

cause most agencies have revised their estimates since publication of data in the last Consumer Expenditure bulletin, readers should avoid comparing these ratios with those in earlier BLS publications. The survey data and several of the independent-source data are subject to both sampling and nonsampling error. The comparisons allow monitoring of the estimates for consistency over time, relative to the other sources.

Personal Consumption Expenditures in the National Income and Product Accounts. Historically, the principal source of independent estimates used for comparisons with the Consumer Expenditure Survey has been the Personal Consumption Expenditures (PCE), a component of the National Income and Product Accounts (NIPA).⁶

The PCE estimates represent the market value of goods and services purchased by all persons. The estimates are derived by complex methods that trace the flow of goods and services through the economy. Total expenditures of persons are defined to include expenditures of individuals 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 which are not compared with Consumer Expenditure survey data. The PCE estimates are not directly subject to the quantifiable sampling errors found in household surveys. However, they are subject to errors in the source data and to difficulties in applying complex procedures for allocating these data among the final demand sectors.

The Bureau of Economic Analysis (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 Consumer Expenditure survey data. 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 CE-to-PCE ratios in this report should not be compared with previously published ratios.

Text table 6 shows integrated Consumer Expenditure survey estimates for selected expenditure categories for 1990 through 1993. The Consumer Expenditure survey data were adjusted for comparability with PCE data. The Consumer Expenditure-to-PCE ratios indicate that CE survey estimates for major categories of consumption were lower than PCE.

⁶ The purpose of the accounts is to measure the economic activity of the entire U.S. economy. The accounts are prepared by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce.

For several categories of expenditure, the relationship between the two series over time has been generally about the same. These include: Food; alcoholic beverages; rent, utilities, fuels, and public services; and entertainment, to name a few.

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. Focusing on measuring total industry sales, the study reports estimates of the total value of retail food sales, covering all types of food stores. Results from the surveys are reported in *Supermarket Business*, usually in September of each year. Progressive Grocer, Inc. annually conducts an independent study of supermarket sales that focuses on the supermarket performance in relation to other kinds of retail outlets, comparing changes in sales by product and by category. Supermarkets, that is, grocery stores with annual food sales of \$2 million or more, account for about 75 percent of grocery store food sales. Detailed national estimates of the value of food sales in supermarkets, representing 30,750 supermarkets, are reported in *Progressive Grocer* in July of each year.

Text table 7 compares detailed annual estimates of food expenditures per consumer unit from the Consumer Expenditure Diary survey with PCE and the trade association data. In general, the relationship among Consumer Expenditure survey estimates and estimates from the three sources is as expected and is consistent over the period shown. The comparisons show that Diary survey estimates of food-at-home expenditures for 1992 and 1993 were generally lower than PCE, which covers a larger population. Ratios which show that CE is higher than PCE probably reflect differences in estimation methods. Relatively low ratios probably reflect underreporting in the Consumer Expenditure survey.

In contrast, the CE Diary survey estimates are generally higher than those of *Supermarket Business*. Differences between the two survey estimates are most likely due to different methods of data collection and estimation. These differences reflect fundamental differences in the purposes for which the data are collected.

Consumer Expenditure survey estimates are substantially higher than *Progressive Grocer* estimates. This is expected because this trade source only covers supermarkets, as noted above. CE survey estimates for fruits and vegetables, which are close to 10 percent below *Progressive Grocer* estimates, may reflect underreporting in the Diary survey.

National Health Accounts. The Health Care Financing Administration (HCFA) of the U.S. Department of Health and Human Services publishes total aggregate health costs of the United States in the National Health Accounts (NHA). Total health care costs include medical care payments from

all sources, public and private. The NHA 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 NHA is designed to cover the nursing home population, while the Consumer Expenditure Survey is not. To derive the out-of-pocket estimates, HCFA uses data from administrative and industry sources, as well as some Consumer Expenditure Survey data. The NHA estimates used for these comparisons reflect several

revisions in methodology and data sources since the last Consumer Expenditure bulletin comparisons.

The estimates are out-of-pocket expenditures for health care which include expenditures for medical care that are not covered by insurance. Such expenditures may include copayments and deductible amounts that are required by health insurance plans. In the 1990-91 Consumer Expenditure bulletin BLS compared estimates for out-of-pocket health insurance premium payments with estimates derived from NHA data. However, the NHA data needed to con-

Text Table 6. Comparison of aggregate expenditures for selected expenditure categories: Consumer Expenditure (CE) Survey and Personal Consumption Expenditures (PCE), 1990-93

Expenditure category	Consumer Expenditure Survey (in billions)				Ratio of CE to PCE			
	1990	1991	1992	1993	1990	1991	1992	1993
Food	\$408	\$410	\$420	\$431	0.76	0.75	0.76	0.75
Food at home	240	259	264	273	.70	.74	.75	.75
Food away from home ¹	168	151	156	158	.87	.76	.76	.74
Alcoholic beverages	28	29	30	27	.39	.38	.40	.35
Rent, utilities, and public services ²	297	305	328	336	.99	.96	1.00	.97
Rented dwellings, total	171	171	192	191	1.04	.99	1.07	1.02
Utilities, fuels, and public services	183	195	198	211	.96	.96	.93	.93
Telephone	57	61	62	66	1.07	1.06	.97	.97
Household operations ³	21	22	24	23	.85	.92	.88	.84
Household furnishings and equipment	148	159	160	164	.68	.71	.68	.66
Household textiles	10	10	9	10	.45	.45	.39	.41
Furniture	30	29	32	32	.82	.78	.82	.75
Floor coverings	9	11	7	9	.76	.99	.59	.71
Major appliances	16	15	16	17	.62	.57	.56	.53
Small appliances, miscellaneous household equipment ⁴	83	94	95	97	.68	.74	.72	.70
Apparel and services	160	171	172	168	.81	.85	.80	.75
Transportation	378	387	399	418	.81	.88	.84	.81
Vehicle purchases ⁵	182	187	194	208	.99	1.12	1.05	1.00
Gasoline and motor oil	102	97	97	98	.95	.97	.94	.94
Other vehicle expenses ⁶	67	74	80	82	.53	.58	.56	.53
Public transportation	27	28	28	30	.59	.63	.60	.61
Entertainment	129	136	141	155	.61	.62	.61	.62
Fees and admissions	36	37	38	41	.77	.76	.72	.74
Televisions, radios, sound equipment	44	46	49	59	.63	.61	.61	.66
Pets, toys, and playground equipment	27	26	27	29	.70	.67	.67	.68
Other entertainment supplies, equipment	44	54	53	51	.40	.48	.46	.42
Personal care products and services	35	39	39	38	.59	.64	.61	.58
Reading	19	20	21	22	.46	.48	.45	.45
Tobacco products and smoking supplies	27	27	27	27	.61	.60	.54	.53
Miscellaneous ⁷	33	31	34	33	.32	.29	.30	.27

¹ Excludes school lunches and meals as pay.

² 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.

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

⁴ Various subcategories are combined to approximate equivalent content.

⁵ The PCE estimates are derived using estimates of dealer margin (a concept which cannot be matched to CE) 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.

⁶ The estimates include vehicle rentals, maintenance and repairs, and other vehicle charges. The estimates exclude aircraft rentals, vehicle licenses, vehicle inspection, and vehicle registration.

⁷ 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: The PCE data that are used in the comparisons are from unpublished detailed tabulations of the National Income and Product Accounts of the U.S. Department of Commerce, Bureau of Economic Analysis as of July 1994. For more information on PCE see U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, *National Income and Product Accounts of the United States: Volume 2, 1959-88 (1992) and Survey of Current Business*, July 1994.

Text table 7. Comparison of annual aggregate expenditures for food: Consumer Expenditure (CE) Diary Survey, Personal Consumption Expenditures (PCE), and trade association data, 1992-93

Food category	CE Diary survey (in billions)		Ratio of CE to PCE		Ratio of CE to <i>Supermarket Business</i>		Ratio of CE to <i>Progressive Grocer</i>	
	1992	1993	1992	1993	1992	1993	1992	1993
Food at home, total	\$260.2	\$268.4	0.74	0.74	1.10	1.11	1.20	1.20
Cereals and cereal products	14.1	16.0	.64	.73	1.02	1.12	1.16	1.22
Bakery products	27.0	27.3	.68	.65	1.08	1.05	1.23	1.20
Beef, pork, other meat, poultry	58.4	61.7	.81	.86	1.08	1.13	1.11	1.15
Fish and seafood	7.7	8.7	1.23	1.45	1.20	1.37	2.80	3.23
Eggs	2.8	3.0	1.08	1.28	2.07	2.11	1.50	1.51
Fresh milk and cream	13.4	12.8	1.21	1.09	1.80	1.72	1.49	1.42
Other dairy products	16.8	16.7	.78	.75	1.40	1.36	1.20	1.17
Fresh fruits and vegetables	25.4	26.9	.90	.95	.70	.72	.89	.91
Processed fruits and vegetables	16.5	17.4	.62	.59	1.11	1.11	1.43	1.45
Sugar and other sweets	10.2	11.3	.37	.39	1.35	1.48	2.18	2.26
Fats and oils	7.2	7.8	.78	.81	1.13	1.21	1.36	1.52
Nonalcoholic beverages	21.3	22.4	.51	.55	.98	1.03	1.14	1.14
Miscellaneous prepared foods	38.5	36.5	.83	.75	1.30	1.19	1.16	1.05

NOTE: Sums may not equal totals due to rounding.

SOURCE: PCE estimates are shown in U.S. Department of Commerce, Bureau of Economic Analysis, "National Income and Product Accounts," *Survey of Current Business*, July 1994. Detailed PCE estimates used in the com-

parisons are from unpublished annual PCE data. Supermarket Business, Inc., "Consumer Expenditure Study," *Supermarket Business*, FM Business Publications, Inc., September issues, 1993-94. Progressive Grocer Company, "The [year] Supermarket Sales Manual," *Progressive Grocer*, Maclean Hunter Media Inc., July issues, 1993-94.

Text table 8. Comparison of aggregate expenditures for health care: Consumer Expenditure (CE) Survey and National Health Accounts, 1990-93

Expenditure categories	CE survey (in billions)				Ratio of CE to National Health Accounts			
	1990	1991	1992	1993	1990	1991	1992	1993
Health care, total ¹	\$85	\$86	\$90	\$95	0.73	0.71	0.70	0.71
Medical commodities, total	33	34	38	40	.68	.66	.71	.73
Drugs and supplies	26	27	30	30	.64	.61	.66	.69
Medical equipment	6	7	7	10	.94	1.00	1.00	.99
Medical services, total	52	52	52	55	.77	.75	.69	.69
Professional services	46	44	44	48	.78	.72	.67	.67
Hospital care	7	9	8	8	.66	.91	.87	.83

¹ Excludes health insurance premiums, nursing home care, and medical equipment repairs.

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

SOURCE: NHA data used to obtain the ratios are from the U.S. Department of Health and Human Services, Health Care Financing Administration, "National Health Expenditures, 1993," *Health Care Financing Review*, Volume 16, Number 1, Fall 1994.

Text table 9. Comparison of money income before taxes: Consumer Expenditure (CE) Survey and Current Population Survey (CPS), 1990-93

Income category	CE survey aggregate money income before taxes ¹ (in billions)				Ratio of CE to CPS			
	1990	1991	1992	1993	1990	1991	1992	1993
Money income before taxes ²	\$3077	\$3300	\$3364	\$3378	0.87	0.90	0.89	.87
Wage and salary income	2344	2502	2507	2651	.90	.93	.89	.88
Self-employment income	225	250	249	212	.98	1.11	1.10	.89
Social Security and retirement income	332	351	389	264	.97	.97	1.02	1.02
Property income	103	114	113	103	.39	.46	.49	.45
Unemployment, workers compensation, and veterans benefits	21	24	34	31	.59	.52	.68	.59
Public assistance and Supplemental Security income	23	26	32	32	.79	.80	.96	.82
Regular contributions and other income	30	33	41	36	.63	.68	.73	.61

¹ CE data are for complete reporters of income.

² Excludes the value of food stamps, meals as pay and rent as pay.

NOTE: Ratios are based on unrounded data.

SOURCE: CPS data on which ratios are based are from U.S. Department

of Commerce, Bureau of the Census, *Money Income of Households, Families, and Persons in the United States* (Annual), Series P-60, Numbers 174, 180, 184. Due to changes in the topcoding limits initiated in the March 1994 CPS income supplement, the CPS income estimates for 1993 are from unpublished tabulations derived using topcoding limits comparable with previous years.

struct comparable estimates for 1992 and 1993 are not available. Therefore, the comparisons in this report are for health care expenditures exclusive of consumers' health insurance premiums.

Text table 8 shows Consumer Expenditure estimates and CE-to-NHA ratios that compare estimates of out-of-pocket health care expenditures, less health insurance and nursing home care. As reported in the Consumer Expenditure Survey, aggregate health care expenditures were \$90 billion in 1993, or 71 percent of the \$135 billion estimated in the NHA. Of the CE total, \$40 billion were spent on medical commodities and \$55 billion on medical services. These amounts were 73 percent and 69 percent of the NHA estimates, respectively. The data show moderate variations in the CE-NHA relationship over the period for both medical commodities and medical services. Occasional dips in the ratios may reflect underlying underreporting or undetectable administrative error.

Current Population Survey. The Bureau of the Census collects income data in the March supplement to the Current Population Survey (CPS). There are several differences between the Consumer Expenditure Survey and the CPS. The CPS collects income data in March for the previous calendar year. By comparison, the Consumer Expenditure Survey estimates of income (from the Interview survey) 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 Interview survey, the interviews may occur anytime during the year. CPS income data are topcoded at the time of data collection, and as a result, some of the CPS income data at the upper and lower boundaries of the income distribution are limited to speci-

fied amounts. By comparison, all of the CE income data are reports of specific amounts.

Census imputes CPS income data that are missing (due to nonresponse to income questions) based on demographic characteristics. In contrast, Consumer Expenditure Survey estimates are for complete income reporters only; income data are not imputed as part of the estimation procedure. Neither procedure accounts for underreporting, which is especially prevalent for property income.

In the March 1994 supplement to the CPS survey, the Census Bureau collected income data by computer assisted personal interview (CAPI). As a result, the 1993 CPS estimates are not strictly comparable with earlier CPS data. When compared to the Consumer Expenditure Survey, which is collected by traditional paper and pencil interview, the 1993 estimates reflect a basic difference in collection method.

Text table 9 shows that the Consumer Expenditure survey estimates of total income before taxes are about 87 to 90 percent of the CPS estimates. This reflects similar ratios for the largest sources of income: Wages and salaries, self-employment income, and Social Security income. Some of the differences between the Consumer Expenditure Survey and CPS estimates are expected because the CPS is designed specifically to collect income data, while the focus of the Consumer Expenditure Survey is primarily on expenditures. In addition, the CPS population is about 3 percent larger than the CE population. The low ratios for property income reflect imputations for missing data in the CPS and underreporting in CE. Some of the variation in the ratios reflects the general difficulty of obtaining income information via household survey, which is experienced by both the Consumer Expenditure Survey and CPS.