

Consumer expenditures: results from the Diary and Interview surveys

Data from the Consumer Expenditure Survey show that urban consumers spent about two-thirds of their total expenditures on food, housing, and transportation

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Historically, the Bureau of Labor Statistics Consumer Expenditure Survey has been of importance largely for its role in periodically revising the Bureau's Consumer Price Index. Results from the survey are used to select new market baskets of goods and services for the CPI, and to determine the relative importance of the items selected. While this remains an important use of the Consumer Expenditure Survey, the increasing demand for more timely information about the spending habits of different kinds of households has expanded the role of the survey, making it an important source of information in its own right.

In the past, the expenditure survey was conducted about every 10 years, the previous one being in 1972-73. However, sharp increases in the costs of energy and housing during the 1970's highlighted the need for timely expenditure data in order to observe consumers' response to these phenomena. The BLS recognized the need for a survey that would provide a continuous flow of data, and began the current survey in 1980. Data from this ongoing survey allow analysts to track expenditures classified by household characteristics over a period of time and to link expenditure changes to changes in economic and social conditions. Among the characteristics by which the expenditures may be classified are: before-tax income, consumer unit size, age of reference person, region of residence, and number of earners.¹

Data from the 1982-83 Survey of Consumer Expenditures show that urban American consumers spent about two-thirds of their total expenditures on food, housing, and

transportation; they spent more than a third of their food dollar on food away from home; and average transportation expenditures increased 7 percent from 1980-81 to 1982-83, despite a 10-percent decline in gasoline expenditures. These are among the results that the Consumer Expenditure Survey provides and that this article describes.

Description of the survey

The expenditure survey consists of two separate components, each with its own questionnaire and sample: a quarterly interview survey in which each of the sampled consumer units reports information to an interviewer every 3 months for five consecutive quarters, and a diary survey in which consumer units are asked to complete a diary of expenses for two consecutive 1-week periods. At the same time, a great deal of information is obtained about the characteristics of the members of the consumer unit. The Interview survey is designed to obtain data on expenditures and income that respondents can be expected to recall for a period of 3 months or longer, such as property or automobile purchases, and those that occur on a regular basis, such as rent, utility bills, or insurance premiums. It is estimated that about 95 percent of expenditures are covered in the Interview survey. The Diary survey obtains data on frequently purchased items such as food and beverages, housekeeping supplies, and so forth, that respondents are less likely to be able to recall over long periods of time. Expenditures incurred away from home overnight or longer are excluded from the Diary survey. Spending on trips is obtained in the Interview survey. To obtain a complete picture of consumer spending, it is necessary to integrate results from both survey components. Data collection for both components of the

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survey is carried out by the Bureau of the Census under contract to the Bureau of Labor Statistics.

Average expenditure levels

Expenditures and income of consumer units classified by five household characteristics—income quintile, age of reference person, region of residence, size of consumer unit, and number of earners—are shown in tables 1 and 2. Table 1 includes Interview survey data and table 2 shows Diary survey data for 1982–83. The tables also include the number of consumer units and average consumer unit size for each class.

The interview data show that expenditures can vary substantially when classified by different consumer unit characteristics. The amount spent for food and housing by consumer units in the highest income quintile was more than three times the amount spent by those in the lowest income quintile. Consumer units with reference persons aged 65 and over spent four times as much on health care as those with reference persons under 25 years of age. Consumer units in the West spent 20 percent more on average for transportation than those in the Northeast, and four-person consumer

units spent twice as much on housing as single persons.

Results from the Diary survey show that consumer units in the highest income quintile spent more than 2½ times as much on food at home as the lowest income quintile consumer units, and more than 4½ times as much on food away from home. Consumer units whose reference person was under 25 years of age spent about 38 percent less for food at home than those with reference persons over 65 years of age, but spent 48 percent more for food away from home. Consumer units in the South spent about 11 percent less for food than those in the Northeast.

Budget shares

While actual expenditure levels are revealing to some users, others may find budget shares more appropriate. Budget shares are the portion of total expenditures spent on a component or the portion of an average component expenditure spent on a subcomponent.

For example, the interview data show that the highest income quintile consumer units spent more than three times the amount for food and housing than did those in the lowest quintile, but that amount accounted for only a 44-percent

Table 1. Average annual income and expenditures by selected household characteristics, urban United States, Interview survey, 1982–83

Characteristic	Number of consumer units (thousands)	Income before taxes ¹	Consumer unit size	Expenditures								
				Total	Food and alcoholic beverages	Housing	Apparel and services	Transportation	Health care	Entertainment	Personal insurance and pensions	Other
All consumer units	71,570	\$22,702	2.6	\$18,892	\$3,422	\$ 5,784	\$1,030	\$3,712	\$ 822	\$ 870	\$1,625	\$1,628
Income quintile: ¹												
Lowest 20 percent	12,328	4,097	1.8	8,324	1,887	2,980	429	1,231	514	284	191	807
Second 20 percent	12,321	10,611	2.3	12,155	2,529	3,994	612	2,259	807	429	570	954
Third 20 percent	12,373	18,129	2.6	16,733	3,150	5,032	870	3,451	825	710	1,301	1,395
Fourth 20 percent	12,337	28,231	3.0	22,425	3,965	6,466	1,174	4,604	882	1,123	2,347	1,864
Highest 20 percent	12,403	52,267	3.3	35,171	5,302	10,188	2,054	6,950	1,074	1,851	4,548	3,204
Age of reference person:												
Under 25	7,013	11,537	1.8	11,617	2,178	3,410	782	2,623	307	581	722	1,013
25–34	17,210	23,835	2.7	19,271	3,305	6,409	1,071	4,052	547	977	1,724	1,186
35–44	13,028	29,718	3.5	24,296	4,368	7,494	1,428	4,758	753	1,294	2,209	1,991
45–54	10,034	31,198	3.2	24,718	4,473	6,870	1,366	4,991	936	1,075	2,469	2,537
55–64	10,436	24,450	2.4	19,497	3,588	5,374	993	3,656	1,056	799	2,155	1,877
65 and over	13,849	13,583	1.7	12,346	2,421	4,123	515	1,972	1,228	390	401	1,296
Region of residence:												
Northeast	16,236	21,704	2.5	18,038	3,535	5,677	1,002	3,360	758	779	1,354	1,573
Midwest	18,666	22,318	2.6	18,881	3,358	5,731	987	3,667	786	876	1,793	1,683
South	22,833	22,472	2.7	18,444	3,254	5,479	1,033	3,798	863	793	1,645	1,581
West	13,835	24,655	2.5	20,650	3,653	6,484	1,118	4,044	876	1,097	1,685	1,693
Size of consumer unit:												
One person	20,523	13,361	1.0	11,469	2,058	3,827	608	2,046	539	499	775	1,117
Two persons	20,946	23,423	2.0	19,377	3,328	5,909	992	3,851	1,023	850	1,740	1,684
Three persons	11,344	26,970	3.0	21,472	3,816	6,490	1,163	4,367	866	955	2,000	1,813
Four persons	10,726	30,992	4.0	24,959	4,610	7,575	1,473	4,891	858	1,248	2,326	1,979
Five persons	4,801	29,803	5.0	25,656	4,965	7,365	1,437	5,354	926	1,319	2,181	2,110
Six or more persons	3,230	26,086	6.8	23,658	5,080	6,628	1,418	4,735	882	1,142	1,818	1,955
Number of earners:												
One-person consumer units:												
No earner	7,060	7,130	1.0	7,707	1,519	3,107	300	926	756	205	47	846
One earner	13,463	16,400	1.0	13,442	2,341	4,205	770	2,633	425	653	1,156	1,259
Consumer units of two or more persons:												
No earner	7,252	12,278	2.5	12,759	2,854	4,324	542	2,071	1,167	447	161	1,193
One earner	15,059	22,107	3.1	19,289	3,639	6,159	1,054	3,492	948	918	1,504	1,576
Two earners	21,476	30,661	3.1	24,175	4,081	7,301	1,341	5,055	804	1,161	2,565	1,867
Three or more earners	7,260	38,130	4.6	29,556	5,445	7,511	1,742	6,545	1,068	1,383	2,964	2,898

¹ Includes only consumer units providing complete reports of income.

share of their total expenditures, compared with a 58-percent share of the total for those in the lowest quintile. Almost 10 percent of the total expenditures of consumer units with reference persons aged 65 and over were spent on health care, compared with less than 3 percent spent by those with reference persons under 25. The youngest consumer unit class spent 23 percent of their total on transportation, compared with 16 percent spent by the oldest class of consumer units. Food and housing expenditures accounted for a relatively constant share of total expenditures across consumer unit size classes. Single persons spent 51 percent of their total on food and housing, two-person consumer units spent about 48 percent, and shares for other size classes fell within that range.

The diary data show that consumer units spent over a third of their total food dollar on food away from home. The youngest class of consumer units spent about 47 percent of their food dollar on food away from home, compared with only 27 percent for the oldest class.

Food expenditures away from home were also influenced by the number of wage earners in the consumer unit. Single-

person consumer units in which the individual was not a wage earner—primarily elderly persons—spent 31 percent of total food expenditures away from home, compared with 58 percent for those in which the individual was a wage earner. Consumer units of two or more persons with no wage earner spent 23 percent of their food budget away from home, compared with 30 percent for those with one earner, and 37 percent for those with two earners.

Income also influences expenditures for food away from home. Consumer units in the lowest income quintile spent 30 percent of their total food expenditures on food away from home, compared with 42 percent for those in the highest quintile. For the middle income quintile, the proportion was about 33 percent.

Aggregate expenditure shares

Some users of expenditure data may be interested in the aggregate amount spent on a component by a particular class of consumer units. Or they may be interested in the portion that amount is of aggregate spending by all consumer units. For such users, aggregate expenditure shares are another

Table 2. Average weekly income and expenditures by selected consumer unit characteristics, urban United States, Diary survey, 1982-83

Characteristic	Number of consumer units (thousands)	Income before taxes ¹	Consumer unit size	Items of expenditure							
				Food, total	Food at home	Food away from home	Alcoholic beverages	Tobacco products and smoking supplies	Personal care products and services	Nonprescription drugs and supplies	Housekeeping supplies
All consumer units	73,145	\$418.25	2.5	\$55.11	\$35.51	\$19.60	\$ 5.46	\$3.24	\$4.46	\$1.85	\$5.44
Income quintile: ¹											
Lowest 20 percent	11,367	72.02	1.7	28.08	19.74	8.34	2.64	2.00	2.35	1.12	2.71
Second 20 percent	11,374	192.77	2.3	41.95	30.01	11.94	3.62	2.79	3.20	1.31	3.92
Third 20 percent	11,380	336.71	2.6	54.39	36.39	18.00	5.29	3.66	4.20	1.90	5.57
Fourth 20 percent	11,387	524.67	2.9	67.86	43.44	24.42	6.48	4.16	5.34	2.41	6.84
Highest 20 percent	11,393	963.90	3.2	91.16	52.99	38.17	10.61	4.22	8.08	2.98	9.37
Age of reference person:											
Under 25	8,467	216.83	1.8	32.33	17.00	15.34	5.11	2.33	2.63	.53	2.43
25-34	16,767	433.90	2.7	54.22	33.20	21.03	6.46	3.07	3.95	1.78	5.02
35-44	13,465	557.63	3.4	71.27	46.01	25.26	6.16	4.16	5.42	1.79	7.00
45-54	9,744	593.87	3.1	74.48	48.78	25.70	6.64	4.41	6.04	2.60	7.43
55-64	10,498	469.42	2.3	59.59	39.28	20.31	5.78	3.81	5.18	2.29	5.97
65 and over	14,203	246.02	1.7	37.80	27.42	10.37	2.80	1.87	3.63	1.96	4.50
Region of residence:											
Northeast	17,307	429.83	2.5	58.48	38.48	20.00	5.58	3.51	4.41	1.67	5.53
Midwest	18,981	394.92	2.6	53.23	34.73	18.50	4.86	3.39	4.45	1.57	6.05
South	21,637	404.44	2.5	52.24	33.30	18.94	5.14	3.18	4.37	1.93	4.86
West	15,219	452.65	2.4	57.68	36.23	21.45	6.54	2.81	4.66	2.32	5.41
Size of consumer unit:											
One person	22,181	239.46	1.0	28.12	13.98	14.14	4.60	1.78	2.60	.93	2.51
Two persons	20,416	451.94	2.0	53.97	33.77	20.20	6.22	3.32	4.97	2.06	5.84
Three persons	12,472	482.58	3.0	62.14	42.62	19.53	5.44	3.90	4.61	2.66	6.06
Four persons	10,626	576.44	4.0	81.21	53.90	27.31	6.30	4.30	6.14	2.43	8.25
Five persons	4,681	535.50	5.0	87.65	63.07	24.58	4.91	4.48	6.13	1.93	7.81
Six or more persons	2,769	496.50	6.7	92.72	71.58	21.14	4.69	5.12	5.69	1.78	8.47
Number of earners:											
One-person consumer units:											
No earner	8,155	128.96	1.0	22.51	15.49	7.03	1.69	1.32	2.51	1.14	2.58
One earner	14,026	298.17	1.0	31.39	13.10	18.28	6.29	2.05	2.65	.80	2.46
Consumer units of two or more persons:											
No earner	7,137	231.60	2.5	45.40	34.98	10.42	2.68	2.42	3.71	1.89	5.25
One earner	16,186	403.35	3.1	62.53	43.96	18.56	4.59	3.54	4.82	2.49	6.57
Two earners	21,216	590.19	3.1	68.16	43.11	25.05	7.16	4.17	5.53	1.96	6.57
Three or more earners	6,424	716.25	4.5	97.25	64.03	33.22	8.15	5.31	7.32	3.06	9.24

¹ Includes only consumer units providing complete reports of income.

way of analyzing the consumer expenditure data.

Aggregate expenditures on a component are determined by multiplying the mean expenditure on that component by the total number of consumer units. The aggregate expenditure share of a class of consumer units is determined by multiplying the class's mean expenditure on the component by the number of consumer units in the class and dividing by the aggregate expenditure. This differs from the budget share of a class of consumer units which is the average amount spent on a component as a portion of the average total expenditures of the class. Even though the class's component budget share may be large, the aggregate expenditure share will be relatively small if the class size is small or the class mean expenditure for the component is low relative to that of other classes. For example, the interview data show that consumer units with reference persons under age 25 spent 23 percent of their average total expenditures on transportation, compared with 20 percent spent by all consumer units. However, because the dollar value of their mean expenditure is low relative to most other classes, the aggregate expenditure share for units in the under-25 class was only about 7 percent of total aggregate transportation expenditures, although they account for 10 percent of the total number of consumer units.

The Diary survey data show that consumer units with reference persons age 65 or over had an aggregate expenditure share for food of 13 percent even though the class made up about 19 percent of the population. When classified by income quintile, each income class has a 20-percent population share (of complete income reporters), but aggregate food expenditure shares varied from 10 percent for consumer units in the lowest quintile to 32 percent for those in the highest quintile.² By size of household, one- and two-person households accounted for 43 percent of aggregate food expenditures, but 51 percent of aggregate expenditures for food away from home. By age of reference person, consumer units with reference persons age 65 or over accounted for 21 percent of aggregate expenditures for non-prescription drugs and supplies, compared with 3 percent for consumer units with reference persons under 25.³

Per capita expenditures

Average consumer unit size varies by classifications of consumer units according to age of reference person, number of earners, and so forth. It may be useful to also consider per capita expenditures because consumer unit size may contribute to differences in expenditures among classes.

For age classes, mean expenditure levels per consumer unit generally increase with age until they peak in the middle age classes, then decline. However, per capita expenditures show a different pattern. Per capita expenditures for housing are highest, \$2,425, for the age class with reference persons age 65 or over, compared with the lowest per capita housing expenditure of \$1,894 by consumer units with reference persons under 25.

Data from the Diary survey show that expenditure levels

for food at home are highest for age classes with reference persons ages 35 to 44 and 45 to 54. However, the highest per capita expenditures are for those classes with reference persons ages 55 to 64 and 65 or over. Average expenditures for nonprescription drugs and supplies are highest for the class with reference persons ages 45 to 54, but per capita expenditures are highest for the class with reference persons age 65 or over.

Expenditure changes over time

Consumer Expenditure Survey data are used to document changes in the expenditure patterns of American consumers over a period of time. Changes in expenditure patterns can be attributed to such factors as shifts in relative prices and wage rates, changes in tastes and habits, changes in lifestyles, and the availability of new products. Demo-

Table 3. Characteristics and average annual expenditures of urban consumer units, and percent change in consumer expenditures, interview survey, and Consumer Price Index, 1972-73 and 1982-83¹

Item	1972-73	1982-83	Percent change	
			Consumer expenditures	CPI-U
Number of consumer units (in thousands)	58,948	70,329	19	—
Consumer unit characteristics:				
Income before taxes ²	\$12,388	\$23,027	86	—
Size of consumer unit	2.8	2.6	—	—
Age of reference person	47.1	46.6	—	—
Number in consumer unit:				
Earners	1.3	1.4	—	—
Vehicles	1.8	1.8	—	—
Children under 18	1.0	.7	—	—
Persons 65 and over	.3	.3	—	—
Total expenditures	\$9,421	\$19,128	103	—
Food	1,675	3,175	90	118
Food at home	1,313	2,238	70	113
Food away from home	362	937	159	130
Alcoholic beverages	89	286	221	76
Housing	2,638	5,869	122	—
Shelter	1,507	3,309	120	—
Owned dwellings	746	1,947	161	—
Rented dwellings	644	1,065	65	389
Other lodging	117	296	153	3164
Fuels, utilities, and public services	581	1,512	160	3192
Household operations	138	275	99	127
Housefurnishings and equipment	411	773	88	71
Apparel and services	732	1,039	42	56
Transportation	1,762	3,766	114	142
Vehicles	709	1,425	101	3130
Gasoline and motor oil	404	1,076	166	232
Other vehicle expenses	540	1,034	91	3102
Public transportation	110	231	110	146
Health care	432	834	93	154
Entertainment	389	879	126	88
Personal care services	106	178	68	103
Reading	50	128	156	3119
Education	126	257	104	3126
Tobacco	131	208	59	98
Miscellaneous	102	274	169	—
Cash contributions	372	586	58	—
Personal insurance and pensions	818	1,651	104	—
Life and other personal insurance	367	262	-29	—
Retirement, pensions, Social Security	451	1,388	208	—

¹ Expenditure categories for 1972-73 were adjusted to correspond with 1982-83 definitions; estimates for 1982-83 exclude students.

² Income before taxes is calculated using complete income reporters.

³ Estimated.

graphic trends such as changes in average family size, age, and earner composition can also affect expenditures. The current, ongoing survey allows users to recognize trends more quickly than was possible in the past, and to identify trends that might have been missed altogether using data that were only infrequently available.

Tables 3 and 4 show Interview and Diary survey results from 1972-73 and 1982-83 and percent changes between the two periods. Also shown are CPI changes. The interview data show that gasoline and motor oil expenditures increased 166 percent from 1972-73 to 1982-83, while total expenditures rose 103 percent. This reflects the large increases in energy costs in the 1970's resulting from oil price increases. While the increase in gasoline and motor oil expenditures was somewhat higher than the increase in total expenditures, it was still well below the 232-percent price rise measured by the CPI. That was the result of consumers

modifying their behavior in response to price increases by reducing their gasoline and motor oil consumption, and adjusting their longer term buying habits, as by purchasing more fuel-efficient automobiles.

Although gasoline and motor oil expenditures rose sharply over the decade 1972-73 to 1982-83, they actually decreased by 10 percent from 1980-81 to 1982-83. This recent decline can be attributed to falling prices and conservation measures over that period. These are the kinds of trends that might have been missed had data for 1980-81 not been available.

Diary survey data show that average weekly expenditures for food increased 70 percent between 1972-73 and 1982-83, well below the 104-percent price rise for food measured by the CPI. Expenditures for food away from home increased 113 percent over the period, compared with a more modest increase of 53 percent for food at home. The changes in the expenditure data and the CPI for food away from home were quite similar (113 percent, compared with 120 percent), while there was a sharp difference in the changes for food at home (53 percent, compared with 99 percent).

Between 1972-73 and 1982-83, CPI-measured prices increased more than average expenditures for all food at home categories. Food categories with the largest price increases tended to have the largest expenditure increases. However, prices for meats, poultry, fish, and eggs rose 70 percent, while expenditures for those items rose only 24 percent.

While not presented in this article, expenditure data for specific products and services keep track of the speed with which new products are disseminated. Such data are available on public use tapes. The following tabulation shows mean expenditures from the Interview survey, for selected items:

	1980	1981	1982	1983
VCR	\$ 8	\$ 10	\$ 23	\$ 21
Cable TV	31	43	59	79
Child care and babysitting	76	91	91	108

This article has presented some of the ways of analyzing the consumer expenditure data. As speed and efficiency in processing the data improve, the uses of the data and the number of users are expected to multiply. The timeliness of this ongoing survey enhances its application not only in revising the CPI, but also as a valuable information source for public and private analysts examining the relationships of family characteristics, income, and expenditures. □

Table 4. Characteristics and average weekly expenditures of urban consumer units, and percent change in consumer expenditures, Diary survey, and Consumer Price Index, July 1972-June 1974 and 1982-83

Item	July 1972-June 1974	1982-83 ¹	Percent change	
			Consumer expenditures	CPI
Number of consumer units (in thousands)	59,159	71,356	—	—
Consumer unit characteristics:				
Income before taxes ²	\$187.46	\$427.21	128	—
Size of consumer unit	2.8	2.6	—	—
Age of reference person	47.1	46.4	—	—
Number in consumer unit:				
Earners	1.3	1.3	—	—
Children under 189	.7	—	—
Persons 65 and over3	.3	—	—
Average weekly expenditures:				
Food, total	\$33.11	\$56.16	70	104
Food at home, total	23.79	36.32	53	99
Cereals and bakery products	2.79	4.82	73	118
Meats, poultry, fish, and eggs	9.35	11.55	24	70
Dairy products	3.23	4.90	52	89
Fruits and vegetables	3.48	5.99	72	102
Other food at home	4.93	9.06	84	160
Food away from home	9.32	19.83	113	120
Alcoholic beverages	2.32	5.51	138	72
Tobacco products and smoking supplies	2.19	3.30	51	95
Personal care products and services	2.92	4.53	55	102
Nonprescription drugs and supplies	1.19	1.89	59	103
Housekeeping supplies	2.99	5.55	86	144

¹ Excludes students.
² Income before taxes is calculated using complete income reporters.

FOOTNOTES

¹ A consumer unit is defined as a single person or group of persons in a sample household, related by blood, marriage, adoption, or other legal arrangement, or who share responsibility for at least two out of three major types of expenses—food, housing, and other expenses.

² The distinction between complete and incomplete income reporters is based in general on whether the respondent provided values for major

sources of income, such as wages and salaries, self-employment income, and Social Security income. Even complete income reporters may not have provided a full accounting of all income from all sources.

³ For a more detailed discussion of aggregate expenditure shares, including data tables, see Kirk Kaneer, "Distribution of consumption examined using aggregate expenditure shares," *Monthly Labor Review*, April 1986, pp. 50-53.