



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Distribution of the Food Supply of the United States

By Marguerite C. Burk

The production and distribution of food is perhaps the most important single vertical segment of our national economy. More than one-fourth of our personal disposable income goes for food. On the other side of the picture, our farmers receive more than two-thirds of their income from sales of food commodities and perhaps a third of all retail trade is accounted for by sales of food. Substantial proportions of other types of economic activity, such as manufacturing and transportation, are concerned with food. In order to gain insight into the future prospects for the demand for food produced by our farms, processed by our factories, and distributed by our marketing system, we need an over-all perspective of the pattern of food marketing or utilization in recent years. This article, prepared under the Agricultural Marketing Act of 1946 (RMA, Title II), is based on a study undertaken to provide such an over-all picture by drawing on all available data.

WE BEGIN OUR STUDY of the distribution of the food supply of the United States with a brief survey of data that are currently available on over-all food distribution. For several years the *National Food Situation* of the Bureau of Agricultural Economics has carried in table 2 the percentages of each year's total food utilization going to the armed forces, into export, into or out of stocks, and to our civilians.¹ For example, 97 percent of the food supply of the United States disappeared into civilian distribution channels in 1939, and 91 percent in 1948. These estimates are derived from the disappearance data for major foods.

But through what channels does the food supply move to civilians, and what changes, if any, have taken place in recent years? Relatively few quantitative data that bear on distribution to the final consumers are available, but it is possible to derive some approximations of the relative importance of the several channels of distribution from value or sales data.

Two principal sets of such data are published by the Department of Commerce. One set consists of the data on food expenditures, including alcoholic beverages, which are compiled by the Office of Business Economics as part of the process of estimating national income. These data include food and beverages purchased for off-premise consumption (valued at retail prices), purchased meals and beverages (in-

cluding service, valued at prices paid in the eating places), food furnished to commercial and Government employees including the military (valued at approximately wholesale prices), and food consumed on farms where grown (valued at farm prices, the BAE series). For current years, most of the estimates are based on extrapolations from the 1939 base period.² Although the Department of Commerce estimates the alcoholic beverage component of food and alcoholic beverage expenditures in the aggregate, it does not estimate beverage expenditures for each category just indicated.

The other data are from the Census of Business. They include information on food and beverage sales of many types of retail stores and sales of meals and of beverages by the several kinds of public eating places, as well as sales of food at other levels of distribution.

Channels of Food Distribution

In order to account for all significant flows of food supplies to domestic civilian consumers, we must combine information available in both sets described above and make some approximations for minor segments. The following list of consumers' sources of food supplies was drawn up as a guide.

A. Purchases of food commodities for off-premise consumption from

(1) Retail stores of many types

¹ For methodology, see pp. 2-10 of CONSUMPTION OF FOOD IN THE UNITED STATES, 1909-48, U. S. Dept. Agr. Misc. Pub. 691. August 1949.

² Ibid. pp. 96-98 and the National Income Supplement to the Survey of Current Business, July 1951.

- (2) Service establishments
 - (3) Commissaries
 - (4) Wholesalers
 - (5) Manufacturers
 - (6) Hucksters
 - (7) Farmers
- B. Purchases of prepared meals and snacks in
- (1) Public eating places—street restaurants, hotels, drinking places, stores, dining and buffet cars, amusement places.
 - (2) Private eating places—sales of meals by institutions, clubs, industrial lunch-rooms, schools, school fraternities, and boarding houses.
 - (3) Meals supplied to patients or patrons of hospitals, camps, and similar establishments.
 - (4) Meals supplied to patrons with air and water transportation services.
- C. Meals and snacks furnished for consumption on premises, not sold,
- (1) Furnished employees in public and private eating places, institutions, commercial establishments.
 - (2) Withdrawn by proprietors for own use.
- D. Food consumed on farms where produced.

All available census data on sales of food, meals, and beverages separately were used. A small allowance was made for under-reporting to take account of such factors as business turn-over, poor records, and persistent failure to report. Census reports do not supply information on food sales to consumers by service establishments, commissaries, hucksters, and farmers; sales of meals by dining and buffet cars, amusement places, private eating places; on food furnished but not sold; or on food consumed on farms where produced. Estimates for some of these categories were taken from food expenditure data of the Department of Commerce and adjusted to exclude alcoholic beverages; but rough approximations had to be developed for others, such as boarding-house meals and direct sales by hucksters and farmers. Fortunately, they account for only a small

³ The estimates of food sold for off-premise consumption in 1939 and 1948 are derived from data from the Census of Business, Retail Trade, with adjustment for store turn-over (made upon the advice of specialists of the Bureau of the Census). They are lower than the estimates of personal consumption expenditures for food purchased for off-premise consumption in those years, published by the Office of Business Economics, United States Department of Commerce. The food estimates of the latter are developed by the commodity-flow method as explained in the National Income Supplement to the

part of the total flow of food. The data for 1939 and 1948, given in table 1, are in terms of value at various levels of distribution.³

Because of the variation in extent of services supplied with the food, the relative importance of a particular channel of food distribution in the whole flow, as well as year-to-year changes, cannot be measured directly by these value data. Accordingly we must convert them to a common basis. As sales of food by retail stores represent the largest proportion of the total distribution, value of food sold and furnished through other categories was converted to an equivalent value basis, also given in table 1. On the basis of data assembled in a recent study,⁴ the costs of food in eating places were judged to be 50 percent of their sales of meals and related items in 1948, and 47 percent in 1939.⁵ Eating places apparently pay slightly more than wholesale prices, therefore, a 5-percent differential was assumed. Such information as is available indicates that wholesale prices might average 80 percent of retail food prices when all types of retail stores selling food are considered. Adding 5 percent to the 80 percent, the ratio of eating-place food costs to retail sales value was estimated to be 84 percent equivalent to a mark-up of 19 percent. Therefore, the equivalent retail sales value of food sold by eating places in 1948 equals 50 percent of the sales value of meals plus a 19-percent mark-up. A slightly higher mark-up was used for 1939, that is, 20 percent of meals and fountain items sold.

Survey of Current Business, 1951. The Office of Business Economics expects to revise its currently published estimate for 1948 on the basis of the 1947 Census of Manufactures, 1948 Census of Business, and nonmanufactured food data from the Department of Agriculture. Preliminary results to date indicate a downward revision, which accounts for perhaps no more than one-fourth of the present difference between the two sets of off-premise food estimates for 1948. No satisfactory method of reconciling the remaining difference for 1948 (or 1939) has thus far been developed.

⁴ SARTORIUS, LESTER C., and BURK, MARGUERITE C. EATING PLACES AS MARKETERS OF FOOD PRODUCTS. U. S. Dept. Agr. Marketing Research Rept. 3, 118 pp. 1952. (In press.)

⁵ NATIONAL RESTAURANT ASSOCIATION — REPORT ON NATION-WIDE SURVEY OF RESTAURANT OPERATING DATA FOR 1940. Chicago, 1941.

TABLE 1.—Market value and estimated retail value of civilian food, by channel of distribution, United States, 1939 and 1948 ¹

Channel of distribution	1939				1948			
	Market value		Estimated retail value		Market value		Estimated retail value	
	Food sold or supplied	Food sold, supplied and furnished	Value	Percentage of total	Food sold or supplied	Food sold, supplied and furnished	Value	Percentage of total
	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Percent</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Percent</i>
On-premise consumption								
Public eating places								
Meals and fountain items sold	2.7	2.7	² 1.5	8.4	8.1	8.1	³ 4.8	9.8
Food furnished civilian employees and withdrawn by proprietors		.3	.4	2.2		.5	.7	1.4
Total public eating places	2.7	3.0	1.9	10.6	8.1	8.6	5.5	11.2
Private eating places								
Meals sold by clubs, institutions, schools	.2	.2			.8	.8	.5	1.1
Food furnished employees by clubs, institutions, schools		(⁴)	.2	1.1		.2	.3	.6
Meals sold by boarding houses	.3	.3	.2	1.1	.6	.6	.4	.8
Total private eating places	.5	.5	.4	2.2	1.4	1.6	1.2	2.5
Institutions and transportation agencies								
Meals supplied to civilian patients or patrons	.2	.2			1.0	1.0		
Food furnished civilian employees		.1	.2	1.1		.3	1.1	2.2
Total institutions and transportation agencies	.2	.3	.2	1.1	1.0	1.3	1.1	2.2
Total on-premise consumption	3.4	3.8	2.5	13.9	10.5	11.5	7.8	15.9
Off-premise consumption—sales								
By retail stores	10.7	10.7	10.7	59.5	32.0	32.0	32.0	65.3
By commissaries, service trades, other establishments n.e.c.	.2	.2	.2	1.1	.8	.8	.8	1.6
Directly to consumers by farmers, hucksters, manufacturers, wholesalers	1.2	1.2	2.0	11.1	2.3	2.3	4.0	8.2
Gross sales	12.1	12.1	12.9	71.7	35.1	35.1	36.8	75.1
Less retailers' sales to eating places ⁵	.3	.3	.3	1.7	.9	.9	1.0	2.0
Net sales to consumers	11.8	11.8	12.6	70.0	34.2	34.2	35.8	73.1
Food consumed on farms where produced		1.1	⁶ 2.9	16.1		2.8	⁶ 5.4	11.0
Total	15.2	16.7	18.0	100.0	44.7	48.5	49.0	100.0

¹ See text for information on sources of data and methodology.

² Food cost estimated at 47 percent of sales based on National Restaurant Association survey; mark-ups of 20 percent used to retail.

³ Food cost estimated at 50 percent of sales; mark-up of 19 percent used for cost to retail sales value.

⁴ Included with public eating places. Probably less than \$100 million.

⁵ Rough approximations only.

⁶ Estimated farm values of farm food products sold in 1939 and 1948 were 38 and 52 percent of estimated retail value, respectively.

The farm value of direct sales of food by farmers to consumers and of food consumed on farms where produced was raised for each year

to the retail level, using the BAE estimate of the ratio of farm value of farm food products to retail value. As little or no information is

available on the levels of food costs and meal prices in private eating places and institutions, only rough approximations of equivalent retail values could be made. Because these channels of food distribution probably handle no more than 5 percent of the food supply, the possible error introduced by these rough approximations is minor.

Eating places, particularly the smaller ones, buy some of their food supplies from retail food stores. Such purchases had to be subtracted from sales of retail stores in order to avoid double counting. After consideration of the census data on the sales volume of small establishments and background information in the report of the study of eating places previously mentioned, the retail value of such sales was estimated at 1 billion dollars for 1948 and 0.3 billion dollars for 1939. These amounts were subtracted from the total of off-premise sales.

Retail Value of Food Consumed by Civilians

Summing the retail value equivalents of food moving to civilian consumers through all the channels of distribution, the aggregate of \$18 billion was obtained for 1939 and \$49 billion for 1948. These indicate an increase of 172 percent in the total retail value of all food moving into consumption in 1948 compared with 1939. Much of this increase resulted from higher food prices in 1948, so both aggregates were deflated by the Bureau of Labor Statistics retail food price index. An increase of 23 percent in "real value of food" remained. As a check, the change in the index of civilian food consumption per capita was multiplied by the increase in the civilian population from 1939 to 1948, yielding a 19-percent increase in total civilian consumption of food.

The difference between the two measures of the change in total food consumption in the United States from 1939 to 1948 may be accounted for by errors in calculations and approximations, by those shifts to higher priced or higher processed foods not measured by the consumption index, or by the effect on dollar sales of the rural-urban shift in population. The extent of such shifts from 1941 to 1949 was explored in another analysis;⁶ it might account for about \$10 to \$15 per capita increase in food

expenditures from 1939 to 1948, or a total of about \$2 billion. Subtracting \$2 billion from the \$49 billion aggregate, then adjusting for the increase in retail food prices, we obtain a 1948 retail value of food consumed, measured in 1939 dollars, which is 19 percent higher than that for 1939. The identity of the rates of change from 1939 to 1948 that was obtained from the two entirely different approaches, one based on food sales data derived, as described above, principally from the Census of Business, and the other on food-disappearance data,⁷ lends support to the calculations, although it may result to some extent from offsetting errors in estimation. It may be taken to indicate that the *change* in the aggregate retail value of food sold from 1939 to 1948 is approximately correct.

Moreover, the *levels* of the aggregate retail values for 1939 and 1948 derived from sales and other dollar volume data are remarkably well in line with the estimates of food expenditures derived from data on quantities of food disappearing into domestic distribution channels and retail food prices.⁸ When the extra costs of services received in public eating places are added to the aggregate retail value equivalents for 1939 and 1948, for purposes of comparison, and the new totals are divided by the civilian population for each year, we find the per capita values to be \$146 and \$358, respectively. The estimates of per capita food expenditures computed from the value aggregates of the civilian per capita food-consumption index and adjusted

⁶ BURK, MARGUERITE C. RECENT RELATIONSHIPS BETWEEN INCOME AND FOOD EXPENDITURES. Agricultural Economics Research, July 1951.

⁷ From the annual supply of each food in terms of physical quantity (production plus beginning stocks plus imports) are deducted feed and seed uses, industrial uses, exports and shipments, Government purchases, and ending stocks. The residual is considered to be civilian consumption and is divided by the population eating out of civilian supplies to derive the official estimates of per capita consumption of foods in the United States. These estimates are converted to approximate retail weights by means of factors which reflect the best available information on wastes and losses in the process of distribution from farms to retail stores. The sixty-odd individual foods are combined by means of average retail prices in 1935-39 into an index with changing quantities and fixed prices. For details see Misc. Pub. 691. op. cit.

⁸ Op. cit. p. 90.

for changes in retail prices of food are \$141 for 1939 and \$348 for 1948. Furthermore, as described in the previous study, this measure of food expenditures is slightly low because it does not include some expenditures for processing, and the estimate for 1948 is also a little low because it does not fully reflect increased expenditure resulting from the shift of the population from rural to urban areas.

Changes in Channels of Food Distribution, 1939 to 1948

Returning to consideration of the details on major channels of food distribution given in table 1, we note that about 73 percent of the food total in 1948 was sold to consumers for off-premise consumption, 16 percent was sold or furnished as meals and related items by public and private eating places, including about 2 percent which was supplied by institutions and transportation agencies, and 11 percent was consumed on farms where produced. For 1939 the comparable data are 70 percent of the United States civilian food supply sold for off-premise consumption, 14 percent sold or furnished as meals, and 16 percent consumed on farms where produced. Analysis of these data for 1939 and 1948 shows the effects of the shift of the population from rural to urban areas and some increase in "eating out" as incomes have risen and people's manner of living has gradually changed. Both of these factors raise food expenditures because more marketing services are bought, as does a hidden factor—the

increased processing of food away from home for off-premise consumption. As people move from farms to towns and cities, they spend more for food because ordinarily they no longer produce some of their own and because city food prices average higher than those of rural areas or small towns, owing to higher costs.⁹ Moreover, incomes of the former farm people are probably above those they made on farms, hence they can afford to spend more for food. But this shift does not necessarily increase the quantities of food consumed, as is likewise true of the increase in "eating out," unless the patterns of food consumption are really different. Accordingly, the total retail value equivalent of the food consumed also would not be affected except insofar as the quantities were changed as a consequence of higher incomes of consumers or different patterns of food consumption.

Unless consumer incomes rose concurrently, such changes in the channels of food distribution as those which occurred from 1939 to 1948 would have a depressing effect upon farm prices, because more of the food expenditures would go to pay for marketing services. But farm prices have not been depressed in the last decade. The substantial increase in real incomes has resulted in significant increases in farm prices for food commodities and in the quantities of food consumed per capita, as well as in greater demand for marketing services.

⁹ See p. 161 of the article by NATHAN KOFFSKY, FARM AND URBAN PURCHASING POWER in Volume XI of Studies on Income and Wealth.