

# Comparisons with other data sources

As part of the evaluation of the Consumer Expenditure Survey results, BLS compares its estimates of aggregate consumer expenditures with independent sources of data. Consumer Expenditure Survey data in these comparisons are integrated data from both the Interview and Diary surveys, unless otherwise noted. To facilitate comparison, some adjustments are made to the Consumer Expenditure Survey data and the independent sources to account for differences in concept and coverage. The degree of comparability varies by component, as noted in the tables. Data are not shown when differences in concept or content are so great that comparison would be meaningless. Because most agencies have revised their estimates since publication of data in the last Consumer Expenditure Survey bulletin, readers should avoid comparing these ratios with those in earlier BLS publications. The Consumer Expenditure Survey data and several of the independent source data are subject to both sampling and non-sampling error. Comparisons allow monitoring of estimates for consistency over time.

**Personal Consumption Expenditures.** The principal source of independent estimates used in comparisons with the Consumer Expenditure Survey is the Personal Consumption Expenditures (PCE) component of the National Income and Product Accounts (NIPA), published by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce. PCE estimates of aggregate expenditures represent the market value of goods and services purchased by all persons. They are derived by complex methods that trace the flow of goods and services through the economy. Total expenditures of persons includes expenditures of the civilian population of the United States, both at home and living abroad, persons in the military, and nonprofit institutions. (Expenditures of nonprofit institutions are not distributed among individual goods. Instead, they are included in specific service categories, primarily medical care, education and research, and religious and welfare activities—categories that are not compared with Consumer Expenditure Survey data.) PCE estimates are not directly subject to the quantifiable sampling errors found in household surveys; they are subject to sampling and non-sampling errors in the source data from which they are derived. They are also subject to difficulties in applying complex procedures for allocating these data among the final demand sectors.

BEA conducts comprehensive revisions of the NIPA at approximately 5-year intervals, primarily to update the series with new results from the Census Bureau's quinquennial censuses and other sources used in the accounts. This kind of revision is referred to as benchmarking. Such revisions may also include revisions to selected methods of estimation. PCE estimates based on different benchmarks sometimes differ by large amounts; and, as a result, revisions to PCE can have a substantial effect on comparisons with the Consumer Expen-

diture Survey. In addition, BEA conducts annual revisions to PCE that affect 3 years of data and may also include changes in estimation methods. Therefore, due to the benchmarking and annual revisions to PCE, the Consumer Expenditure Survey-to-PCE ratios in this report should not be compared with previously published ratios.

Text table 8 shows Consumer Expenditure Survey estimates of aggregate expenditures for selected expenditure categories for 1994 through 1997, adjusted for comparability with PCE and ratios to PCE. The ratios indicate that the Consumer Expenditure Survey estimates for the major categories of consumption are lower than PCE. For most items, the relationship between the two series over time has been generally about the same. These include the expenditure categories of food, alcoholic beverages, telephone, apparel and services, and entertainment.

**Detailed food comparisons.** CE survey estimates for food at home are compared with PCE and two published sources of trade association data, *Supermarket Business* and *Progressive Grocer* magazines. *Supermarket Business*, Inc. annually conducts independent mail and telephone surveys of food manufacturers, packers, wholesalers, and retailers. Supermarkets, that is, grocery stores with annual food sales of \$2 million or more, account for about 80 percent of grocery store food sales. Detailed national estimates of the value of food sales in 30,600 supermarkets are reported. Focusing on measuring total industry sales, total grocery sales and total retail sales figures are also provided for each category. Results from the surveys are reported in *Supermarket Business* (Howfrey Communications, LLC, Teaneck, NJ) in September of each year. *Progressive Grocer*, Inc. collects sales information from retail, wholesale, manufacturer and other trade sources. Ad-

ditionally, Progressive Grocer has direct access to scanner information data from leading suppliers ACNielsen and Information Resources, Inc. (IRI). Progressive Grocer, Inc. focuses on supermarket sales by providing total sales figures and annual percent change data on 36 categories and hundreds of subcategories in *Progressive Grocer* (Progressive Grocer Associates, LLC, Stamford, CT) in their sales manual edition, in July of each year.

Text table 9 shows detailed annual estimates of food-at-home expenditures from the CE Diary Survey, compared to PCE and the trade association data. In general, the relationship among CE survey estimates and estimates from the three sources is as expected and is consistent over the period shown. Differences between the CE Diary Survey estimates and the three sources of food-at-home data are most likely due to differences in the methods of data collection and estimation. These variations reflect fundamental differences in the purposes for which the data are collected. Relatively low ratios may reflect underreporting in the CE.

The comparisons show that CE Diary Survey estimates of food-at-home expenditures for 1996 and 1997 are normally lower than PCE, which is based on administrative data and covers a larger population. In contrast, the CE Diary Survey estimates are generally higher than *Supermarket Business* estimates, which may reflect the difference in data collection methods. CE estimates are higher than *Progressive Grocer* estimates. This difference is expected, since this trade source only covers supermarkets, as defined above. CE survey estimates for fruits and vegetables, which are close to 10 percent below *Progressive Grocer* estimates and almost 30 percent below *Supermarket Business* estimates, may reflect underreporting in the CE Diary Survey.

**National Health Expenditures.** The Health Care Financing Administration (HCFA) of the U.S. Department of Health and Human Services publishes annual data on total aggregate health care expenditures of the United States, referred to as National Health Expenditures (NHE). Total health care expenditures include expenditures for health care by all sources in the United States economy, including public and private sources. The NHE data cover U.S. citizens living abroad, military personnel, inhabitants of U.S. territories, and parts of the institutional population—a larger population than covered by the Consumer Expenditure Survey. In particular, the NHE is designed to cover the nursing home population, whereas the Consumer Expenditure Survey is not.

Estimates of out-of-pocket personal health care expenditures from NHE are compared to the Consumer Expenditure Survey. Out-of-pocket expenditures for health care include expenditures for medical care that are not covered by insurance. Such expenditures can include copayments and deductible amounts required by health insurance plans. To derive its out-of-pocket estimates, HCFA uses data from administrative and industry sources, as well as some Consumer Ex-

penditure Survey data. The NHE estimates used for these comparisons reflect several updates in data sources since the last consumer expenditure bulletin comparisons.

Text table 10 shows Consumer Expenditure Survey estimates of aggregate expenditures for health care (excluding health insurance and nursing home care) and ratios to NHE estimates of out-of-pocket health care expenditures. As reported in the Consumer Expenditure Survey, aggregate medical care expenditures, excluding health insurance, were \$96.6 billion in 1997, or 62 percent of the NHE estimate of \$154.8 billion. Of the Consumer Expenditure Survey total, \$42 billion were spent on medical commodities and \$54.6 billion on medical services. These amounts were 70 percent and 57 percent of the NHE estimates, respectively. Data show variations in the Consumer Expenditure Survey-to-NHE ratios over the 1994-97 period for both medical commodities and medical services. These fluctuations may reflect volatility in spending on personal health care due to changes in health insurance plans. In addition, the comparison of health care expenditures may reflect underreporting in the CE.

**Current Population Survey.** The Bureau of the Census collects income data in the supplement to the Current Population Survey (CPS). Using data collected for calendar years 1995 through 1997, comparisons are made with Consumer Expenditure Survey estimates of total consumer unit income before taxes and by source of income. CPS estimates of aggregate income by source of income are derived from Census Bureau estimates of mean income of persons and the number of persons with the specified income.

There are several differences between the Consumer Expenditure Survey and the CPS. The CPS collects data in March for the previous calendar year. By comparison, in the Consumer Expenditure Survey estimates of income are obtained in the second and fifth interviews of the consumer unit. These estimates refer to the prior 12 months and, due to the rotating panel design of the survey, the interviews may occur any time during the year. The Census Bureau imputes CPS income data that are missing (due to nonresponse to income questions) based on demographic characteristics. In contrast, income data that are missing in the Consumer Expenditure Survey due to nonresponse are not imputed as part of the Consumer Expenditure Survey estimation procedure; instead, Consumer Expenditure Survey income estimates are based on complete income reporters only. Neither procedure accounts for underreporting.

In addition to the differences between the Consumer Expenditure Survey and the CPS described above, beginning in 1993, computer-assisted personal interviews collected the CPS income data. By comparison, the Consumer Expenditure Survey data are collected by traditional paper and pencil interview. The 1995 ratios reflect further revisions to CPS data to include the 1990 Census Bureau-based sample design, reductions in sample size and selected editing procedures. Due to

these changes in CPS collection and estimation methods, one should use caution when comparing current ratios to those for years before 1993 that can be found in previous bulletin publications.

Text table 11 shows that the Consumer Expenditure Survey estimates of total income before taxes are about 81 to 86 percent of the CPS. This reflects comparable levels of estimates from the two surveys for two of the largest sources of income; wages and salaries, and Social Security income. Also, self-employment income was generally comparable between the two surveys. Some of the differences in the estimates are

expected, because of the methodology differences between the two surveys described above and because the CPS is designed specifically to collect income data, whereas the Consumer Expenditure Survey is designed primarily to collect expenditure data. In addition, the CPS population is slightly larger than the Consumer Expenditure Survey population. Some of the variation in the ratios reflects the general difficulty of obtaining income information via household survey that is experienced by both the Consumer Expenditure Survey and CPS.

Text table 8. Comparison of aggregate expenditures for selected expenditure categories: Consumer Expenditure (CE) Survey and Personal Consumption Expenditures (PCE), 1994-97

Expenditure category	Consumer Expenditure Survey (in billions)				Ratio of CE to PCE			
	1994	1995	1996	1997	1994	1995	1996	1997
Food, total .....	\$ 437	\$ 450	\$ 475	\$ 491	0.73	0.73	0.75	0.75
Food at home .....	272	283	294	298	.71	.73	.73	.72
Food away from home <sup>1</sup> .....	165	167	181	194	.76	.75	.79	.82
Alcoholic beverages .....	28	28	32	33	.35	.34	.37	.37
Rent, utilities, and public services <sup>2</sup> .....	358	357	382	398	.97	.92	.94	.95
Rented dwellings, total .....	205	204	218	229	1.00	.94	.95	.96
Utilities, fuels, and public services .....	153	153	164	169	.94	.91	.93	.95
Telephone .....	71	73	81	85	.85	.83	.83	.82
Household operations <sup>3</sup> .....	26	25	27	29	.81	.73	.76	.78
Household supplies .....	36	38	41	42	.48	.49	.51	.50
Household furnishings and equipment .....	140	149	145	163	.66	.66	.60	.63
Apparel and services .....	168	176	184	184	.55	.56	.55	.53
Men and boys .....	40	44	44	43	.56	.59	.56	.52
Women and girls .....	67	68	75	72	.58	.58	.62	.57
Children under 2 .....	8	8	9	8	.52	.50	.49	.43
Footwear .....	26	29	31	33	.72	.77	.81	.83
Other apparel products and services .....	28	27	26	28	.40	.38	.33	.35
Transportation .....	477	461	516	518	.89	.81	.86	.83
Vehicle purchases <sup>4</sup> .....	246	226	258	250	1.14	1.01	1.12	1.06
Gasoline and motor oil .....	101	104	113	116	.94	.92	.92	.94
Other vehicle expenses <sup>5</sup> .....	95	98	103	114	.60	.56	.54	.56
Maintenance and repairs, total .....	69	68	67	71	.56	.52	.48	.50
Vehicle rental and other charges .....	26	30	35	42	.72	.71	.68	.70
Public transportation .....	36	34	42	39	.67	.60	.72	.60
Entertainment .....	155	161	178	185	.57	.55	.57	.56
Fees and admissions .....	45	45	48	50	.68	.61	.62	.61
Televisions, radios, sound equipment .....	57	58	61	65	.60	.56	.56	.57
Pets, toys, and playground equipment .....	30	33	35	34	.59	.63	.61	.57
Other entertainment supplies, equipment .....	23	25	34	36	.39	.38	.49	.47
Personal care products and services .....	41	42	53	56	.60	.58	.72	.71
Reading .....	22	22	23	24	.49	.45	.44	.44
Tobacco products and smoking supplies .....	26	28	27	28	.56	.57	.53	.54
Miscellaneous <sup>6</sup> .....	37	36	40	42	.25	.23	.23	.23

<sup>1</sup>Excludes school lunches and meals as pay.

<sup>2</sup>Includes rent for tenant-occupied dwelling units and lodging away from home and at school. Rent in the CE is contract rent, which includes utilities for some renters. The CE covers direct costs of utilities and fuels by homeowners and renters. In PCE, data are for space rent, which excludes charges for utilities. PCE data cover total expenditures for utilities and fuels, even if paid by landlords.

<sup>3</sup>Excludes amounts for baby-sitting, daycare centers, and care of invalids or the elderly.

<sup>4</sup>PCE estimates are derived, using estimates of dealer margin and wholesale value of net transactions between persons and government, foreigners, and non-dealer businesses. CE data on vehicle purchases and trade-ins were combined to approximate total value of new vehicle purchases. CE data on used vehicle purchases, trade-ins, sales, and losses were combined to approximate the value of net transactions of used vehicles.

<sup>5</sup>Includes vehicle rentals, maintenance and repairs, and other vehicle charges. The estimates exclude aircraft rentals, vehicle licenses, vehicle inspection, and vehicle registration.

<sup>6</sup>CE estimates exclude expenditures for other properties.

NOTE: Sums may not equal totals, due to rounding. Expenditure estimates for home ownership, insurance, capital improvements, health care, finance charges, education, and cash contributions are excluded from comparisons.

SOURCE: PCE estimates are shown in U.S. Department of Commerce, Bureau of Economic Analysis, "National Income and Product Accounts," *Survey of Current Business*, August 1998. Detailed PCE estimates used in comparisons are from unpublished annual PCE data as of November 1998.

Text table 9. Comparison of aggregate expenditures for food: Consumer Expenditure (CE) Diary Survey and Personal Consumption Expenditures (PCE), and trade association data, 1996-97

Food category	CE Diary survey (in billions)		Ratio of CE to PCE		Ratio of CE to Supermarket Business		Ratio of CE to Progressive Grocer	
	1996	1997	1996	1997	1996	1997	1996	1997
	Total .....	\$293.9	\$297.9	.73	.72	1.10	1.12	1.18
Cereals and cereal products .....	17.2	17.0	.73	.69	1.20	1.23	1.28	1.29
Bakery products .....	29.3	30.7	.75	.76	1.00	1.04	1.15	1.18
Beef, pork, other meat, poultry .....	63.9	65.5	.79	.78	1.10	1.13	1.10	1.09
Fish and seafood .....	9.2	9.3	.87	.85	1.34	1.36	3.17	3.17
Eggs .....	3.5	3.4	1.20	1.12	2.17	2.21	1.64	1.63
Fresh milk and cream .....	13.8	13.5	.98	.93	1.78	1.78	1.36	1.32
Other dairy products .....	18.7	19.5	.92	.93	1.33	1.40	1.08	1.08
Fresh fruits and vegetables .....	31.3	30.9	.93	.89	.73	.72	.95	.89
Processed fruits and vegetables .....	19.7	19.2	.68	.64	1.20	1.18	1.55	1.53
Sugar and other sweets .....	11.9	12.0	.40	.39	1.50	1.47	1.73	1.67
Fats and oils .....	8.6	8.5	.79	.76	1.26	1.27	1.50	1.45
Nonalcoholic beverages .....	26.2	25.8	.54	.52	1.02	.99	1.18	1.16
Miscellaneous prepared foods .....	40.6	42.5	.69	.69	1.18	1.22	1.04	1.04

NOTE: Sums may not equal totals, due to rounding.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey, annual. PCE estimates are shown in U.S. Department of Commerce, Bureau of Economic Analysis, "National Income and Product Accounts," *Survey of Current Business*, August 1998. Detailed PCE estimates used in the comparisons are from unpublished annual PCE data as of November 1998. Supermarket Business, Inc., "Consumer Expenditure Study," *Supermarket Business*, Howfrey Communications, LLC, September issues, 1997, 1998. Progressive Grocer Company, "The [year] Supermarket Sales Manual," *Progressive Grocer*, Progressive Grocer Associates, LLC, July issues, 1997, 1998.

Text table 10. Comparison of aggregate expenditures for health care: Consumer Expenditure (CE) Survey and National Health Expenditures, 1994-97

Expenditure Categories	Aggregate consumer expenditures Consumer Expenditure Survey (In billions)				Ratio of CE survey to National Health Expenditures <sup>1</sup>			
	1994	1995	1996	1997	1994	1995	1996	1997
	Health care, total <sup>2</sup> .....	\$94.4	\$88.7	\$94.9	\$96.6	.69	.64	.66
Medical commodities, total .....	37.5	37.0	41.5	42.0	.68	.66	.72	.70
Drugs and supplies .....	31.5	31.0	34.1	33.9	.66	.64	.67	.64
Medical equipment .....	5.9	6.0	7.4	8.1	.83	.85	1.07	1.18
Medical services, total .....	57.0	51.8	53.4	54.6	.69	.63	.61	.57
Professional services .....	46.0	44.5	44.5	45.4	.66	.63	.59	.55
Physicians services .....	16.7	15.1	14.8	14.1	.53	.50	.48	.41
Dental services .....	19.2	19.2	20.1	21.5	.96	.91	.91	.90
Other professional services .....	10.1	10.2	9.5	9.8	.55	.51	.43	.40
Hospital care .....	11.0	7.2	9.0	9.2	.86	.63	.76	.74

<sup>1</sup>The NHE data used are out-of-pocket expenditures.

<sup>2</sup>Excludes health insurance premiums, nursing home care, rental of medical equipment, and repair of medical equipment.

NOTE: Sums may not equal totals, due to rounding. CE categories have been grouped as needed to match NHE.

SOURCE: The NHE data used to obtain the ratios are from the U.S. Department of Health and Human Services, Health Care Financing Administration, "National Health Expenditures, 1998," *Health Care Financing Review*, Volume 20, Issue 1, Fall 1998. Also, available at <http://www.hcfa.gov/> are National Health Expenditures data.