the cost of the low-cost and economy food plans rose 15.4 percent, while those for moderate cost plans went up 13.1 percent and for the liberal plan 12.3 percent. These differences reflect the different weights for food in the various food plans and differing rates of change in prices of the lower priced and higher priced foods shown in table 2.