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The National Food Survey of the United Kingdom and Comparisons With Other British and American Food Data

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The National Food Survey has been a carefully watched gauge for both wartime and postwar British food administration. It has measured the successes and the failures of the policies and programs for maintaining equitable distribution of foods essential to the civilian population of the United Kingdom during the prolonged and grim struggle, first against the enemy, then on the hard road back to some semblance of economic recovery. Because the Survey was conducted only for administrative use, its detailed findings were not published until late 1951. Although such findings were always available to key American food officials, the inner workings of the Survey have been little known on this side of the Atlantic. Accordingly, while in England for independent research at Cambridge University in 1955–56, Miss Burk prepared a report for administrative use in the Agricultural Marketing Service; this was done with the wholehearted cooperation of administrators and technical personnel who were responsible for the Survey and its interpretation. In this article we publish nonconfidential information from the report and some further research notes on these and other comparable data. Although Miss Burk is indebted to a number of civil servants of Her Majesty's Government for extended and frank discussions of problems involved in the Survey, her article represents essentially preliminary research findings. The article is not an official statement of either Her Majesty's Government or the U. S. Department of Agriculture.

THE NATIONAL FOOD SURVEY of the United Kingdom is apparently unique as a survey of food consumption over an extended period of years based on continuous random sampling. Accordingly, it provides an interesting opportunity both for comparisons between survey and disappearance measures of changes in food consumption in the United Kingdom, and for comparison with United States data on per capita food consumption and, for April–June 1955, with the Department of Agriculture's Survey of Household Food Consumption.

For background information, this article traces the development of the National Food Survey from its beginning in July 1940 through 1955. Then current sampling, field work, and processing procedures are described in lay terms; followed by a discussion of the types of data obtained and their uses. Another section presents some of the highlights of the United Kingdom food consumption picture from 1940 to 1955. Finally, changes in British food consumption are compared with concurrent changes in the United States and findings from the United Kingdom's National Food

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Survey for April–June 1955 are matched with data for the United States.

Historical Development

According to Dr. Norman C. Wright, Chairman of the National Food Survey Committee and the Scientific Adviser to the Ministry of Food, now Agriculture, Fisheries and Food, the Survey was initiated to provide administrators with early warnings of any dietary inadequacy that might result from wartime shortages and changes in dietary pattern. Food officials were very much aware that certain sections of the British population had had poor diets during the 1930's, as demonstrated by prewar surveys. They believed that the effectiveness of wartime food policies would be most clearly reflected in the food consumption and expenditure of urban working-class households (*8*, p. 57).[1]

The Survey at the outset was designed to measure food consumption of the whole population. But this proved too expensive and staffing difficulties became too great.

Early in 1941, therefore, coverage was reduced to households of urban workers, considered to be representative of 80 percent of the whole population. This coverage was continued substantially until 1950. Likewise, the early attempt at a constant panel to be visited at regular intervals was abandoned completely in 1943 because of poor response, and a system of continuous sampling was substituted. Under wartime conditions this led to overrepresentation of households with young children and those of pensioners in the final sample.

In 1940 and 1941 data were obtained by leaving a logbook with each cooperating housewife for her to enter her food purchases. Experience at that time showed the need for adjustment for change in household stocks to yield more accurate estimates of consumption, which ran about 5 percent higher than purchases. So from 1942 to 1951 fieldworkers began and ended the report week by weighing and counting stocks of food in each household. This procedure was dropped in 1951 because it seemed to call undue attention to household stocks; anyway, by 1952 the supply situation had greatly improved.

During the period 1940–49 information concerning incomes of families surveyed was not regularly obtained. Accordingly, fluctuations in social classes[2] from which families were drawn at different times were difficult to detect. The basic sample was drawn from households residing in urban districts judged to be predominately working class in character. The sample of working class households was supplemented in 1944–47 and 1947–48 by a small sample of middle class households and by special inquiries into the position of special groups. Because of postwar difficulties with food supplies and problems of derationing and decontrol, the Survey was continued in its wartime form until 1950. Data from the Survey for 1940–49 were published in November 1951 by the Ministry of Food under the title, *The Urban Working-Class Household Diet, 1940 to 1949* (*12*).

In the words of Dr. Wright, "With the termination of the war and the end of the immediate postwar shortages it became clear that, if the survey was to provide a basis for guidance on food policy that would take into account the changing circumstances of different groups of the population, its scope would need to be widened. Accordingly, in 1950 the coverage was increased in such a way as to furnish records for a complete cross section of the population, and thus to facilitate the pinpointing of any groups whose diet appeared to need attention" (*8*, p. 57).

The broadening of the scope of the National Food Survey to meet British administrators' needs for information about food consumption of the whole population since the easing of postwar shortages is traceable in the series of reports issued for each year since 1949. The 1950 report (*13*) contained expenditure data along with consumption and nutrient content, also sections on seasonal changes, on the household diet of several social classes (see footnote [2]), on diets of house-

[1] Numbers in italics in parentheses refer to Literature Cited, p. 87.

[2] The reports on the National Food Survey use the term "social classes" to represent households grouped by gross income. For example, this statement (*10*, p. 32), "The definition of social class was based on the gross income of the head of the household, the income ranges employed being those introduced in 1953 with the points of subdivision at £6, £9, and £15 per week. . . ." In dollars, these points were about $17, $25, and $42.

The 1950 report defined a working class household as a household whose head earned less than £8 per week ($22.40) or whose head was a manual worker earning less than £13 a week ($36.60) (*13*, p. 92).

holds of different family composition, and comparisons of National Food Survey data for 1950 with prewar survey data collected by the staff of the Rowett Institute in cooperation with the Market Supply Committee, reported by E. M. H. Lloyd (*6*) and by Orr (*7*), and by Crawford and Broadley (*2*). American agricultural economists will place the names Orr and Broadley as Lord Boyd Orr and Sir Herbert Broadley, prominent in the leadership of the Food and Agriculture Organization of the United Nations.

The reports for 1951, 1952, and 1953 carry useful summaries of changes in food supplies and controls, as well as reviews of quantities of major foods and expenditures reported by the 10,000 to 12,000 households completing logbooks each year for the Survey.

In response to the growing interest in regional and urbanization patterns of food consumption, in 1953 the Ministry made separate tabulations of the Scottish part of the sample and of urban and rural households. The published report aroused much interest, especially in the Scottish press. In contrast with United States food expenditure patterns, the Survey showed only about a 10 percent differential between urban and rural households in money outlay for food.

The 1954 report went a step further in separating households in the conurbations [3] from those in other urban areas. The conurbations accounted for almost one-half of the urban households. The 1954 report also introduced data in the percentages of households purchasing each food during the survey week. The report for 1955 (*11*), to be issued this summer, carries a considerable amount of data on (1) income elasticities of food expenditures by reporting households, (2) food expenditures by households differing in composition, and (3) geographical differences in the household diet. These developments in the Survey apparently mark a gradual shift in emphasis from obtaining data for strictly administrative use toward obtaining some marketing information.

[3] "The conurbations, as defined by the Registrars-General, are the largest areas of continuous urban development; their centres are London, Birmingham, Liverpool, Manchester, Newcastle-on-Tyne, Leeds, and Glasgow" (*10*, p. 21).

Current Operation of the Survey

The Survey now purports to cover the entire population, but it actually omits the small fraction of the population living in the island areas and the highlands of Scotland and remote parts of Wales. There still seems to be a problem of underreporting by the upper "social classes," as the Survey refers to income groups.

The Survey is so conducted as to space reporting to be representative of food consumption within each month and each quarter, but the annual averages are simple averages of the four quarters. Data are currently summarized by quarters, some being made available for administrative use within a few months, but published reports still lag considerably. The report for 1953 was published in September 1955. Such a time lag probably has reduced the use of the data for marketing purposes.

Reporting on food purchases and use has never included purchases of sweets and chocolate, ice cream, alcoholic beverages, and most soft drinks, on the assumption that the housewife would probably not know the amounts of these items. It included use of home-produced and home-supplied (home grown and gifts) foods, and use of foods in meals carried out, but not the food content of purchased meals and snacks. But the housewife recorded which meals were eaten in (with menus) and out, as well as who was present at each meal. There has been no measurement of wastage of food in households although conversion factors for nutrient content allowed for inedible portions normally contained in food as purchased. In assessing the adequacy of the diet an arbitrary deduction of 10 percent is made for plate and other wastage.

Sampling Procedure

The technicians in charge of the Survey describe the sample design as "stratified random in three stages."

First stage.—The 613 parliamentary constituencies (after postwar reorganization) have been organized by region and degree of urbanization into 60 groups having approximately equal populations. Attention is given to assuring correct representation of areas of different residential characteristics. The juror index, which contains information on ratable (taxable) value of houses,

is used to stratify by social (income) class for England and Wales, but less adequate data are available for Scotland. From each of 60 groups a parliamentary constituency is selected randomly with probability proportional to the electorate.

Second stage.—Within the selected 60 constituencies, four polling districts are selected on a stratified, random basis for the quarter. Effort is made to obtain the correct proportion of urban and rural households and to design the best possible sample for the 3-month period by spacing the polling districts out over the quarter.

Third stage.—Addresses are selected from the electoral register for each selected polling district at constant intervals from the randomly chosen starting point. The quarterly sample consists of 2,500 to 3,000 households. Sampled addresses are removed permanently from the registers and polling districts are not resampled for several years. Accordingly, it is possible for a family to reappear in the sample only if it has moved.

Handling of substitutions has been revised since the Social Survey Division of the Central Office of Information took over the task from an outside firm. Formerly, secondary choices were permitted; now a much greater effort is made to get response from the primary sample—this includes night interviewing. These procedures apparently are reducing the overrepresentation of households with young children and of those of elderly retired people in the final sample.

In 1954, 20,400 addresses were visited and 11,570 completed logbooks were obtained, an effective response rate of 57 percent.[4] The proportion of children under 14 was about 25 percent in the 1954 sample, compared with 28 percent in 1950; the 1951 Census figure was about 21 percent.

Fieldwork and Processing

Until 1952 the fieldwork of the Survey was carried on by women investigators employed by an independent firm, the London Press Exchange. Since 1952 it has been the responsibility of the Social Survey Division.

Interviewing is systematically organized to have the sample represent food consumption throughout a given quarter. Each interviewer is allocated 20 addresses for placing logbooks during the first 3 days of a 10-day period. An introductory letter is sent to each address. The investigator calls, obtains preliminary information, and introduces and explains the logbook. (The contact rate is up to 95 percent.) She revisits the house at least twice during the survey week, more often if necessary. At the end of the week, the investigator reviews the logbook with the housewife, checking food purchases and other acquisitions against menus reported. About 60 percent of housewives actually interviewed complete logbooks.

Statisticians in charge of the field work believe that they reduce interviewer errors and bias by systematically shifting investigators to work on other surveys. The present sampling and response rates yield 11,000 to 12,000 completed logbooks a year. Logbooks are edited and processed by the Social Survey Division in London.

Calculations of nutrient content are made from quantity data, using conversion factors, a few of which are varied in the course of a year. In the process of making comparisons of the level of consumption per person per day of major nutrients with requirements, there is special weighting of meals (breakfast—4; dinner—5; tea—3; supper—2). British weighting differs from ours—under United States Institute of Home Economics procedure, equal weighting of the 3 meals is used.

Types of Data Obtained and Their Uses

In each household surveyed, the housewife records in the logbook the purchases, for one week, of all food—certain categories excepted—and all food entering the household without payment, from home production, allotments, and gifts. She also records a brief description of each meal served (breakfast, dinner, tea, supper, or other variation) and lists the meals taken outside by any member of the family.

She reports age, sex, and occupation of each member of the household, and notes the approximate age of visitors who take meals during the week indicating whether they are male or female. The household includes all persons for whom the housewife catered. Each person is counted as a

[4] The response rate in the U. S. Survey of Household Food Consumption in the spring of 1955 was 89 percent. However, the U. S. survey relied on recall by the respondents during 2-hour interviews. How buying habits affect survey techniques is discussed in the last section of this article.

member of the household if he eats at least 16 meals at home during a survey week—tea is counted as a meal. Persons who eat less than 16 meals are recorded as visitors.

The interviewer records (1) net incomes of all members of households (since 1952); (2) information on tenancy of dwelling; (3) participation in special milk and Welfare food programs; (4) usage from household food stocks of selected home-produced items; and (5) home food production. In addition, occasionally, other data are included.

In somewhat more detail, the following types of data are available from the Survey:

1. Average food use per head per week in each quarter is derived by summing quantities of (a) foods purchased; (b) home production in period for current use; (c) usage of home-produced stocks of a few items, such as jams, potatoes, eggs, and home-canned fruit; and (d) gifts from employers or from sources outside the United Kingdom (thus excluding interhousehold gifts). These data cover home consumption only, but they do include food carried from home. They exclude all sweets, mineral waters, and alcoholic beverages, as well as meals and snacks purchased away from home.

The nutrient content of the diet per person per day is calculated from these food use data and tabulated each quarter by social class, household type, and, occasionally, according to other special classifications.

2. Food expenditure per head per week is tabulated and the total value of food consumed calculated by adding to the reported costs of food purchased the computed values of home-produced and gift food.

3. Food prices for more than 100 food groups are derived from expenditure and quantity data, thus reflecting shifts among price lines as well as price changes per se. An index of food prices is computed from these data, using the Fisher Ideal Formula.

4. Number of meals eaten outside the home, which meals, and by whom are reported. The normal pattern is assumed to be 4 meals a day—breakfast, dinner, tea, and supper.

5. Income data. Before 1952 the only income data obtained (and not even those regularly during the war) pertained to gross income of the head of the family. These data were used principally to divide households into four broad "social classes." From 1952 to the present time the Survey has included questions on the total net family income from all sources after payment of income taxes. The Ministry analysts have found considerable underreporting of income, as have U. S. analysts. Former reliance on gross income of head of family apparently stemmed from the belief that the chief earner's level of income controls the food pattern of the family.

6. Information on household composition is obtained in detail and used for grouping households into homogenous categories for analytical purposes, particularly for nutrition studies.

7. Supplementary information is usually reported on use of Welfare foods and of milk which was obtained under special milk programs sponsored by the Government.

Uses of Data

Data from the National Food Survey have been used principally for administrative and parliamentary purposes. The Survey has provided information on the net effects at the consumer level of changes in total supplies, distribution patterns, rationing procedures, and price changes. When the food situation was particularly stringent, changes in monthly consumption rates were watched and compared with public reactions in the press and in Parliamentary Questions to determine critical levels. The Survey data thus provided an indication of needed changes in administrative regulations to even out the distribution of short supplies. Another use of data on nutrient content of the average diet and of the diet of vulnerable groups in the population was to indicate the need for certain policies relating to nutrition—for example, the enrichment or fortification of foods with synthetic nutrients.

The operation of the Survey during World War II has been criticized by R. J. Hammond, historian of British wartime food policies and administration, on the ground that its principal emphasis was on arithmetical averages of consumption by the reporting households, such averages being the least sensitive index of food welfare or the success of food control measures (*4*, p. 226). Hammond regretted the failure to make available to administrative officials a picture of deviations, for one reason or another, from such averages, and thereby to throw a real light on inequalities of distribution and differences in food habits.

During the period of decontrol and derationing, housewives were asked in connection with the Survey how much more of particular foods they would buy if available. Their replies proved to be much more reliable indicators of what consumers would buy if they had the opportunity than any other type of guide or demand estimate, according to members of the Ministry staff.

Analytical uses of the data include studies of the effects of income differences on food expenditures and on consumption—the usual income-expenditure and income-consumption elasticities—and on the intake of major nutrients. The objective was to provide the basis for judging whether supplementary family allowances would

increase the takings of nutrients considered to be relatively short in diets of certain groups. J. A. C. Brown, formerly in charge of the analysis of the Survey—now on the staff of the Department of Applied Economics at Cambridge University—used the Survey data in two econometric studies, "Economics, Nutrition and Family Budgets" (*8*, pp. 63–70), and "The Consumption of Food in Relation to Household Composition and Income" (*3*).

Two articles by current members of the staff of the Ministry illustrate other uses of the data. A. H. J. Baines and Dorothy F. Hollingsworth wrote "The Diets of Elderly People Living Alone" (*8*, pp. 77–80) and Evelyn H. Gibson, W. L. Readman, and Grace M. Warnock prepared the article "Food and Family Size" (*8*, pp. 80–92).

Until late 1955 there appears to have been only limited use of the Survey data for marketing research within the Ministry, in other Government agencies, or by commercial agencies. Some of this difference in emphasis compared with the widespread use of the Department of Agriculture's household food surveys and time series data on food consumption for marketing research was doubtless due to the continuation of Government controls over food distribution and prices up to 1954.

Even in 1955 the United Kingdom was still faced with balance of payments problems in supplying demand for higher quality foods, although food supplies in terms of food energy content were as high as in the United States. In contrast, as shown by tables 2, 3, and 4, the United States has abundant food supplies, largely from domestic output, as well as great purchasing power. Utilizing our food supplies is our problem. Food consumption analysts in Britain are preoccupied with family size and composition and differential allowances, whereas our analysts are absorbed in marketing research, seeking means of disposing of all we produce.

Comparability of Survey Data With Other Types of Data

Without extensive research it would be impossible to reach an independent judgment of the comparability and accuracy of the Survey data. Instead, opinions of a number of informed people were obtained—statisticians responsible for making the Survey, for reviewing and analyzing the Survey data, for developing food disappearance data; information specialists; and some economists outside the Government. The opinions given may be summarized as follows:

1. Market research firms have made independent checks of the Survey data and found them generally accurate.
2. Any close matching of Survey and disappearance data was impossible, but year-to-year movements usually were broadly reconcilable. This was to be expected during the period of strict rationing and distribution control.
3. Since decontrol and derationing, comparison of Survey and disappearance data has become more difficult. New bases for estimating disappearance of several major foods have had to be developed. As in the United States, there is no way of estimating the quantities of foods consumed outside households, as in eating places.
4. In recent years, the biases in the Survey data have been materially reduced, such as overrepresentation of households with young children and of households with elderly people and underrepresentation of younger 2-person households and of households of the upper social classes. But the free market situation now makes possible wide variations in consumption rates.

Notes on U. K. Food Consumption, 1940–55

Adequate appraisal of data on food consumption in the United Kingdom, 1940–55 (tables 1 and 2), calls for extended research and for far greater knowledge than I possess. But the story back of the data is so dramatic, and so little of it is known in the United States, that I venture a brief description of the changes and a summary of the discussion of the factors back of them contained in the official reports on the National Food Survey. For additional and more precise information, readers are referred to the reports, which may be obtained from the British Information Services in New York, or to the fascinating volumes by R. J. Hammond, *Food: The Growth of Policy* and *Food: Studies in Administration and Control* (*4*, *5*).[5]

The Food Situation, 1940–49

Before World War II the United Kingdom imported more than half of its food supplies—the United States imported less than 10 percent. Early in the war the British Government began a drive to expand domestic production of food with emphasis on the production and consumption of milk, grain products, potatoes, and vegetables. The food supply figures for prewar years and 1941 (table 2) show how sharply the war emergency

[5] Volume I was reviewed by Gladys Baker in this journal, July 1952.

TABLE 1.—*Domestic (at home) food consumption by households in the United Kingdom* [1]

[In ounces per person per week (except where noted)]

Commodity group	Urban working-class households							
	1941 [2]	1942	1943	1944	1945	1946	1947 [3]	1948 [4]
Total dairy products (equiv. pt.)	3.9	4.4	4.8	4.8	4.8	4.7	4.7	4.6
Milk and cream (equiv. pt.)	3.5	3.8	4.3	4.4	4.4	4.4	4.4	4.4
Cheese	1.9	3.6	3.1	2.6	2.5	2.5	2.3	1.9
Meat, game, poultry, fish	33.2	32.9	32.8	36.1	35.5	37.2	35.1	32.8
Meat, game, poultry	27.5	26.3	26.2	28.4	26.3	26.7	25.5	23.0
Fish	5.7	6.6	6.6	7.7	9.2	10.5	9.6	9.8
Eggs (No.)	1.4	1.4	2.2	2.9	3.0	2.5	2.3	2.3
Fats	8.5	8.7	8.8	9.3	8.7	8.3	7.8	8.9
Sugar and preserves [5]	12.6	13.3	13.9	15.2	14.6	15.0	15.7	15.5
Tomatoes and fruit [6]	7.7	12.2	12.7	13.9	15.9	15.7	21.7	22.8
Potatoes	69.4	68.5	71.2	71.4	68.5	73.8	70.9	66.0
Vegetables	29.9	31.4	34.6	37.3	36.4	34.6	30.8	32.7
Grain products [7]	86.6	81.5	81.3	83.3	85.5	82.5	83.9	89.8

Commodity group	Urban working-class households		All households					
	1949	1950	1950	1951	1952	1953	1954	1955
Total dairy products (equiv. pt.)	5.1	5.4	5.6	5.7	5.5	5.5	5.6	5.6
Milk and cream (equiv. pt.)	4.8	5.0	5.2	5.2	5.1	5.1	5.1	5.1
Cheese	2.2	2.4	2.5	2.8	2.2	2.5	2.9	2.8
Meat, game, poultry, fish	31.1	33.9	36.4	34.4	36.5	38.6	39.4	40.4
Meat, game, poultry	22.7	27.2	29.8	26.7	29.0	32.3	33.8	34.4
Fish	8.4	6.7	6.6	7.7	7.5	6.3	5.7	6.0
Eggs (No.)	2.9	3.4	3.5	2.8	3.0	4.0	4.3	4.2
Fats	10.7	11.5	11.6	10.9	9.8	10.5	11.7	11.9
Sugar and preserves [5]	17.1	15.9	16.4	17.4	17.0	18.7	21.1	21.7
Tomatoes and fruit [6]	22.4	20.8	22.9	27.0	25.4	26.5	25.5	27.1
Potatoes	68.9	65.8	64.2	64.2	65.9	64.2	63.2	61.2
Vegetables	31.0	28.7	29.7	32.5	32.6	32.7	30.4	30.7
Grain products [7]	85.4	80.5	81.7	83.9	85.9	82.8	80.7	80.0

[1] From National Food Survey of the United Kingdom. For 1942–1949 includes purchased foods, supplies obtained free for home consumption and withdrawals from larger stocks. Excludes sweets, ices, alcoholic and some soft drinks and meals purchased away from home, also Welfare foods distributed by the Government except Welfare and School milk. Data for 1941–49 from First Report, (*12*, pp. 20, 58); 1950, working class from 1950 Report (*13*, p. 109); 1950–51, all households, 1951 Report (*14*, p. 13); 1952, from 1953 Report (*9*, p. 16); 1953–54, from 1954 Report (*10*, p. 15); and 1955, from table 49 of 1955 Report (*11*). Minor revisions have been made with the assistance of the Survey statisticians.

[2] Purchases.

[3] Averaged over 9 months.

[4] Averaged over 10 months.

[5] Excludes sweets and soft drinks.

[6] Includes nuts.

[7] Includes bakery products.

cut into civilian supplies of imported foods—fruit, meat, sugar, pulses (dry beans and peas) and nuts, eggs, and fats. ". . . by the end of 1941, the pattern of rationing, price control, and food supplies was set in the lines which it was to retain, with comparatively unimportant changes, for the remainder of the war. . . ." (*12*, p. 10.) In the latter part of 1941, substantial lend-lease shipments of food from the United States were reaching Britain.

"During 1942," the First Report continues, "supplies of food increased both in quantity and quality. The most critical period of the war, so far as the diet was concerned, was over." With lend-lease and wartime domestic production programs in operation, note the general increase in consumption of most foods from 1941 to 1944, then the fall in meats, fats and potatoes from 1944 to 1945. (A glance at table 3 reveals concurrent movements in U. S. supplies from 1944 to 1945.)

TABLE 2.—*Food supplies moving into consumption in the United Kingdom* [1]

[Pounds per capita per year]

Commodity	Prewar (1934–38)	1941	1942	1943	1944	1945	1946	1947
Dairy products (milk solids)[2]	38. 3	40. 7	48. 6	50. 0	49. 0	49. 8	49. 4	49. 0
Meat, fish, game, poultry	142. 7	105. 6	110. 1	108. 0	119. 5	114. 4	124. 7	120. 3
Meat (edible wt.)	110. 0	85. 6	89. 6	86. 4	96. 1	86. 6	90. 2	83. 2
Fish, game, poultry (edible wt.)	32. 7	20. 0	20. 5	21. 6	23. 5	27. 8	34. 5	37. 1
Eggs and egg products (shell egg equiv.)	28. 3	25. 4	25. 1	25. 6	26. 8	30. 4	26. 1	24. 9
Oils and fats (fat content)	46. 9	41. 7	41. 1	39. 1	40. 5	38. 4	36. 8	36. 0
Sugar and syrup (sugar content)[3]	104. 6	69. 2	69. 4	69. 1	73. 7	69. 9	79. 3	84. 1
Tomatoes and fruit [4]	137. 4	59. 7	94. 2	77. 9	93. 6	90. 9	108. 5	131. 1
Potatoes [5]	181. 9	188. 2	224. 9	248. 8	274. 6	260. 2	281. 2	285. 9
Vegetables [6]	107. 0	109. 0	119. 7	117. 0	124. 8	127. 0	123. 5	118. 0
Grain products	210. 1	257. 2	245. 7	248. 9	252. 8	258. 0	237. 2	241. 7
Pulses and nuts	9. 5	7. 5	6. 1	6. 0	6. 8	6. 3	6. 5	8. 0
Tea	9. 3	8. 1	8. 2	7. 0	7. 4	8. 2	8. 8	8. 5
Coffee	. 7	1. 2	1. 2	1. 0	1. 2	1. 2	1. 4	1. 6

Commodity	1948	1949	1950	1951	1952	1953	1954	1955
Dairy products (milk solids)[2]	49. 2	52. 7	54. 3	54. 8	51. 5	52. 3	52. 5	52. 2
Meat, fish, game, poultry	112. 1	109. 8	122. 9	106. 6	112. 8	119. 0	129. 8	136. 3
Meat (edible wt.)	75. 4	75. 4	95. 8	76. 5	84. 6	93. 4	104. 3	110. 4
Fish, game, poultry (edible wt.)	36. 7	34. 4	27. 1	30. 1	28. 2	25. 6	25. 5	25. 9
Eggs and egg products (shell egg equiv.)	25. 7	28. 3	31. 4	27. 6	27. 6	28. 1	29. 4	29. 5
Oils and fats (fat content)	40. 9	47. 3	47. 7	49. 5	45. 1	45. 6	48. 7	48. 2
Sugar and syrup (sugar content)[3]	85. 6	94. 9	86. 5	95. 5	90. 7	100. 4	108. 6	111. 2
Tomatoes and fruit [4]	136. 9	132. 9	126. 5	131. 5	123. 3	133. 4	145. 9	140. 8
Potatoes [5]	238. 9	258. 3	246. 4	239. 6	237. 8	222. 4	221. 9	223. 3
Vegetables [6]	125. 2	108. 9	105. 7	109. 6	100. 7	107. 0	104. 8	101. 2
Grain products	250. 2	240. 5	222. 8	221. 1	219. 5	208. 4	202. 1	196. 4
Pulses and nuts	6. 1	9. 3	11. 2	10. 3	9. 4	10. 6	12. 2	11. [illegible]
Tea	8. 0	8. 3	8. 5	8. 1	8. 5	9. 5	9. 7	9. [illegible]
Coffee	1. 7	1. 8	1. 5	1. 7	1. 5	1. 3	1. 3	1. 3

[1] Civilian consumption for the years 1941–47, for other years figures relate to consumption of the total population. Data for prewar from p. 6 of 1952 Report (*15*); for 1941–45, 1946–49 from pp. 16 and 55 of First Report of the National Food Survey Committee (*12*); for 1950–52 from p. 6 of 1952 Report (*15*); 1953 from p. 6 of 1953 Report (*9*); and 1954 from p. 3 of 1954 Report (*10*). Figures have been amended in detail by the Ministry of Agriculture, Fisheries and Food in the light of later information and to conform to later published data.

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The supply situation for fish and for foods imported from countries other than the United States changed completely from 1945 to 1946.

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Fortunately, signs of a return to prewar food patterns began to appear in 1948. Increasing supplies of fish, eggs, fats, preserves, bacon and tea, as well as milk were available to British consumers. Short supplies of meat and sugar continued, reflecting world shortages.

Although food supplies continued to expand in 1949, except for meat and fish, increases in world food prices were creating serious difficulties for the British Government. Rather than increase food subsidies still further, retail prices of cheese, meat, butter and margarine were permitted to rise.

TABLE 2.—*Food supplies moving into consumption in the United Kingdom* [1]

[Pounds per capita per year]

Commodity	Prewar (1934–38)	1941	1942	1943	1944	1945	1946	1947
Dairy products (milk solids)[2]	38. 3	40. 7	48. 6	50. 0	49. 0	49. 8	49. 4	49. 0
Meat, fish, game, poultry	142. 7	105. 6	110. 1	108. 0	119. 5	114. 4	124. 7	120. 3
Meat (edible wt.)	110. 0	85. 6	89. 6	86. 4	96. 1	86. 6	90. 2	83. 2
Fish, game, poultry (edible wt.)	32. 7	20. 0	20. 5	21. 6	23. 5	27. 8	34. 5	37. 1
Eggs and egg products (shell egg equiv.)	28. 3	25. 4	25. 1	25. 6	26. 8	30. 4	26. 1	24. 9
Oils and fats (fat content)	46. 9	41. 7	41. 1	39. 1	40. 5	38. 4	36. 8	36. 0
Sugar and syrup (sugar content)[3]	104. 6	69. 2	69. 4	69. 1	73. 7	69. 9	79. 3	84. 1
Tomatoes and fruit [4]	137. 4	59. 7	94. 2	77. 9	93. 6	90. 9	108. 5	131. 1
Potatoes [5]	181. 9	188. 2	224. 9	248. 8	274. 6	260. 2	281. 2	285. 9
Vegetables [6]	107. 0	109. 0	119. 7	117. 0	124. 8	127. 0	123. 5	118. 0
Grain products	210. 1	257. 2	245. 7	248. 9	252. 8	258. 0	237. 2	241. 7
Pulses and nuts	9. 5	7. 5	6. 1	6. 0	6. 8	6. 3	6. 5	8. 0
Tea	9. 3	8. 1	8. 2	7. 0	7. 4	8. 2	8. 8	8. 5
Coffee	. 7	1. 2	1. 2	1. 0	1. 2	1. 2	1. 4	1. 6

Commodity	1948	1949	1950	1951	1952	1953	1954	1955
Dairy products (milk solids)[2]	49. 2	52. 7	54. 3	54. 8	51. 5	52. 3	52. 5	52. 2
Meat, fish, game, poultry	112. 1	109. 8	122. 9	106. 6	112. 8	119. 0	129. 8	136. 3
Meat (edible wt.)	75. 4	75. 4	95. 8	76. 5	84. 6	93. 4	104. 3	110. 4
Fish, game, poultry (edible wt.)	36. 7	34. 4	27. 1	30. 1	28. 2	25. 6	25. 5	25. 9
Eggs and egg products (shell egg equiv.)	25. 7	28. 3	31. 4	27. 6	27. 6	28. 1	29. 4	29. 5
Oils and fats (fat content)	40. 9	47. 3	47. 7	49. 5	45. 1	45. 6	48. 7	48. 2
Sugar and syrup (sugar content)[3]	85. 6	94. 9	86. 5	95. 5	90. 7	100. 4	108. 6	111. 2
Tomatoes and fruit [4]	136. 9	132. 9	126. 5	131. 5	123. 3	133. 4	145. 9	140. 8
Potatoes [5]	238. 9	258. 3	246. 4	239. 6	237. 8	222. 4	221. 9	223. 3
Vegetables [6]	125. 2	108. 9	105. 7	109. 6	100. 7	107. 0	104. 8	101. 2
Grain products	250. 2	240. 5	222. 8	221. 1	219. 5	208. 4	202. 1	196. 4
Pulses and nuts	6. 1	9. 3	11. 2	10. 3	9. 4	10. 6	12. 2	11. 5
Tea	8. 0	8. 3	8. 5	8. 1	8. 5	9. 5	9. 7	9. 4
Coffee	1. 7	1. 8	1. 5	1. 7	1. 5	1. 3	1. 3	1. 3

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TABLE 3.—*Food supplies moving into civilian consumption in the United States*

[Pounds per capita per year]

Commodity group	Prewar (1935–39)	1941	1942	1943	1944	1945	1946	1947
Dairy products (milk solids) [1]	57.4	60.1	64.2	66.0	66.8	71.4	72.7	69.0
Meat, game, poultry, fish	142.2	161.2	159.4	171.1	176.5	170.4	175.5	173.4
Meat (edible wt.)	112.4	128.1	126.3	133.8	141.0	131.7	138.2	138.2
Fish, game, poultry (edible wt.)	29.8	33.1	33.1	37.3	35.5	38.7	37.3	35.2
Eggs (shell eq.)	36.4	37.7	38.1	41.6	42.5	48.3	45.5	46.8
Oils and fats (fat content)	45.4	47.6	44.9	42.0	40.9	39.1	40.0	42.0
Sugar and syrup (sugar content) [2]	108.1	116.3	98.0	95.8	104.2	88.9	90.3	110.9
Tomatoes and fruit [3]	285.1	310.9	289.3	270.1	312.5	324.6	346.1	325.0
Potatoes and sweetpotatoes [4]	147.0	142.8	142.4	142.4	152.5	136.4	136.9	137.1
Vegetables [4]	191.1	196.7	204.7	202.5	207.1	218.5	213.6	200.4
Grain products	203.9	199.2	200.7	208.2	190.6	201.0	192.1	173.0
Pulses and nuts [5]	18.6	18.8	22.3	20.3	20.0	19.3	19.0	16.5
Tea	.7	.8	.5	.5	.5	.5	.6	.6
Coffee	11.8	13.4	11.4	10.8	13.3	13.8	16.9	14.6
	1948	1949	1950	1951	1952	1953	1549	1955
Dairy products (milk solids) [1]	66.3	66.2	66.6	66.3	67.3	66.3	67.3	67.9
Meat, game, poultry, fish	165.0	166.0	168.8	164.4	171.8	178.4	179.2	183.7
Meat (edible wt.)	129.5	128.7	128.8	123.4	130.2	137.1	136.3	143.4
Fish, game, poultry (edible wt.)	35.5	37.3	40.0	41.0	41.6	41.3	42.9	40.3
Eggs (shell eq.)	47.8	47.4	48.5	49.2	49.2	47.8	47.4	46.8
Oils and fats (fat content)	42.6	42.6	45.9	42.1	44.1	44.1	45.4	45.5
Sugar and syrup (sugar content) [2]	105.5	107.1	112.7	105.3	109.0	108.6	106.6	107.9
Tomatoes and fruit [3]	312.3	303.5	286.0	298.6	294.6	297.7	290.9	295.4
Potatoes and sweetpotatoes [4]	114.0	119.1	114.9	117.8	107.1	112.2	112.2	113.9
Vegetables [4]	195.3	186.2	186.1	182.7	181.5	178.9	176.0	175.2
Grain products	170.2	169.3	167.3	165.1	161.8	157.9	155.2	152.1
Pulses and nuts [5]	17.2	16.3	18.5	17.1	16.9	16.2	16.3	15.6
Tea	.6	.6	.6	.7	.6	.7	.7	.6
Coffee	15.5	15.7	13.6	13.9	14.2	14.2	12.4	12.9

[1] Excludes butter.
[2] Includes sugar used for processed food products.
[3] Fresh equivalent, including home-produced tomatoes and melons.
[4] Fresh equivalent, including home-produced.
[5] Includes home-produced dry beans and peas.

Some Commodity Highlights, 1940–49

The published reports on the Survey contain much commodity detail and quarterly figures which show the swings in the British food supply position more clearly than annual data. Following are some commodity highlights that may interest agricultural economists in this country.

Look first at milk products. The figures in both table 1 and table 2 show the results of the domestic milk production program, controls over manufacturing and distribution, subsidy programs, and the contribution of lend-lease evaporated and dry milk. In 1941 we shipped 490 million pounds of evaporated milk to the United Kingdom for civilians and the British Services, and more than 200 million each year from 1942 to 1944, excluding shipments to the British Services stationed outside the United Kingdom. The cheese consumption figure for 1942 in table 1 shows the impact of the 282 million pound shipment from the United States under lend-lease that year. Cheese supplies were cut back at the end of lend-lease, then recovered some under the postwar programs of imports from the United States and other countries, and after 1949 with increased domestic output.

Domestic production of meats was reduced early in the war, as emphasis was put on milk production. The extent of dependence on lend-lease supplies and on those imported from Argentina is indicated by the fall in the consumption rate under the dollar shortage of 1947–49, and then again in 1951.

Although the United States shipped large quantities of canned fish under lend-lease to the United Kingdom and British Services Overseas,

most of the improvement in civilian fish consumption after 1941 came from fish supplied with the determined efforts of British fisherman despite the war demands on their personnel and equipment and the intensive war activity all around the Islands. The annual figures in table 1 for 1944 to 1946 conceal much of the dramatic upsurge in supplies after V–E in 1945.

Shell egg supplies were cut to less than half the prewar rate in 1943 and 1944. Nonpriority consumers got one per month in the winter and one or two per week during the spring flush season. Dried eggs from the United States were the rather unappetizing but saving grace. By 1944 two-thirds of the total consumption of eggs by households in the Survey was in dried form. The reductions in egg consumption in 1947 and 1948 reflect the reduction in imports of dried eggs although by 1948 domestic production was increasing and shell eggs were coming in from the Continent. (In the retail stores, eggs are featured as English or Danish.)

Imports of fats for civilian use were reduced during the war even though substantial quantities moved under lend-lease. Note the reflection of the world fat shortage in 1946 and 1947.

Importation of fresh and canned fruit for civilian consumers ceased after 1940, except for occasional supplies of oranges which went to children and expectant mothers. Imports of dried fruit, much from the U. S., were maintained at the prewar level because they were economical of shipping space in comparison to their food value. Domestic fruit production was difficult to step up although tomato output went up some. (The Survey handling of tomatoes with fruit reflects the nutritionists' point of view.) After the end of the war, supplies of fresh fruit and tomatoes were among the first to expand.

Commercial output of vegetables, including potatoes, was increased. By 1944 potato acreage was double that of 1939. Potatoes made a substantial contribution to the diet, providing 40 to 50 percent of the vitamin C (ascorbic acid). Supplies of fruits and vegetables from home gardens and allotments were an important part of the total consumption of these commodities by the households reporting in the Survey. In 1943 19 percent of the households' fresh fruits and fresh vegetables, other than potatoes, came from so-called "free supplies."

"It was a fundamental part of the wartime food policy to ensure that sufficient bread was available to compensate for shortages in the diet and to achieve this without recourse to rationing . . ." (*12*, p. 35.) To fulfill this policy, wheat acreage was increased, the extraction rate was raised to over 80 percent, and large quantities of flour were brought in from the United States and Canada. Bread consumption did go up, but there were somewhat greater decreases in flour, according to the National Food Survey Committee, because of the outside employment of housewives and the shortage of fats and sugar. Also, bread was subsidized more than flour. Purchases of cakes (not sweet ones like ours), buns, and scones increased. The impact of the worldwide grain shortage in 1946 dealt a severe blow to the British food administration people. They had to raise the flour extraction rate to 85 percent and institute bread and flour rationing in July 1946. It continued until mid-1948.

The fall in sugar imports with the advent of the war cut supplies for British consumers back to 65 or 70 percent of prewar. Then when shipping became available, United Kingdom supplies were held down first by the world supply shortages, then by dollar shortages.

Major Developments, 1950–54

Let us move on to a brief survey of the United Kingdom's food picture in the more recent postwar years. In 1950 came marked improvement in the variety and palatability of food supplies and trend away from the bulkier foods, the relatively high wartime level of vegetable consumption, and the heavy fish consumption of early postwar years. Dairy products, eggs, and fats became more plentiful. The meat outlook looked much brighter as domestic output increased 20 percent, but darkened later in the year with the cessation of Argentine shipments. Relaxation of many controls began but was stopped in midyear by the Korean crisis.

The Korean crisis brought some reduction in ration levels and higher prices in 1951. Balance of payment difficulties and unfavorable terms of trade reduced the imports of meats and shell eggs. Fish consumption rose fairly sharply in 1951 when meats were particularly short.

The following year the trend toward decontrol of food distribution was resumed. Supplies of

TABLE 4.—*United Kingdom civilian supplies of food energy, protein, and fat in selected years, per head per day*

Nutrient	Unit	Average 1934–38 [1]	1941 [1]	1944 [1]	1947 [1]	1950 [1]	1954 [2]	1955 [3]
Total calories [4]	No.	3,000	2,820	3,010	2,880	3,050	3,130	3,120
Protein:								
Animal	Gm.	43.5	35.7	41.4	44.6	46.6	46.3	47.4
Vegetable	Gm.	36.8	46.7	45.7	46.2	42.2	35.9	35.0
Fat	Gm.	130.0	113.4	124.0	106.3	131.2	136.0	137.3

[1] Ministry of Food Bulletin No. 720, 19th September 1953.
[2] Board of Trade Journal, 11th August 1956.
[3] Economic Survey 1957. (H. M. S. O. Cmnd. 113.)
[4] British system of calculating food energy seems to yield totals about 100 calories below U. S. system. U. S. calorie figures ran 3,300 to 3,400 during the war and 3,200–3,300 since 1946.

meat, especially bacon, increased, and tea was derationed. Butter and cheese supplies were still unsatisfactory because of deterioration in the balance of payments position. This close tie-in of the food economy with Britain's international financial position is so very different from the U. S. food situation that it seems like an academic exercise in international economics to an American agricultural economist, but it is all too real to the British housewife.

As the balance of payments situation improved in 1953, and world prices declined, imports of meat, sugar, fresh fruit, and vegetables rose. Note in table 1 how fish consumption went down when meats went up after 1951, also the reduction in cereal products and potatoes. The trend toward prewar food patterns continued, except for the higher level of milk consumption, less fish, and the retention of the butter-margarine shift. During the year 1953 came relaxation of rationing control over the distribution of eggs, sugar, fresh meat and bacon—in part of the year—and cheese. Restrictions on flour milling were removed.

Consumption of all main food groups except cereals, potatoes, and other vegetables increased further in 1954. Demand for cereals and potatoes was falling and vegetable supplies were reduced by unfavorable weather. At last rationing was stopped—with the termination of controls over distribution of meat, cheese, and fats. But nutritionists were not as pleased with record fat consumption as consumers were.

The year 1955 was the first full year without food rationing. Bread and milk were still subsidized and subject to price control. Demand for all other major foods operated in a free market situation for the first time since 1939. For most foods, the changes in consumption rates from 1954 to 1955 were small. Notable exceptions were the 6 percent increase in meat, a slight further rise for sugar and sirups and decline for grain products.

Nutrient Supplies

The reports on the Survey contain evaluations of the situation for each major nutrient year by year. Nutrient supply data calculated from average per capita consumption of all foods are given in table 4.

Supplies of food energy, measured in calories per head per day, were down to 93 percent of the prewar level in 1940 and 1941, stayed at 5 percent below prewar in the next 2 years, rose to prewar level in 1944, then fell slightly in 1945. Flour, bread, and potatoes were important in maintaining the energy value of the food supply.

The per capita supply of animal protein in 1940 fell to 90 percent of the prewar level, and dropped to 82 percent in 1941, followed by a recovery after the arrival of lend-lease supplies. Increased consumption of bread and potatoes kept the total supply of protein above prewar, as shown in table 4.

Fat consumption ran 89 percent of prewar in 1942–45, fell off during the postwar years of world shortage of fats, then rose to new highs.

According to Hammond, "There were dramatically sharp rises, after 1942, in the supplies of minerals, particularly calcium and iron, and vitamins of the B group . . .; calculated rises in vitamin A and ascorbic acid (vitamin C) should perhaps be regarded with greater caution on account of the uncertainties of vegetable supply statis-

TABLE 5.—*Per person use of selected foods in United Kingdom and United States households at home, in a week, spring 1955* [1]

[In ounces except where noted]

Commodity	United Kingdom		United States	
	All	Urban	All	Urban
Fresh fluid milk, pint	[2] 5.8	[2] 5.8	6.6	6.5
Whole milk only, pint	[2] (5.8)	[2] (5.8)	6.0	5.9
Cheese, all	2.7	2.6	5.1	5.4
All meat, poultry, game	35.3	35.2	59.8	63.4
Poultry	.5	.4	11.3	12.5
All fish	5.9	6.2	6.3	6.6
Eggs, number	4.6	4.5	7.4	7.0
Fats and oils [3]	11.7	11.6	11.8	10.7
Butter	4.4	4.4	3.2	3.2
Margarine	4.6	4.6	3.2	3.2
Sugars	17.1	17.1	13.2	11.3
Sirups and preserves	4.3	4.1	4.9	3.9
Tomatoes and fruit:				
Fresh tomatoes	21.0	21.5	5.7	5.9
Fresh fruit			45.7	46.7
Processed (product weight)	6.5	6.3	23.0	26.4
Total	27.5	27.8	74.4	79.0
Potatoes and sweetpotatoes, including processed	58.3	59.3	29.9	27.2
Fresh green vegetables	13.4	13.2	23.5	23.4
Other vegetables (product weight)	13.9	14.4	28.2	29.7
Total	27.3	27.6	51.7	53.1
Grain products:				
Bread, rolls, etc	55.4	54.1	25.8	27.3
Flour (including mixes)	8.7	8.1	15.7	10.1
Cakes and other sweet goods except cookies	5.9	6.2	4.3	5.2
Cookies (English biscuits)	5.0	5.2	2.1	2.1
Other	5.4	5.5	12.5	10.4
Beverages:				
Tea	2.8	2.9	.4	.2
Coffee	.3	.3	3.8	4.1
Cocoa and chocolate	.2	.2	.3	.3

[1] United Kingdom data actually purchases (plus home-produced supplies) but approximate use—from tables 9 and 49 of the 1955 Report (*11*). United States data from Household Food Consumption Survey Report No. 1.

[2] Converted to American pints. Includes about ½ pint of school milk. Includes very little nonwhole milk.

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tics. Generally speaking, and on an average, that is to say, the diet theoretically available to the British civilian was not only maintained but actually improved during the war" (*4*, p. 369).

Comparison of Survey and Disappearance Data

As noted in the section on comparability of Survey data, though direct and precise comparisons are impossible, the two sets of data are broadly reconcilable.

Besides the complication that the disappearance or per capita consumption figures include the total flow of food supplies into households, into all kinds of eating places, and into processing of prepared foods, the Survey data for 1942–49 covered only urban working class households. Moreover, the National Food Survey Committee in its first report noted some upward movement in social class in the samples for 1944 and 1945. Study of the two sets of data indicates that the Survey probably did reflect the changes in food consumption of 80 percent of the population, as its technicians claim. The degree to which the data from two completely different sources matched during the years of food control reflects (a) the leveling-down effect of food restrictions on food consumption by higher income classes, and (b) the leveling-up effect of wartime expansion in purchasing power of workers on their food consumption.

Even though the average consumption rates for urban working class and all households came

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All meat, poultry, game	35.3	35.2	59.8	63.4
Poultry	.5	.4	11.3	12.5
All fish	5.9	6.2	6.3	6.6
Eggs, number	4.6	4.5	7.4	7.0
Fats and oils [3]	11.7	11.6	11.8	10.7
Butter	4.4	4.4	3.2	3.2
Margarine	4.6	4.6	3.2	3.2
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Fresh green vegetables	13.4	13.2	23.5	23.4
Other vegetables (product weight)	13.9	14.4	28.2	29.7
Total	27.3	27.6	51.7	53.1
Grain products:				
Bread, rolls, etc	55.4	54.1	25.8	27.3
Flour (including mixes)	8.7	8.1	15.7	10.1
Cakes and other sweet goods except cookies	5.9	6.2	4.3	5.2
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Other	5.4	5.5	12.5	10.4
Beverages:				
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Even though the average consumption rates for urban working class and all households came

quite close in 1950, there is a real possibility that with decontrol the Survey data are diverging from the disappearance data. The higher rate of refusals to cooperate in the Survey among households in the upper income groups and greater freedom of choice in eating out contribute to such divergence.

A few findings from comparisons of the trends in the two sets of United Kingdom data follow.

For dairy products and eggs from 1941 to 1943, greater increases are found in consumption rates by Survey households than the disappearance data show, but the two series moved closely together in later years. These were rationed commodities which working class households could afford to buy as their purchasing power rose. The two series of data for the meat and fish groups combined, and for fats, moved closely together during the war, but they have swung unevenly since. Data for the sugar and sirup group stayed quite close throughout the period 1941 to 1954.

Working-class households reporting under the Survey maintained their higher level of potato consumption through 1950. When other classes were brought into the Survey sample, the level of potato use apparently shaded downward. The heavy buildup in annual disappearance figures from 1941 to 1944 apparently reflected some increased use in higher income groups and probably in eating places. These areas of consumption would be likely to vary their potato use more closely with the supply situation for other foods. Also, it is likely that the proportion of the retail supply of potatoes actually eaten varied with the quality of the potatoes available and with the needs of the chickens in the backyards.

The consumption of tomatoes and fruit by urban workers' families varied much less from year to year than did total consumption per capita in the country. I conjecture that the cause of this difference was variations in harvests of fruit and tomatoes in rural areas for home use.

Both sets of data on vegetable consumption reflect home-produced supplies from gardens and allotments. These were much more important during and immediately after the war than they were before the war or than they are at the present time.

Compared with the level of 1952–54, annual consumption per capita of grain products by the entire civilian population was at a much higher level during the war years. With the exception of the 7 percent drop from 1945 to 1946 at the time of the cereal emergency, it has declined gradually since the end of the war. Household use has been much steadier.

Some Comparisons of United Kingdom and United States Data

Though the primary purpose of this article is to review the National Food Survey of the United Kingdom, some matching United States data are included, for comparisons. Table 3 shows United States per capita consumption data, some of which have been converted to approximate the level at which United Kingdom disappearance is measured. The second lot of data (table 5) is from the nationwide surveys of households in the two countries during April–June 1955.[6]

Food Supply or Disappearance Data

First, the levels of the per capita disappearance data, usually termed consumption data, call for comment. In the prewar years, rates for dairy products were far apart. They were much higher in the United States for all fluid milk, cream, and evaporated milk. There were also wide differences in consumption rates for the tomato and fruit group, vegetables, eggs, and pulses and nuts. These wide differences were in commodities where heavy consumption in rural areas brought up the United States average. The rates for the whole meat, fish, game, and poultry group, and for fats, sugars, and grain products were relatively close.

The war years and those immediately following present a complicated picture. We see in these differences the net effect of the facts that the United States is a great agricultural producer, of livestock products as well as vegetable products, and that the American people benefited during the war and in postwar years from rapidly expanding supplies. During these years, the United Kingdom was an embattled country, first against the

[6] Fieldwork on the Survey in the United Kingdom was suspended during the period of the General Election (May 10–31). Adjustments were made in the handling of data for other parts of the quarter to take some account of the seasonal changes (*11*, appendix A).

enemy, then against postwar financial problems. Its agricultural resources were far more limited than those of the United States in relation to emergency needs for food. To meet its requirements, Britain stepped up its production of vegetable products, which are more economical of farm inputs in relation to nutrients produced.

Looking now at the data for 1954, we find that the United States and United Kingdom consumption rates for dairy products and for pulses and nuts are closer together, because of increased consumption in the United Kingdom, but that rates for the meat, fish, poultry group, for vegetables, eggs, potatoes and sweetpotatoes, and for grain products are farther apart. United States consumption for the first two groups has risen, and for the latter two it has fallen markedly. There is little change in relative position for sugars and syrups, for fats, and for the tomato and fruit group.

What conclusion can we draw from these shifts? Just these: The rates are farther apart (1) on the items for which the impact of too small imports is still felt in Britain, and (2) on the items used to fill out the wartime food needs of the British people but for which the downtrend in consumption is apparently coming.

The 1954 and 1955 sugar figures for the United Kingdom deserve special notice. These were the first 2 years after some 14 years of sweets rationing, and the upsurge in consumption may reflect a kind of a "binge," as well as some buildup in stocks in homes and in unreported positions throughout the distribution system.

Some details of the changes in United Kingdom food consumption patterns have already been discussed, and this is not the place to comment on trends in the United States. But it may be illuminating to consider the movements of the rates of consumption in the United Kingdom to see if they may be expected to follow those in the United States. The following comments on the situation in the United Kingdom, though admittedly of limited value, have been discussed with informed people in Britain.

The dairy products picture is rather confused because subsidized milk consumption looms so large in the total and the outlook for cheese is affected by imports. But the increasing popularity of ice cream and the coming of age of a generation of milk drinkers will probably increase per capita use. In this country, some people complain about the relatively high price of milk in eating places yet in many British restaurants milk is not even available as a separate beverage.

The balance of payments position is still restricting meat imports and may well continue to do so. The English broiler industry is in its infancy so an uptrend in consumption probably lies ahead. The egg consumption rate is also heavily dependent on what happens to imports and, back of them, to that ogre, balance of payments.

Substantial switches from butter to margarine occurred during and after the war in both the United Kingdom and the United States. The present relatively high use of table fats in the United Kingdom is likely to fall off as bread consumption declines.

The downtrend in potatoes and grain products is already underway in the United Kingdom, as in the United States, after wartime and postwar emergency upswings.

For fruits and vegetables, the United States trend is complicated by internal shifts and by the reduction in production for home use. The shift to processed forms is also underway in Britain, but the domestic industry is not large and consumer purchasing power is smaller.

Household Survey Data for April–June 1955

Happily, we now have nationwide household survey data for a week in the same period for both countries. Both were designed to cover all households, but the United Kingdom had a greater response problem in terms of people refusing to cooperate by completing logbooks or schedules, whereas the problem of response in the United States was not in refusal to participate but in the unknown degree of memory bias in recalling use of food in the preceding week. National Food Survey technicians were especially curious about our reliance on recall for U. S. Department of Agriculture household food surveys. Whereas American housewives rely more and more on one big food shopping trip each week with a few extras now and then, British housewives tend to shop every day and in several different stores. Without doubt it is much easier to recall purchases made on one organized shopping trip than in a series of small purchases.

We have matched the United Kingdom items as closely as possible, but certain differences must be

noted. For one, the United Kingdom fluid milk figure includes milk consumed at school by children in the household. The United States cheese figures include a little over 2 ounces of cottage cheese per person, an item of which little is probably consumed in Britain. The still lower levels of United Kingdom household consumption than United States rates, compared with the ratios of per capita disappearance data, for the meat group and for fruits and vegetables point to some downward bias in the United Kingdom figures. This is not news to members of the National Food Survey Committee, for they have reported lower response rates in higher income groups.

The relative positions of the consumption rates in the two countries shown by per capita disappearance figures are further demonstrated in these data. For such comparisons, one regrets the lack of United Kingdom information on household use of ice cream and soft drinks—it would in all probability be far below United States rates—even though these items are major away-from-home snack items for both countries.

Visitors from the United States to Britain and British visitors to the United States frequently remark on the differences in tea and coffee consumption patterns of the two countries. Just as I cannot recall ever having seen an American manual worker drink hot tea, I have not seen a British worker drink coffee. The universal popularity of tea in England represents a very great change from the British attitude 200 years ago. A recent book on English housekeeping in the 18th century pointed out, "No drink has caused more controversy than tea; doctors, political economists, moralists, and the clergy joined with wine merchants and publicans in condemning it roundly." (*1*, p. 95.) But Johnson and Boswell joined in its defense.

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