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## omparisons 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 report, readers should avoid comparing these ratios with those in earlier BLS publications. Additionally, 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. These estimates 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, including persons 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 Expenditure Survey. In addition, BEA conducts annual revisions to PCE that affect earlier data and may also include changes in estimation methods. Therefore, due to 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 20 shows Consumer Expenditure Survey estimates of aggregate expenditures for selected expenditure categories for 1996 through 1999, 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.* Text table 21 shows detailed annual estimates of food-at-home expenditures from the CE Diary survey compared to PCE. In general, the relationship between CE survey estimates and estimates from PCE is as expected and is consistent over the period shown. Differences between the CE Diary survey estimates and the PCE 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. Comparisons show that CE Diary survey estimates of food-at-home expenditures for 1996 and 1999 are generally lower than PCE, which is based on administrative data and covers a larger population. The relatively low ratios may reflect underreporting in the CE.

*National Health Expenditures.* The Health Care Financing Administration (HCFA) of the U.S. Department of Health and Human Services publishes annual data, referred to as National Health Expenditures (NHE), on total aggregate health care expenditures of the United States. Total health care expenditures include expenditures for health care by all sources in the U. S. 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 is 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 personal health insurance or other sources of payment. 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 Consumer Expenditure Survey data.

Text table 22 shows Consumer Expenditure Survey estimates of aggregate expenditures for health care (excluding health insurance, nonprescription vitamins, nursing home care, and repair and rental of medical equipment) and ratios to NHE estimates of out-of-pocket health care expenditures (excluding nursing home care). As reported in the Consumer Expenditure Survey, aggregate medical care expenditures, excluding those expenditure items reported above, were \$105.9 billion in 1999, or 65 percent of the NHE estimate of \$162.6 billion (excluding nursing home care expenditures). Of the Consumer Expenditure Survey total, \$47.5 billion were spent on medical commodities and \$58.4 billion on medical services. These amounts were 65 percent of both the NHE medical commodities and services estimates. Medical services Consumer Expenditure Survey-to-NHE ratios show more variations over the 1996-99 period than do medical commodities. Fluctuations in medical services, such as out-of-pocket expenditures for physicians services and hospital care, may reflect volatility in spending on personal health care services due to changes in health insurance plans. In addition, comparison of health care expenditures may reflect underreporting in the Consumer Expenditure Survey.

*Current Population Survey.* The Bureau of the Census

collects income data in the Supplement to the Current Population Survey (CPS). The CPS is a household interview survey of approximately 60,000 households. Using data collected for calendar years 1997 through 1999, 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 specified income.

There are several differences between the Consumer Expenditure Survey and the CPS, in the concepts and methods of measuring income. The CPS collects data in March for the previous calendar year. By comparison, 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, 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.

Text table 23 shows that the Consumer Expenditure Survey estimates of total income before taxes are 81 to 82 percent of CPS. This reflects comparable levels of estimates from the two surveys for the two largest sources of income: wages and salaries (the largest source) and Social Security and railroad retirement income. Also, some smaller sources of income were comparable between the two surveys: Self-employment income; public assistance and Supplemental Security Income; pensions and annuities; and alimony, child support, and other regular financial support. Some differences in the estimates are expected, because of 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 greater than that of the Consumer Expenditure Survey.) Some variation in the ratios reflects the difficulty of obtaining income information via household survey that is experienced by both the Consumer Expenditure Survey and CPS.

Text table 20. Comparison of aggregate expenditures for selected expenditure categories: Consumer Expenditure (CE) Survey and Personal Consumption Expenditures (PCE), 1996-99

Expenditure category	Consumer Expenditure Survey (In billions)				Ratio of CE to PCE			
	1996	1997	1998	1999	1996	1997	1998	1999
Food, total .....	\$ 481	\$ 488	\$500	\$533	0.73	0.72	0.71	0.71
Food at home .....	294	298	292	312	.72	.72	.68	.70
Food away from home <sup>1</sup> .....	187	190	209	221	.75	.72	.75	.74
Alcoholic beverages .....	32	33	33	34	.33	.32	.31	.30
Rent, utilities, and public services <sup>2</sup> .....	382	398	406	414	.95	.96	.96	.95
Rented dwellings, total .....	218	229	237	248	1.00	1.02	1.01	1.01
Utilities, fuels, and public services .....	164	169	169	166	.89	.90	.91	.87
Telephone .....	80	85	89	92	.83	.81	.79	.76
Household operations <sup>3</sup> .....	27	29	30	37	.73	.74	.69	.79
Household supplies .....	41	42	42	45	.54	.53	.51	.52
Household furnishings and equipment .....	150	167	178	180	.64	.67	.68	.63
Apparel and services .....	187	183	180	190	.57	.54	.50	.48
Men and boys .....	43	41	43	46	.56	.51	.50	.50
Women and girls .....	75	72	70	71	.61	.56	.51	.48
Children under 2 .....	8	8	8	7	.88	.75	.70	.60
Footwear .....	31	33	30	33	.80	.83	.72	.76
Other apparel products and services .....	30	30	30	33	.37	.36	.34	.34
Transportation .....	522	525	545	594	.88	.85	.85	.85
Vehicle purchases <sup>4</sup> .....	263	256	282	323	1.17	1.10	1.10	1.13
Gasoline and motor oil .....	113	116	109	114	.93	.93	.97	.92
Other vehicle expenses <sup>5</sup> .....	103	114	112	116	.56	.57	.54	.53
Maintenance and repairs, total .....	67	71	69	72	.50	.52	.47	.47
Vehicle rental and other charges .....	35	42	43	44	.69	.71	.70	.67
Public transportation .....	43	39	43	40	.72	.60	.62	.55
Entertainment .....	173	179	178	190	.58	.57	.53	.52
Fees and admissions .....	46	48	48	50	.55	.53	.51	.48
Televisions, radios; sound equipment .....	59	61	60	70	.65	.64	.58	.63
Pets, toys, and playground equipment .....	35	35	35	37	.58	.55	.52	.51
Other entertainment supplies; equipment .....	34	36	34	33	.54	.54	.49	.43
Personal care products and services .....	53	56	43	44	.76	.75	.54	.52
Reading .....	23	24	24	25	.43	.43	.40	.37
Tobacco products and smoking supplies .....	27	28	29	33	.55	.56	.54	.49
Miscellaneous <sup>6</sup> .....	40	42	40	43	.22	.22	.19	.18

<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 ap-

proximate the value of net transactions of used vehicles.

<sup>5</sup>Includes vehicle rentals, maintenance and repairs, and other vehicle charges. 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 the 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 2000. Detailed PCE estimates used in the comparisons are from unpublished annual PCE data received May 2001.

Text table 21. Comparison of aggregate expenditures for food: Consumer Expenditure (CE) Diary Survey and Personal Consumption Expenditures (PCE), 1998-99

Food category	CE Diary survey (In billions)		Ratio of CE to PCE	
	1998	1999	1998	1999
Total .....	\$291.6	\$311.8	.68	.70
Cereals and cereal products .....	15.7	17.3	.68	.72
Bakery products .....	29.8	31.3	.67	.67
Beef, pork, other meat; poultry .....	77.4	81.2	.79	.80
Fish and seafood .....	1.5	11.5	1.10	1.15
Eggs .....	3.5	3.5	.77	.74
Fresh milk and cream .....	12.9	13.2	.89	.87
Other dairy products .....	19.4	21.7	.68	.73
Fresh fruits and vegetables .....	31.5	32.6	.85	.84
Processed fruits and vegetables .....	19.0	21.5	1.11	1.19
Sugar and other sweets .....	11.7	12.1	.38	.37
Fats and oils .....	8.2	9.1	.95	1.00
Nonalcoholic beverages .....	24.7	26.2	.40	.40
Miscellaneous prepared foods .....	41.5	45.5	.66	.69

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 2000. Detailed PCE estimates used in the comparisons are from unpublished annual PCE data received May 2001.

Text table 22. Comparison of aggregate expenditures for health care: Consumer Expenditure (CE) Survey and National Health Expenditures, 1996-99

Expenditure category	Aggregate consumer expenditures Consumer Expenditure Survey (In billions)				Ratio of CE survey to National Health Expenditures <sup>1</sup>			
	1996	1997	1998	1999	1996	1997	1998	1999
Health care, total <sup>2</sup> .....	\$95.0	\$96.6	\$99.5	\$105.9	.70	.67	.65	.65
Medical commodities, total ....	41.5	42.0	43.1	47.5	.67	.65	.64	.65
Drugs and supplies .....	34.2	33.9	35.2	38.9	.63	.61	.60	.60
Medical equipment .....	7.4	8.0	7.9	8.7	.91	.95	.92	.97
Medical services, total .....	53.4	54.6	56.4	58.4	.73	.69	.66	.65
Professional services .....	44.5	45.4	47.5	51.7	.71	.66	.65	.67
Physicians services .....	14.8	14.1	14.8	14.6	.45	.39	.38	.37
Dental services .....	20.1	21.5	22.8	24.2	.96	.93	.93	.95
Other professional services .....	9.5	9.8	9.9	12.9	1.16	1.04	.92	1.13
Hospital care .....	9.0	9.2	8.9	6.7	.86	.84	.76	.53

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

<sup>2</sup> Excludes health insurance premiums, nonprescription vitamins, 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, Office of the Actuary, National Health Statistics Group. The data is available online: <http://www.hcfa.gov>