

# Characteristics of Complete and Intermittent Responders in the Consumer Expenditure Quarterly Interview Survey

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**T**he Consumer Expenditure (CE) Quarterly Interview Survey collects data from consumer units (CUs) across the United States. Some CUs complete all five interviews, others complete some, but not all, of the interviews, and some choose not to participate in the survey at all. These CUs can be called complete responders, intermittent responders, and nonresponders, respectively. Do the nonresponses of the intermittent responders and nonresponders affect the published CE estimates? Are the CUs who stay in the survey for all five interviews different from those who do not?

To answer these questions, this study uses the CE Interview Survey data collected from 1997 to 2000. In the study, characteristics and expenditures of complete responders and intermittent responders are compared. Nonresponders are excluded because very little information about them is collected.

## Background and definitions

The CE Interview Survey is a rotating panel survey in which a random sample of residential addresses is selected and the CUs living at those addresses are asked to report their expenditures during the previous 3 months. The U.S. Census Bureau collects these data for the Bureau of Labor Statistics. The random sample of residential addresses is selected by means of systematic sam-

pling, and the CUs at those addresses are interviewed by the Census Bureau field representatives once per quarter for five consecutive quarters. After the fifth quarter, the CU leaves the sample and a new address is selected to replace it. The CE sample is representative of the total civilian population of the United States not living in institutions.

In the initial CE Interview, respondents are asked to report all of the expenditures they made during the previous month. This interview is used only for “bounding” purposes—that is, to make sure that the expenditures reported in the second through fifth interviews reflect the correct periods. In the second through fifth interviews, expenditure data are collected for the 3 months prior to the interview. Only the expenditure data collected in the second through fifth interviews are used to compute official CE estimates. Data collected in each quarter are treated independently, so annual estimates do not depend upon any CUs participating for all five quarters.

Following are some of the terms that will be used in this article, together with their definitions:

*Household.* The people who occupy a housing unit. A housing unit is a house, an apartment, a mobile home, a room, or a group of rooms occupied (or intended to be occupied) as separate living quarters.

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*INTERI*. Interview number (1 through 5).

*INSTAT*. Final interview status (01 through 19):

01 = Interview

**Type A noninterviews:**

02 = No one home  
03 = Temporarily absent  
04 = Refused  
05 = Other Type A noninterviews

**Type B noninterviews:**

06 = Vacant (for rent)  
07 = Vacant (for sale)  
08 = Vacant (other)  
09 = Occupied by person whose usual residence is elsewhere  
10 = Under construction (not ready)  
11 = Other Type B noninterviews

**Type C noninterviews:**

12 = Demolished  
13 = House or mobile home moved  
14 = Converted to nonresidential use  
15 = Merged  
16 = Condemned  
17 = Located on military base  
18 = CU moved  
19 = Other Type C noninterviews

*Interview*. An interview is completed by an eligible CU (*INSTAT* = 01).

*Type A noninterviews*. An address is within the scope of the survey and eligible for interview, but an interview is not obtained (*INSTAT* = 02 through 05).

*Type B noninterviews*. An address is within the scope of the survey, but is not eligible for interview (*INSTAT* = 06 through 11).

*Type C noninterviews*. An address is out of the scope of the survey or permanently ineligible for the CE sample (*INSTAT* = 12 through 19).

*CU (consumer unit)*. See "Glossary" in Appendix A at the end of this anthology.

*Reference person*. See "Glossary" in Appendix A at the end of this anthology.

### Consumer units used

In this study, selected demographic characteristics of CUs who completed the last four interviews (*INTERI* = 2 through 5) were compared with corresponding characteristics of those who

did not. To make these comparisons, the universe of CUs from which data were collected was subdivided, using the following criteria:

- Only CUs scheduled to participate in all five interviews between January 1997 and December 2000 were used, in order to follow CUs' history in the survey.
- Only CUs who completed one or more of the last four interviews (*INTERI* = 2 through 5) were used, because the demographic characteristics examined in the study are not collected in the first interview.

The response rates for the CUs used in the current study are different from the CE response rates published in CE reports, because not all CUs were used in the study. Table 1 shows the response rates computed from all records in the CE sample, compared with the response rates computed from only the records used in the study. The study's CUs had higher response rates and lower nonresponse rates than the complete universe of CUs had, because the study excludes CUs who completed none of the last four interviews (*INTERI* = 2 through 5).

Typically, Type B and Type C noninterviews are not used in response rate calculations, because they are ineligible or out of the scope of the survey. Response rates usually are computed with the following formula:

$$\text{Response Rate} = \frac{\text{Interviews}}{\text{Interviews} + \text{Type A}} \times 100.$$

Table 2 shows response rates for CUs who completed the third interview; the third and fourth interviews; and the third, fourth, and fifth interviews, given that they completed the second interview. Of the CUs who completed the second interview, 93.1 percent also completed the third interview, 88.7 percent completed the third and fourth interviews, and 85.9 percent completed the third, fourth, and fifth interviews.

### Demographic characteristics of complete and intermittent responders

Table 3 compares some demographic characteristics of the CUs who completed all of the last four interviews (complete responders) with those of CUs who did not (intermittent responders). The complete responders tend to have more members and to be older than the intermittent responders and also are more likely to be homeowners and married couples. The average number of persons in a complete-responder CU is 2.6, compared with 2.3 for the intermittent responders. Likewise, the average age of the reference person in complete-responder CUs is greater (50.6, compared with 40.9), the average quarterly expenditure per CU on all items is greater (\$8,981, as opposed to \$7,504), and the average quarterly expenditure per person is greater (\$3,442, as against \$3,212) than in intermittent-responder CUs. Complete-responder CUs also are more likely to have both husbands and wives present in the household (57.2 percent, compared with 39.8 percent), less likely to be single consumers (25.3 percent versus 37.5 percent), more likely to be homeowners (73.2 percent, as opposed to 41.0 percent), and more likely to be the only CU living in the household (98.3 percent, compared with 87.3 percent).

Table 4 shows some of the same CU characteristics, by type of noninterview. CUs who had one or more Type B or Type C noninterviews tend to be relatively young (the average age of the reference person is 36.0), have few people in them (2.2 persons, on average), have a low average expenditure per CU (\$6,863), and have a low average expenditure per person (\$3,124).

### CUs who drop out of the survey

CUs are considered to have dropped out of the survey permanently when no more of their interviews are completed with interview status code *INSTAT* = 01. These CUs are a subset of the intermittent responders. The reason they have dropped out of the survey can be identified by the interview status code of the first noninterview

after their last completed interview. Table 5 shows that the most common reason for dropping out of the survey is “refusal” (23.7 percent), followed by “other” unspecified Type C noninterviews (19.5 percent), “vacant, for rent” (19.4 percent), and “vacant, other” (14.1 percent).

Table 6 shows the percentage of CUs who came back and participated in the survey after a refusal. Of the CUs whose first refusal was in the second interview, only 30.8 percent completed one or more of the remaining interviews. Of the CUs whose first refusal was in the third interview, 52.7 percent completed one or more of the remaining interviews, and of the CUs whose first refusal was in the fourth interview, 47.4 percent completed the fifth interview. Overall, there were 5,554 CUs whose first refusal was in one of interviews 2 through 4, and 36.8 percent of them eventually came back to participate in the survey.

### The effect of intermittent responders on CE expenditure estimates

Table 7 shows the total number of interviews completed by both the complete and intermittent responders. There were 24,860 CUs used in the study and 56.5 percent of them completed all four interviews. Those CUs accounted for 73.1 percent of all interviews. By contrast, 43.5 percent of the CUs in the study responded intermit-

tently, and they completed 1.9 interviews, on average. The intermittent responders accounted for only 26.9 percent of all interviews.

The average quarterly expenditure is higher for CUs who completed all four interviews than for those who did not (\$8,981, compared with \$7,504); the overall average expenditure was \$8,584. To estimate the effect that intermittent responders have on the CE expenditure estimates, the average quarterly expenditure per CU can be computed in two different ways by changing the weights used for the intermittent respondents. In table 7, the overall average expenditure per CU can be computed by weighting the two sets of CUs by the actual number of completed interviews:

$$\$8,584 = \frac{(56,160 \times \$8,981) + (20,702 \times \$7,504)}{56,160 + 20,702}$$

If the response rates could be increased so that the intermittent responders completed all four interviews, then those CUs would have completed 43,280 ( $= 4 \times 10,820$ ) interviews. If, in addition, their expenditures are independent of their (non)participation in the CE Survey, the weighted average would be \$8,339, because

$$\$8,339 = \frac{(56,160 \times \$8,981) + (43,280 \times \$7,504)}{56,160 + 43,280}$$

The \$8,339 figure is a 2.9-percent

decrease from the \$8,584 calculated the first way, indicating that the effect of intermittent responders on the overall average expenditure is relatively small. Moreover, every CU in the CE Survey has a weight associated with it, and the weights include adjustments for nonresponses. As a result of these adjustments, the 2.9-percent difference computed here can be viewed as an upper bound on the true difference; hence, the effect of intermittent responders on the published CE estimates is probably considerably less than 2.9 percent.

### Conclusions

The study presented in this article looked at CE data collected from 1997 to 2000 and found that CUs who completed all of the survey’s last four interviews (INTERI = 2 through 5) are different from CUs who responded only intermittently. CUs who completed all four interviews are larger and older and are more likely to be homeowners and married couples than are CUs who responded only intermittently. The study also found that the nonresponses of the intermittent responders appear to have a relatively small effect on the published estimates. An upper bound on this effect was calculated to be 2.9 percent, but, because CU weights in the CE Survey include adjustments for nonresponses, the actual effect is probably considerably smaller. ■

**Table 1. Response and nonresponse rates for all records, compared with those for records from CUs in this study**

Item	All records (INTER1 = 1-5)		Records from CUs in this study	
	Number	Percent	Number	Percent
Interviews (I) .....	135,383	65.6	76,862	84.3
Type A noninterviews (A) .....	32,982	16.0	6,992	7.7
Refusals (R) .....	27,095	13.1	5,272	5.8
Other Type A noninterviews .....	5,887	2.9	1,720	1.9
Type B noninterviews .....	29,980	14.5	4,852	5.3
Type C noninterviews .....	7,994	3.9	2,442	2.7
Total .....	206,339	100.0	91,148	100.0
Response rate of the total sample (I/Total) ....		65.6		84.3
Response rate of the eligible units (I/(I + A)) .....		80.4		91.7
Refusal rate of the eligible units (R/(I + A)) .....		16.1		6.3

**Table 2. CU response rates, given that the second interview was completed**

Item	Interviews			
	2	2,3	2,3,4	2,3,4,5
CUs who completed the interviews .....	19,310	16,819	15,145	14,040
CUs with at least one Type A noninterview ....		1,242	1,921	2,309
CUs with only Type B or Type C noninterviews		1,249	2,244	2,961
Total Interview + Type A .....		18,061	17,066	16,349
Probability of completing interview .....		3	3,4	3,4,5
Response rate (I/(I + A)) (percent) .....		93.1	88.7	85.9

**Table 3. Demographic characteristics of complete responders and intermittent responders**

Demographic characteristics	Did the CU complete all four interviews (INTER1 = 2-5)?	
	Yes	No
Average size of CU .....	2.6	2.3
Average age of reference person .....	50.6	40.9
Average quarterly expenditure per CU .....	\$8,981	\$7,504
Average quarterly expenditure per person ....	\$3,442	\$3,212

**Percent distributions**

Type of family:		
Husband-and-wife families .....	57.2	39.8
Husband and wife only .....	23.7	15.6
Husband and wife with children .....	29.0	20.9
Other husband-and-wife families .....	4.5	3.3
One parent, own children .....	5.5	8.3
Single consumers .....	25.3	37.5
Other families .....	12.0	14.4
Housing tenure:		
Homeowner .....	73.2	41.0
Renter and other .....	26.9	59.0
Multiplicity household:		
Single-CU household .....	98.3	87.3
Multiple-CU household .....	1.7	12.7

**Table 4. CU characteristics by type of interview**

Characteristic	Number of completed interviews	Means, 1997–2000			
		Age of reference person	Number of persons in CU	Quarterly expenditure per CU on all items	Quarterly expenditure per person on all items
Total .....	76,862	48.0	2.5	\$8,584	\$3,385
Completed all interviews (2–5) .....	56,160	50.6	2.6	8,981	3,442
At least one noninterview .....	20,702	40.9	2.3	7,504	3,212
At least one Type A noninterview .....	9,084	47.2	2.5	8,324	3,309
No refusals .....	2,462	46.0	2.4	8,991	3,811
At least one refusal .....	6,622	47.6	2.6	8,077	3,138
At least one Type B or Type C noninterview (no Type A noninterview) .....	11,618	36.0	2.2	6,863	3,124

**Table 5. Reasons for dropping out of the survey**

Reason	Percent
Refusal .....	23.7
Other unspecified Type C noninterviews (INSTAT = 19) .....	19.5
Vacant, for rent (INSTAT = 06) .....	19.4
Vacant, other (INSTAT = 08) .....	14.1
Other Type A (INSTAT = 02,03,05) .....	9.4
Other Type C (INSTAT = 12–18) .....	7.3
Other Type B (INSTAT = 07,09–11) .....	6.6

**Table 6. CUs who came back after a refusal in the Interview survey**

First refusal	Came back	Did not come back	Total	Came back (percent)	Did not come back (percent)	Total (percent)
2	1,186	2,665 <sup>1</sup>	3,851	30.8	69.2	100.0
3	523	469	992	52.7	47.3	100.0
4	337	374	711	47.4	52.6	100.0
Total	2,046	3,508	5,554	36.8	63.2	100.0

<sup>1</sup>These CUs were excluded from the study because they completed none of the last four interviews.

**Table 7. The effect of intermittent responders on consumer expenditure estimates**

Category	Did the CU complete all four interviews (INTERI = 2–5)?		Total
	Yes	No	
Number of CUs .....	14,040	10,820	24,860
Percent of CUs .....	56.5	43.5	100.0
Number of interviews .....	56,160	20,702	76,862
Percent of interviews .....	73.1	26.9	100.0
Average quarterly expenditure per CU .....	\$8,981	\$7,504	\$8,584