



United States
Department
of Agriculture

Statistical
Bulletin
Number 972



Electronic Report from the Economic Research Service

www.ers.usda.gov

Food Spending in American Households, 1997-98

Noel Blisard

Abstract

Average yearly expenditures on food in urban households remained constant between 1997 and 1998. In 1998, the typical household spent \$1,773 per person versus \$1,767 the previous year. Of this amount, \$1,094 was spent on food consumed at home and \$679 on food consumed away from home. In 1997, slightly more was spent on food at home, \$1,126, and slightly less on food consumed away from home, \$641. Detailed tabulations are presented for 133 food categories and 10 household socioeconomic characteristics for 1997 and 1998. The data are from the Consumer Expenditure Diary Surveys prepared by the Bureau of Labor Statistics, U.S. Department of Labor.

Keywords: Food expenditures, BLS Consumer Expenditure Diary Survey, socioeconomic characteristics.

Acknowledgments

I would like to thank Steve Crutchfield, Jane Allshouse, and Judy Putnam from the Economic Research Service, as well as Danny Terry from Western Illinois University for reviewing this manuscript. A special thanks goes to Lou King who did the final editing.

Contents

List of Tables	i
Introduction.....	1
Highlights	2
Consumer Expenditure Survey	3
Definitions	4
Population	4
Consumer Unit (Household)	4
Income.....	5
Expenditure Estimates	6
Survey Procedures	7
Survey Sample Design	7
Cooperation Levels	7
Weighting.....	7
Data Collection and Processing.....	8
CES and Other Data Sources	9
Data Limitations	11
References.....	12

List of Tables

1. Food expenditures by selected demographics, 1997-98: Average annual per person expenditures of urban households	13
2. Household type, 1997.....	14
3. Household size, 1997	17
4. Region and city size, 1997	20
5. Season, 1997	23
6. Housing tenure, 1997	26
7. Income quintile, 1997.....	29
8. Income class, 1997	32
9. Race, 1997.....	35
10. Householder's age, 1997	38
11. Number of earners, 1997	41
12. Urban vs. rural, 1997: Average annual per person food expenditures of all households	44
13. Household type, 1998.....	47
14. Household size, 1998	50
15. Region and city size, 1998	53
16. Season, 1998	56
17. Housing tenure, 1998	59
18. Income quintile, 1998.....	62
19. Income class, 1998	65
20. Race, 1998.....	68
21. Householder's age, 1998.....	71
22. Number of earners, 1998.....	74
23. Urban vs. rural, 1998: Average annual per person food expenditures of all households	77
24. Sampling variability, 1997-98: Coefficients of variation for average annual per person food expenditures.....	80

Food Spending in American Households, 1997-98

Noel Blisard

Introduction

This bulletin continues the tradition of publishing food expenditures by urban American households at periodic intervals. Bulletins were previously published by the U.S. Department of Agriculture (USDA) in 1985, 1987, 1990, and 1992. Like the earlier reports, this report presents data on food expenditures by selected demographic and socioeconomic characteristics. Unlike the earlier reports, this report does not report indices for either prices or quantities.

Using the per person food spending information in this report, one can determine the similarities and disparities in the spending habits of households of differing sizes, races, incomes, geographic areas, and other socioeconomic and demographic features. This information is valuable for assessing existing market conditions, product distribution patterns,

consumer buying habits, and consumer living conditions. Combined with demographic and income projections, this information may be used to anticipate consumption trends. The information may also be used to develop typical market baskets of food for special population groups, such as the elderly. These market baskets may, in turn, be used to develop price indices tailored to the consumption patterns of these population groups.

These tabulations are based on data from the Continuing Expenditure Survey (CES) conducted by the Bureau of Labor Statistics (BLS), U.S. Department of Labor. Our tabulations provide more food item detail than is available in BLS publications or news releases. The CES contains the most recent and comprehensive data available on food spending by American households.

Highlights

Average yearly per capita expenditures on food in urban households remained constant between 1997 and 1998. In 1997, the average household spent \$1,767 per person, compared with \$1,773 the following year. Of this amount, \$1,126 was spent on food consumed at home and \$641 on food consumed away from home in 1997. In 1998, slightly less was spent on food at home (\$1,094) and slightly more on food consumed away from home (\$679).

Other highlights include:

Household size—In 1998, one-person households spent more than twice as much per person on food as households of six or more persons, \$2,485 versus \$1,106. One-person households also spent a much larger share of their food budget on food consumed away from home than households with six or more people, 45 percent versus 27 percent.

Income—Average per person food spending increased with household income. In 1998, households in the lowest 20 percent of the income distribution spent \$1,437 per person on food compared with \$2,422 per person for the wealthiest 20 percent. Wealthier households tended to spend more than other households did for both food at home and food away from home, and to spend a larger share of their food budget than other households on food consumed away from home.

The share of the food budget spent on food consumed away from home varied from 32 percent for the poorest group to 44 percent for the wealthiest.

Race—In 1998 black households spent about 29 percent less per person on food than did white households. In 1998, average yearly food spending in white households was \$1,855 per person, compared with \$1,308 per person for black households and \$1,754 per person for households of other races. White households spent a larger share on food consumed away from home than did blacks, 39 versus 34 percent.

Age—Per person food spending increased with the age of the household head up to age 64 and then declined. Households headed by someone age 55 to 64 also spent the most per person on food consumed away from home. Households headed by someone less than 25 spent more per person on food consumed away from home than did households headed by someone age 25-44.

Region—Households in the Northeast spent the most on total food per person, while those in the South spent the least. In 1998, households in the Northeast spent a total of \$1,940 per person on food, of which \$759 was for food consumed away from home. In contrast, households in the South spent a total of \$1,684 per person on food, of which \$646 was for food consumed away from home.

Consumer Expenditure Survey¹

The CES evolved from consumer expenditure surveys of American households that BLS has conducted at about 10-year intervals since 1888. A major objective of the first consumer expenditure surveys was to collect information necessary to construct the old Cost-of-Living indices, the predecessor of the current Consumer Price indices. Rapidly changing economic conditions of the 1970s proved the decennial surveys inadequate. BLS initiated a continuing survey of consumer expenditures in late 1979 and expanded the objectives to include a continuous flow of information on the buying habits of Americans not only for use in revising the Consumer Price Index (CPI) but also for use in a variety of research by government, business, labor, and academic analysts.

The CES features two components, each with its own questionnaire and sample: (1) a quarterly interview panel survey in which each of approximately 5,000 households is surveyed every 3 months over a 1-year period, and (2) a weekly Diary Survey of approximately the same sample size in which households keep an expenditure diary for two consecutive 1-week periods. The survey presents data by consumer unit rather than household. However, unless specified otherwise, this report calculates per capita expenditures for the consumer unit. This practice may result in discrepancies between expenditures in this report and those reported by BLS. See the Definitions section for a detailed explanation of the differences.

The interview panel survey obtains data on large and infrequent expenditures, such as for real property, automobiles, and major appliances, and regularly occurring expenditures, such as rent, utilities, and insurance premiums. Personal expenditures, including those for food on trips, are also included.

Typically, respondents can recall these expenditures over a 3-month period.

The diary survey obtains data on small, frequently purchased items that are normally difficult to recall, including food and beverages, tobacco, housekeeping supplies, non-prescription drugs, personal care products and services, fuels, and utilities. This diary survey excludes expenditures incurred while respondents are away from home overnight or longer.

Several features of the 1980-98 surveys differ from the surveys BLS conducted for 1960-61 and 1972-73. First, only the urban population is continuously represented in the CES. Rural sampling units were dropped from the sample during 1981-83 due to budget limitations, but were reinstated in 1984. To maintain comparability with previously published surveys only the urban sampling data are used for most tables contained in this report. However, tables 12 and 23 contain expenditures of both urban and rural households for 1997 and 1998. Second, the CES sample size is approximately half that of the previous two surveys, so the estimates are subject to greater sampling error. Third, the collection of information on expenditures by college students has changed. Since 1980, students living in college or university housing have been sampled directly, while in the 1972-73 CES, this group's expenditures were reported by their parents or guardians. Last, recent surveys define the "head" of a consumer unit using the term "householder" or "reference person," who is the first member of the household mentioned by the respondent as an owner (or renter) of the premises at the time of the initial interview. In previous surveys, husbands were automatically considered to be the heads of consumer units in which both a husband and a wife were present.

This report is based on Economic Research Service (ERS) tabulations of data collected in the diary component of the BLS surveys for 1997 and 1998 as reported on CD-ROM data disks available from BLS and other information published by ERS.

¹ Technical descriptions of the CES and definitions draw heavily from documentation distributed with the CD-ROM data disks and from definitions provided by the BLS as well as previous editions of this bulletin.

Definitions

The following terms, some of which occur frequently in the accompanying tables, are briefly defined.

Population

Population--The U.S. civilian noninstitutional urban population, as well as that portion of the institutional population living in the following group quarters: boarding houses; housing facilities for students and workers; staff units in hospitals and homes for the aged, infirm, or needy; permanent living quarters in hotels and motels; and mobile home parks.

Metropolitan Statistical Area (MSA)--Except in New England, an MSA is a county or group of contiguous counties that contains at least one city of 50,000 inhabitants or more, or "twin cities" with a combined population of at least 50,000. In addition to a county or counties containing such a city or cities, contiguous counties are included in an MSA if, according to certain criteria, they are essentially metropolitan in character and are socially and economically integrated with the central city. In New England, MSA's consist of towns or cities, rather than counties.

Urban population--All persons living in MSAs and in urbanized areas and urban places of 2,500 or more people outside of MSAs. The term "other urban" is used in this report to describe the urban population living outside of MSAs.

Student population--Students living in college or university housing, usually dormitories.

Primary sampling unit (PSU)--Usually a county or group of contiguous counties, except in certain areas of the Northeast where a PSU is a cluster of towns. A PSU may include both urban and rural areas as well as farm and nonfarm areas.

Geographic regions--Data are presented for four major regions: Northeast, Midwest, South, and West. Consumer units are classified by these regions according to the address at which the household was

residing during the time of their participation in the diary survey. These regions comprise the following States:

Northeast--Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Midwest--Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

South--Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

West--Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Consumer Unit (Household)

Consumer unit (CU) --A consumer unit, the basic reporting unit for the diary survey, comprises: (1) all members of a particular household who are related by blood, marriage, adoption, or other legal arrangement, such as a foster child; (2) a financially independent² person living alone or sharing a household with others, living as a roomer in a private home or lodging house, or living in permanent quarters in a hotel or motel; or (3) two or more persons living together who pool their income to make joint expenditure decisions. This report treats each consumer unit as a household. However, it should be noted that in reality a household may contain more than one consumer unit, such as grandparents or in-laws who live independently along with another consumer unit.

² Financial independence is determined by three major expense categories: housing, food, and other living expenses. To be considered financially independent, the respondent must provide at least two of the three major expense categories.

Householder (or "reference person")--The first household member mentioned by the respondent when instructed to "Start with the name of the person, or one of the persons, who owns or rents the home." The relationship of other CU members is determined with respect to this person.

Size of household--The number of persons who normally make up the CU at the sample address.

Age of householder--The actual age of the householder at the time the diary is placed in the household.

Number of earners--All CU members, 14 years and older, who report having worked at least 1 week during the 12 months prior to the interview date, are classified as earners. This measure will tend to overstate the number of earners employed on a regular basis.

Number of vehicles--The number of automobiles, trucks, and other vehicles owned by all members of the unit, including vehicles used partially for business but excluding those used entirely for business.

Income

Total income--The combined income earned by all CU members 14 years old or over in the 12-month period prior to the last day of participation in the survey. The components of income are wages and salaries, net business and farm income, Social Security and other pension income, interest, dividends and other asset income, and other income. Other income includes: (1) supplemental security income paid by Federal, State, and local welfare agencies to low-income persons who are 65 years or older, blind, or disabled; (2) income from unemployment compensation; (3) income from workers' compensation and veterans' payments, including education benefits but excluding military retirement; (4) public assistance or welfare, including money received from job training grants; (5) alimony and child support as well as any regular contributions from people outside the CU; (6) income from the care of foster children, cash scholarships,

fellowships, or stipends not based on working; and (7) the value of food stamps.

Complete income reporting--The distinction between complete and incomplete income reporting is based on whether the respondent provides information on major sources of income, such as wages and salaries, self-employment, and Social Security income. Even complete income reporters may not provide a full accounting of all income from all sources. Income tabulations in this publication are based only on CUs with complete income data. The definition of "complete income reporting" used in the 1997-98 CES differs from the 1972-73 definition. A CU reporting zero income in 1972-73 was considered a complete respondent as long as there was no evidence of intent to refuse the income question. In later surveys, across-the-board zero income reporting was designated as invalid by BLS, and the CU was categorized as an incomplete reporter. None of the surveys, however, accounted for possible underreporting. CU designated as incomplete reporters of income are excluded from computations of average income in this report.

Top coding of income--The top coding of income routine changed with the 1996 release of the CES. Previous to 1996 there was truncation at a critical value and all values above the critical value (upper tail) were replaced by the critical value (usually at \$100,000 for income). Since 1996, the new method replaces upper tail values with the mean of the values from the upper tail. This results in more accurate estimates of average income for the whole sample.

Quintiles of income before taxes--Each quarter, respondents who provide income reports are ranked in ascending order according to the level of total before-tax income reported by the consumer unit. The ranking is divided into five equal groups called income quintiles, and the data for each of the four quarters are then combined. CUs providing incomplete income reports are not ranked and are shown separately in all income tables.

Expenditure Estimates

Expenditures are the transaction costs, including excise and sales taxes, of goods and services acquired during the recordkeeping period. The respondent records the full cost of each purchase even though full payment may not have been made on the date of purchase. The expenditure estimates exclude purchases made while away from home overnight, purchases directly assignable to business use, and periodic credit or installment payments on goods or services already acquired.

Major food and beverage expenditure categories and subgroups that appear in this report are displayed in tables 1-23. Several factors should be considered when relating individual household circumstances (such as region of residence and race of householder) to the expenditures shown in the tables. First, the expenditures are averages for all urban households with the specific characteristics, regardless of whether or not a particular household purchased the specific food item during the recordkeeping period. The average expenditure may be considerably less than the expenditure by households that purchased the item. The less frequently an item is purchased, the greater the difference between the average for all households and the average for those households that purchased the item. Even if such purchases were made, an individual household may have spent more or less than the average. Even within groups with similar characteristics, the distribution of expenditures varies greatly. Also, many factors such as income, age of household members, and geographic location of residence influence expenditures and are not held constant within any given table.

The share of total expenditures of an item shown in the accompanying tables for a particular population segment can be readily calculated. The following procedures are employed, for example, to estimate the share of national total food expenditures accounted for by two-member households in 1998. First, multiply the average total per person food expenditures for two-member households (\$2,146.37, from table 14) by the number of two-person households in thousands in the United States (28,581 from table 14) by the average number of persons in the households (2, from table 14). Then, divide this result by the product of the average U.S. household size (2.52, from table 14) times the total number of households in the United States (91,133 which is number of households in thousands from table 14) times the average total per person food expenditures (\$1,773.35, from table 14). The result of these operations is the share of national food expenditures accounted for by two-member households. Mathematically, the share of national food expenditures accounted for by two-person households equals:

$$(\$2,146.37 \times 28,581 \times 2) / (2.52 \times 91,133 \times \$1,773.35) = 30.1 \text{ percent.}$$

We can use similar procedures to estimate the share of the total population accounted for by two-member households. The share of total population composed of two-member households equals:

$$(28,581 \times 2) / (91,133 \times 2.52) = 24.9 \text{ percent.}$$

Thus, two-member households are 24.9 percent of the population, but their share of total food expenditures is 30.1 percent.

Survey Procedures

This section discusses the technical details concerning the CES sample design, geographic coverage, sampling frame, level of participation, sample weighting factors, data collection, and data processing.

Survey Sample Design

Samples for the CES are national probability samples of households designed to be representative of the total U.S. civilian population. Eligible population includes all civilian noninstitutional persons.

The first step in the sampling is the selection of primary sampling units (PSUs), which consist of counties (or parts thereof) or groups of counties. The design classifies the PSUs into four categories:

- 31 “A” PSUs are Metropolitan Statistical Areas (MSA’s) with a population greater than 1.5 million.
- 46 “B” PSUs are medium-sized MSA’s.
- 10 “C” PSUs are nonmetropolitan areas that are included in the CPI.
- 18 “D” PSUs are nonmetropolitan areas where only the urban population data will be included in the CPI.

The sampling frame (that is, the list from which housing units were chosen) is generated from the 1990 Population Census 100 percent-detail file. The sampling frame is augmented by new construction permits and by techniques used to eliminate recognized deficiencies in Census coverage. All Enumeration Districts (EDs) from the Census that fail to meet the criterion for good addresses for new construction, and all EDs in nonpermit-issuing areas are grouped into the area segment frame.

To the extent possible, an unclustered sample of units is selected within each PSU. This lack of clustering is desirable because the sample size of the

Diary Survey is small relative to other surveys, while the intraclass correlations for expenditure characteristics are relatively large. This suggests that any clustering of the sample units could result in an unacceptable increase in variance within the PSU and, as a result, the total variance.

Each selected sample unit is requested to keep two 1-week diaries of expenditures over consecutive weeks. The earliest possible day for placing a diary with a household is predesignated with each day of the week having an equal chance to be the first of the reference week. The diaries are evenly spaced throughout the year. During the last 6 weeks of the year, however, the Diary Survey sample is supplemented to twice its normal size to increase the reporting of types of expenditures unique to the holidays.

Cooperation Levels

The annual target sample size at the United States level for the Diary Survey is 6,050 participating sample units. To achieve this target the total estimated workload is 8,180 sample units. This allows for refusals, vacancies, or nonexistent sample unit addresses.

Each participating sample unit selected is asked to keep two 1-week diaries. Each diary is treated independently, so response rates are based on twice the number of housing units sampled.

The response rate for the 1998 Diary Survey was 76.4 percent.

Weighting

Each CU included in the CES represents a given number of CUs in the U.S. population, which is considered to be the universe. The translation of sample families into the universe of families is known as weighting. However, since the unit of analysis for the CES is a CU, the weighting is performed at the CU level. Several factors are involved in determining the weight for each CU for which a diary is obtained. There are four basic steps in the weighting procedure. 1) The basic weight is

assigned to an address and is the inverse of the probability of selection of the housing unit. 2) A weight control factor is applied to each diary if subsampling is performed in the field. 3) A noninterview adjustment is made for units where data could not be collected from occupied housing units. The adjustment is performed as a function of region, housing tenure, family size, and race. 4) A final adjustment is performed to adjust the sample estimates to national population controls derived from the Current Population Survey. The adjustments are made based on both the CU's member composition and the CU as a whole. The weight for the CU is adjusted for individuals within the CU to meet the controls for 14 age/race categories, 4 regions, and 4 region/urban categories. The CU weight is also adjusted to meet the control to total number of CUs and total number of CUs who own their own living quarters. The weighting procedure uses an iterative process to ensure that the sample estimates will meet all population controls.

Data Collection and Processing

In addition to its data collection duties, the Census Bureau is responsible for field editing and coding, consistency checking, quality control, and data transmittal to BLS. BLS performs additional review and editing to prepare the data for publication and release.

Data collection activities have been conducted by the Census Bureau on a continuing basis since October 1979. Due to differences in format and design, the Diary Survey and the Interview Survey data are collected separately. Preliminary Diary Survey data processing carried out by the Census Bureau includes keying the data from the questionnaires, clerical data editing, and correcting for inconsistencies in the collected data.

Upon completion by respondents, the diaries are sent from the regional offices to the Census National Processing Center (NPC) in Jeffersonville, IN. At the NPC, codes are applied to identify demographic characteristics and expenditures, and inconsistencies and errors are identified and corrected.

After clerical processing at the NPC, the data are transmitted to the Census Processing Center in Suitland, MD, where they pass through basic quality checks of control counts, missing values, etc. The data are then transmitted to BLS.

Upon receiving the data from the Bureau of the Census, BLS performs a series of computer edits that identify and correct irregularities and inconsistencies. Other adjustments apply appropriate sales taxes and derive CU weights based on BLS specifications. In addition, demographic and work experience items (except income) are imputed when missing or invalid. All data changes and imputations are identified with flags on the interview database.

Next, BLS conducts an extensive review to ensure that severe data aberrations are corrected. The review takes place in several stages: a review of counts, weighted means, and unweighted means by region; a review of family relationship coding inconsistencies; a review of selected extreme values for expenditure and income categories; and verification of the various data transformations.

Cases of extreme data values are investigated by reviewing questionnaires on microfilm. Errors discovered through this procedure are corrected prior to release of the data.

Two major types of data adjustment routines—imputation and allocation—are carried out to improve and classify the estimates derived from the Diary Survey. Data imputation routines correct missing or invalid entries among selected CU characteristic fields. No imputations are performed for income fields. Allocation routines are applied when respondents provide insufficient expenditure detail to meet tabulation requirements. For example, reports of combined expenditures for fuels and utilities are allocated among gas, electricity, and other items in this group. To analyze the effects of these adjustments, tabulations are made before and after the data adjustments.

CES and Other Data Sources

In the past, USDA conducted comprehensive household surveys of food consumption approximately every 10 years. The last such survey was the 1987-88 Nationwide Food Consumption Survey (NFCS). The NFCS differs in several respects from the CES. The most notable difference, other than the survey years, is that the NFCS measured food consumption during the survey period, while the CES measures purchases.

Consequently, differences may occur due to a number of conceptual (measurement) issues. For example, the value of nonpurchased foods, such as homegrown food and food received as a gift or as pay is included in the NFCS but not in the CES. The timelag between purchase and consumption also causes differences in the data sets. The CES does not measure consumption out of household food stocks, and expenditures may include purchases used to build up inventories of staple foods such as flour and sugar. However, the disparities among households due to inventory changes tend to average out when tabulations cover large groups of consumers.

The two surveys also differ in the unit of observation. USDA uses the household as the observational unit, whereas BLS uses the consumer unit. Although these definitions are similar, differences between units classified by living arrangements and economic consuming units will exist, as in the instance of unrelated, economically independent individuals living together.

Population coverage also differs between the two surveys because the NFCS excludes individuals in group dwellings, such as college students living in dormitories, whereas the CES includes them.

Many USDA tabulations of the NFCS data include only housekeeping households—those in which at least one member consumed 10 or more meals from home food supplies during the 7-day survey period. Because housekeeping households consume more home food supplies than do nonhousekeeping households, food expenditure estimates based solely

on housekeeping households tend to overestimate at-home consumption and underestimate away-from-home consumption. Survey estimates suggest that about 6 percent of the civilian noninstitutional population covered by the NFCS are nonhousekeeping households.

A major advantage of the CES over the NFCS is that it provides a continuous picture of consumption expenditures over time whereas the NFCS provides a snapshot about every 10 years.

The personal consumption expenditures (PCE) data are a component of the gross national product accounts, prepared quarterly by the U.S. Department of Commerce and published in *Survey of Current Business*. The PCE series measures personal expenditures on a national level for all newly produced goods and services.

PCE estimates are based on business and government sources rather than household interviews. The source and derivation of the PCE estimates thus hardly resemble the CES estimates.

Benchmark estimates for the PCE series are developed approximately every 5 years based on the flow of goods and services through the economy. Personal consumption expenditures for food, for example, are derived by adding transportation costs and wholesale and retail trade markups to manufacturers' prices. Additional adjustments are made for exports, imports, and changes in inventories. Between benchmark years, the various components of the PCE series are updated using survey information on sales of eating and drinking establishments and estimates of grocery store sales. Other minor adjustments are also made. The primary data are from the Censuses of Manufactures, Transportation, and Business.

When placed on an annual per capita expenditure basis, estimates from the CES are consistently lower than those reported in each of the following PCE food components: total food, food consumed at home, and food consumed away from home. The relative difference is greater for food consumed away from home than for food consumed at home,

probably because the diary component of the CES does not include expenditures on food when the respondent is away from home overnight or longer. Disparities between the estimates for expenditures on alcoholic beverages are even larger, but this result is expected because full disclosure of alcoholic beverage consumption is extremely difficult to obtain in household surveys.

The PCE and CES estimates of per capita annual income also differ, with the CES income estimates being lower. This difference is consistent with the notion that income is generally underreported in household surveys.

USDA's Economic Research Service (ERS) develops and annually reports data on food disappearance in the United States in the publication *Food Consumption, Prices, and Expenditures*. These data measure the quantity of food available for human consumption based on records of commodity flows from production to end uses. The series are developed from estimates of production with adjustments for trade flows in and out of the country, changes in beginning and ending inventories, and removal of nonfood uses. While not a direct measure of human consumption, the series are often used to monitor levels and year-to-year trends in commodity consumption and use, estimate nutrient availability in the Nation's food supply, and estimate statistical relationships among commodity supply, demand, and prices.

Food disappearance is often used as a proxy for human consumption. Used in this manner, the data represent an upper bound on the amount of food

available for consumption. Food disappearance data can overstate actual consumption because it includes spoilage and other losses in the food processing and marketing system, and losses in the household due to such factors as preparation and plate waste. However, the data remain useful as indicators of consumption if these losses in the system remain stable.

The ERS food disappearance data differ from the CES diary expenditure data in several ways. First, the ERS disappearance data conceptually includes both food consumed at home and food consumed away from home. While the CES diary data also includes both categories of food expenditures, the food item detail is only available for food consumed at home. The CES reports food away from home as aggregate expenditures without any commodity or food item detail. Thus, the CES ground beef category does not include hamburgers consumed at schools, restaurants, and fast food establishments. Second, and perhaps most obvious, is the difference in the unit of observation. The CES data are based on a survey of households and their expenditures while the disappearance data are based on aggregate production quantities with adjustments for imports, exports, nonfood uses, and inventories. The aggregate disappearance data are divided by the U.S. population to place disappearance on a per capita basis for comparability with the CES, which is standardized in this report by household size. It is possible that expenditures for a commodity in the CES may trend upwards while quantity trends from the disappearance data decline due to price effects.

Data Limitations

Data in this report are based on a sample of consumer units and may differ somewhat from the figures that would be obtained if a complete census of consumer units had been taken. The variability of sample estimates is a function of sample design and sample size and generally decreases with larger size samples and aggregation over product categories. Expenditure estimates for broader expenditure groups and larger population groups will generally be subject to smaller sampling variation than expenditure estimates for narrower expenditure and population subgroups. The coefficient of variation (CV), expressing the standard deviation as a percentage of the sample estimate, is a commonly used measure for comparing the relative variability of sample estimates. CVs for the various detailed estimates of annual per person food expenditures presented in this report for the total urban population are given in table 24.

The estimates are also subject to sampling biases that may result from the selection of households, the recording of information, and the interpretation of

information. The long and extensive experience of BLS in conducting surveys of this type, however, helps to minimize these sampling biases.

Identifying and handling incomplete questionnaires introduce another potential source of bias. In the CES diary, identifying incomplete expenditure reporting is particularly difficult because respondents are required to report only items actually purchased. No action is required on items not purchased during the survey. Distinguishing between an incomplete expenditure diary and one in which the respondent records only a few purchases is difficult. Incomplete reporting on other sections of the survey may be associated with incomplete expenditure diaries. For example, homeowners not reporting a mortgage status are about half as likely to report purchases for most food items as those homeowners reporting a mortgage status. A similar pattern, but not nearly as pronounced, is observed for consumer units with incomplete income reporting. Because of these reporting phenomena, we advise caution in any further use of the tabulations in this report for these two subgroups of consumer units.

References

Smallwood, David, Noel Blisard, James R. Blaylock, and Steve Lutz, **Food Spending in American Households, 1980-92**, U.S. Dept. Agr., Econ. Res. Serv., SB-888, October 1994.

U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey, Diary Survey, 1997.

U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey, Diary Survey, 1998. <http://stats.bls.gov/csxhome.htm>