

Measuring What We Spend: Toward a New Consumer Expenditure Survey

For
Federal Economics Statistics Advisory Committee
December 14, 2012

Don A. Dillman, Chair
National Academies Panel on Redesign Options for
the Consumer Expenditure (CE) Surveys



Purpose



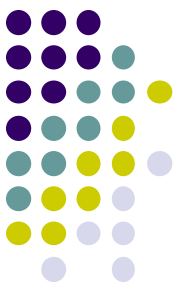
- Discuss measurement and non-response issues associated with the current CE Surveys.
- Provide background for understanding recommendations of the National Academies Panel on Redesigning the BLS Consumer Expenditure Surveys.
- This is a follow-up to June 2011 FESAC when the Panel process was underway.

Three considerations that made coming to grips with issues facing the CE surveys challenging



- Diverse data requirements drive the identification of CE design issues.
 - Consumer Price Index.
 - Administration of federal/state government programs.
 - Policy analyses and economic research.
- Different CE design issues are linked to different data requirements
- Needed survey design expertise is held by different organizations and people.

Diverse Expertise Needed for Identifying CE Survey Problems



- Data collectors—organizations and field representatives
- Respondents who must be willing and able to answer the questions.
- Agency staff who summarize, analyze and report CE data.
- Professionals outside government who analyze data, often from various disciplinary perspectives.
- The scientific disciplines involved in constructing valid and reliable measures of consumer expenditures and the survey methods used to collect them.

Panel Members From Five Disciplines



- Don Dillman, Chair
Washington State
- David Betson
Notre Dame
- Mick Couper
University of Michigan
- Robert Gillingham
Independent Consultant
- Michael Link
The Nielsen Company
- Bruce Meyer
University of Chicago
- Sarah Nusser,
Iowa State University
- Andy Peytchev
RTI International
- Mark Pierzchala
Independent Consultant
- Robert Santos
The Urban Institute
- Michael Schober
New School for Social Research
- Melvin Stephens
University of Michigan
- Clyde Tucker
Independent Consultant

Carol House, CNSTAT,
Study Director

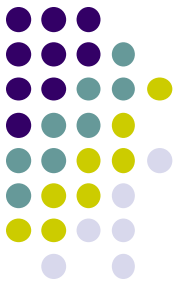
Why the CE Surveys need to be redesigned (See Conclusions 5-1 and 5-2)



- Underreporting of expenditures for both the Diary and Interview are a concern.
- Underreporting varies across categories and appears to be less for interview.
- The questions are different in each mode as is the context for asking them and that contributes to differences in measurement between modes. .
- Both the diary and interview can and need to be improved.

Sources of Underreporting

(Conclusions 5-3 to 5-14)



- I will begin with the interview and then move on to the diary survey.
- Our goal here was to identify specific issues for improvement.
- Panel conclusions stemmed from a variety of sources: published literature, disciplinary perspectives, and experiences of panel members who completed interview and/or diary.

Synopsis of the interview task



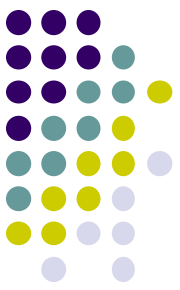
- 5 in-person interviews, ~65 minutes each, are conducted with each consumer unit (household) three months apart.
- Interview #1 asks demographic information, major durable goods, and a one month recall of expenditures.
- Interviews. #2-5 are quite repetitive asking respondents to report details of expenditures for the last three months.
- A respondent “booklet” includes 36 pages, each with 7-70 items on it to help identify specific expenditures.
- Detailed assets and changes from earlier time periods are generally asked in interview. #2 and #5.

Some additional aspects of response situation (from field representative debriefing surveys)



- Interview is usually completed with one person in the consumer unit who needs to report for all persons.
- Records less likely to be extensively used in interview (31%) than NOT used (39%).
- Respondent has to learn rules for assigning dates of purchase, delivery and payment, which may differ.

Detail requested for the last 3 months (interviews 2-5) can be daunting, e.g.



- Did you purchase any “pants, jeans, or shorts” (in the last three months)?
 - Please describe the item
 - Was this purchased for someone inside or outside of your household?
 - For whom was this purchased? (Enter name, age, sex).
 - When did you purchase it?
 - How much did it cost?
 - Did this include sales tax?

A difficult asset question from the fifth interview



- On the last day of last month, what was the total balance or market value (including interest earned) of checking accounts, brokerage accounts and other similar accounts?
- How does the amount your household had on the last day of last month compare with the amount your household had on the last day of last month one year ago?

Two major barriers to accurate interview reporting



- Knowledge and recall of expenditure amounts and details.
 - R may not know this information.
 - R may have known, but cannot remember.
- Motivation to report amounts and details
 - R may be unwilling or reluctant to share what is known.
 - R may be unwilling to make effort to determine amounts and details of expenditures.

Why is knowledge and recall a barrier to accurate reporting?



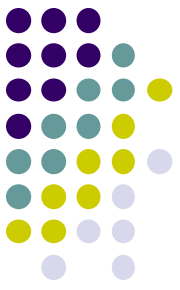
- Only one person likely to do the interview.
- Records are infrequently used.
- Any records used may not correspond to rules for reporting.
- Purchasing and paying for products and services has become much more complicated over the last 30 years.

Societal Changes in how consumer expenditures are made makes recall more difficult



- Greater range of consumer expenditures.
- Retail outlets more likely to sell unrelated items in single purchase (e.g. food + luggage + motor oil +socks)
- On-line purchases are growing.
- Multiple payment methods may be used by one person—cash, debit-card, credit card, and checks.
- Automatic deductions {paycheck(s), credit card(s), bank account(s)} may not be registered in memory .
- Transactions often made without cognitive attention to amount; the card is simply “swiped” and for smaller purchases no signature required.

Societal Changes in how consumer expenditures are made makes recall more difficult(2)



- List prices set to allow discounts on discounts.
- Store credits and discounts sometimes applied to total amount of all purchases, making knowledge of purchase price less obvious.
- Enormous variation in receipt structures, including abbreviations, makes knowledge of cost more difficult.
- Day item obtained may not be date payment made.
- **Observation: Purchasing behavior is much more complex than when CE interviewing (and Diary) methods were developed, and these changes work against the recall of specific purchases and cost.**

Societal changes in household structure add to the recall problem



- More households have multiple wage earners.
- Households are more likely to include unmarried partners.
- Household members more likely to have expenditure obligations to other households (e.g. children of divorced parents).
- Partners/spouses less likely to inform each other of all expenses.
 - Partner agreements, “I pay for food, you pay for rent,” may compound the knowledge problem.

For example: How much did this necktie cost?



- Sign in store: “**Neck wear: assorted vendors. Buy 1 (59.95). Get 1 free**” (Sign was on multiple tables)
- Bought two ties (and a third item)
- Clerk: Use of store credit card “today” gives additional 20% off of purchase.
- Time of year Charity donation today would give 10% off current purchase and 10% of all expenditures would come as gift certificate after December 31st. I declined.
- Clerk offers to send receipt by email instead of my taking receipt with me.



Outcome: Necktie purchase

- Price was 59.95 on tie, but receipt said 41.65 was “today’s price”.
- Clerk gave me 20% off of 41.65 for total of 33.32/tie.
- Two for one did not apply because I provided store credit card and clerk took the 20%.
- Checked online billing the next day to see what was on credit card—30 lines of single spaced code for bill.
- Very difficult to know how much this tie cost.



Adding up the challenge

Purchases from more sources . . .

- + less association of product with store
- + fewer purchases at known list price
- + more payment streams (methods)
- + automatic deductions for some expenditures
- + less absorption of final price at purchase time
- + less sharing of detail within households
- = **less certainty on specific expenditures**

The knowledge/recall problem in methodological perspective



- Cannot report what one does not know: un-encoded expenditures or unshared partner expenditures
- Respondent cannot rely on establishing recall of details by connecting expenditures to a particular payment method (check book), physical location of purchase (shopping trip), or routine behavior of a member of the consumer unit.
- Cognitive methods that could enhance memories (e.g. calendar of events or personalizing recall methods to individuals) would make an already long interview more burdensome.

Motivation has multiple aspects



- Belief by some that answering detailed expenditure and asset questions are an invasion of privacy or beyond the need of government to know.
- The interview situation discourages obtaining information from other members of the household unless they are present.
 - Partner/teenager expenses
 - Searching for receipts and perusing records

Motivation in Methodological Perspective



- Some requests for information (alcohol purchases, gambling costs) reduce reporting because of social undesirability.
- Seeking great detail that requires significant effort to calculate or find , encourages satisficing: “This “number” is good enough”.
- Seeking information respondent cannot easily provide encourages estimation.
- Estimation often results in telescoping, ie. reporting significant expenditures for more than three months.

Motivation in Methodological Perspective (2)



- Answering “yes” to questions, e.g. Did you take an overnight trip or did you purchase any other clothing, typically leads to additional questions.
- All five interviews can include dozens of potential screener questions, and respondents soon learn that a “no” or “not that I remember” results in fewer questions and a shorter interview.
- The inability of respondents to give accurate answers and a belief that the answer they can give will not be useful, may help justify saying “no”.

Mutual interests of respondent and the interviewer



- The respondent typically wants interview to be shorter and less work.
- The Interviewer also wants interview to be shorter so the respondent will agree to another interview.
- Thus, interviewers may not encourage respondents to look for receipts, go through records, divide receipts, or use other recall methods.

Effects of switching data collection to the telephone



- 38% of CE interviews are completed by telephone, especially the later ones.
- Recall visual aid (the notebook) not used.
- Telephone interviews obtain fewer “yes” answers to screener questions.
- Receipts and other records are less likely to be used.

In summary, interview data quality may be negatively affected by...



- Interviewing only one person in multi-person households, i.e. proxy reporting.
- The long (three month) recall period.
- Lack of knowledge respondent has for providing extreme detail requested.
- Lack of motivation for making effort needed to provide accurate answers.
- The repetitive nature and length of the interviews.
- The easy avoidance of additional questions by saying “No, I didn’t purchase any of that.”

Diary completion is also demanding



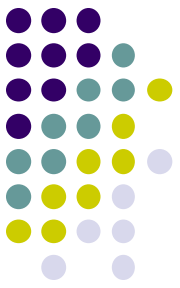
- Households are asked to report everything they purchase for two weeks.
- Week 1 diary; in-person delivery with selected questions and instructions.
- Week 2 diary; in-person delivery when Week 1 diary is picked up.
- Interviewer returns a third time to pick up Week 2 diary.

Learning to complete the diary can be confusing



- 44 numbered pages + covers + flaps = 52 surfaces of information
- 15 of pages provided instructions, 28 pages are laid out by “day” and have labeled tables for:
 - 1 Food and Drinks Away From Home
 - 2 Food and Drinks for Home Consumption
 - 3 Clothing, Shoes, Jewelry and Accessories
 - 4 All Other Products, Services and Expenses
- Respondent asked to provide up to six pieces of information for each entry.

Understanding requires round-about processing, e.g.



- P. 9 asks for Day 1 Food and Drinks for Home.
- Right flap of back cover provides answers to frequently asked questions.
- P.3 has instructions for “How to fill out your diary” including request to record expenses each day.
- P.2 has general instructions and section on what not to record.
- Examples for Food and Drinks are on P. 5, e.g. specify white, wheat or rye bread, and instant vs. ground coffee.
- Subsequent Daily pages for Food and Drinks are on Pp.13, 17, 21, 25, 29 and 33; “additional pages”. for overflow are Pp. 38-41

Graphical navigation guidance is quite limited



- All pages mix blue, gray and black positive and negative print; full color limited to outside covers.
- Numbers are assigned to Day (1-7) as well as expenditure categories (1-4) and pages (1-44), so may not be an effective guide.
- If diary is not filled out each day expenses are made, flipping of non continuous pages is required.



Day 1 SUN MON TUE WED THU FRI SAT

1. Food and Drinks Away from Home

Examples: breakfast buffet pizza delivery beer at happy hour croissant from cafe soda from vending machine
 carry-out lunch Chinese takeout pasta at ballpark ice cream from truck hot dog from convenience store
 dinner & cocktails at restaurant child's school lunch wine at tavern wedding reception catering popcorn and soda at movies

← Please unfold the LEFT FLAP to see Additional Examples

	Mark (X) one that best describes the type of meal:				Description (see examples above and on the flap)	Mark (X) one that best describes where you made this purchase:					Total Cost with tax & tip	If discounts included, mark (X) all that apply:			Enter the total cost of the alcohol
	In school	At work	At home	Someplace else		Fast-Food Take-out Delivery Drive-thru	Full-Service Place	Vending Machines or Machine Vendors	Employee or School Cafeteria	None		15%	20%	Other	
101															
102															
103															
104															
105															
106															
107															
108															
109															
110															
111															
112															
113															
114															
115															
116															
117															
118															
119															
120															
121															
122															

If there are not enough lines in this part, please continue recording your expenses on pages 36-37.



How to Fill Out Your Diary

The diary is divided into 7 days and each day is divided into 4 parts. Enter each item in the appropriate part for each day.

These are the 4 parts within each day of the diary:

1. Food and Drinks Away from Home

- Mark one of the four choices that best describes the type of meal and describe briefly.
- Mark one of the four choices that best describes where you made the purchase.
- Enter the total cost with tax and tip.
- If alcohol was part of the purchase, check whether it was wine, beer, and/or other alcohol and enter the total cost of the alcohol.

2. Food and Drinks for Home Consumption

- Describe the item.
- Mark whether the item was fresh, frozen, bottled/canned, or other.
- Enter the cost without tax and deduct any discounts or coupons.
- Mark the last column if the item was purchased for someone not on your list (e.g. gift).

3. Clothing, Shoes, Jewelry, and Accessories

- Describe the item and enter the cost without tax.
- Mark the appropriate sex and age range of the person for whom the item was bought.
- Mark the last column if the item was purchased for someone not on your list (e.g. gift).

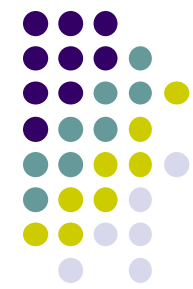
4. All Other Products, Services, and Expenses

- Describe the item and enter the total cost without tax.
- Mark the last column if the item was purchased for someone not on your list (e.g. gift).

There is an "Additional Pages" section on pages 36-44 in case you run out of lines on any particular day.

Look on the next 4 pages for examples and tips on how to record your purchases.

***Please Note:** If you are unsure about whether to include an item or where to record an item, write it down wherever it seems best or make a note and ask your field representative.



		SUN	MON	TUE	WED	THU	FRI	SAT	EXAMPLE	
2. Food and Drinks for Home Consumption										
Examples:		eggs whole milk sugar	cereal white bread cooking oil	tea cola ground coffee	beer liquor orange	apple juice tomato juice carbonated water	ground beef bacon strudel	chicken parts whole chicken baby food	ham sausage pet food	<input checked="" type="checkbox"/> Do not include tax for parts 2, 3, & 4.
Please unfold the RIGHT FLAP to see Frequently Asked Questions										
What did you buy or pay for? (see examples above and on the flap)	Is this item: Mark (X) one				Total Cost without tax	Mark (X) if purchased for someone not on your list				
	fresh	frozen	boxed/canned	other						
201 wheat bread	<input checked="" type="checkbox"/>				1 49					
202 eggs	<input checked="" type="checkbox"/>				1 50					
203 chicken wings		<input checked="" type="checkbox"/>			6 78					
204 apples	<input checked="" type="checkbox"/>				2 80					
205 beer			<input checked="" type="checkbox"/>		4 29					
206 skim milk	<input checked="" type="checkbox"/>				2 99					
207 orange juice			<input checked="" type="checkbox"/>		3 99					
208 candy				<input checked="" type="checkbox"/>	2 50					
209 vegetable oil			<input checked="" type="checkbox"/>		2 99					
210 baby food (3 jars)			<input checked="" type="checkbox"/>		4 95					
211 potato chips				<input checked="" type="checkbox"/>	2 79					
212 frozen meals (3 boxes)		<input checked="" type="checkbox"/>			8 97					
213 ketchup			<input checked="" type="checkbox"/>		1 59					
214 soup (4 cans)			<input checked="" type="checkbox"/>		4 96					
215 soda (2 bottles)			<input checked="" type="checkbox"/>		1 98					
216 pork chops	<input checked="" type="checkbox"/>				6 56					
217 shrimp		<input checked="" type="checkbox"/>			11 20					
218 cookies				<input checked="" type="checkbox"/>	5 50	<input checked="" type="checkbox"/>				
219 apple pie	<input checked="" type="checkbox"/>				4 99	<input checked="" type="checkbox"/>				
220 carbonated water			<input checked="" type="checkbox"/>		1 89					
221 ground beef	<input checked="" type="checkbox"/>				5 87					
222 ground coffee				<input checked="" type="checkbox"/>	2 79					
223 bagels	<input checked="" type="checkbox"/>				5 25					
224 wine			<input checked="" type="checkbox"/>		42 00					
225 dog food				<input checked="" type="checkbox"/>	5 85					

Level of detail needed:
 BREAD - Specify if white, wheat, rye, etc.
 BEEF - Specify the cut and describe, such as round roast, ground beef, etc.
 PORK - Specify the cut and describe, such as whole ham, bacon, spareribs, etc.
 CHICKEN - Specify if whole or parts, such as chicken legs, chicken wings, etc.
 SOFT DRINKS - Specify if soda or other type; if not cola, specify if carbonated or non.
 COFFEE - Specify if ground or instant.
 OTHER FOOD - Give a complete description, such as scalloped potatoes.

List food & drinks from specialty food stores in this part (i.e. bakery, liquor store, farmers' market, convenience store, etc.)

If there are not enough lines in this part, please continue recording your expenses on pages 38-41.

Knowledge as a barrier to Completing the Diaries



- In principle less of a problem unless
 - Respondent doesn't ask other unit members for expenses.
 - Receipts not kept for some purchases.
 - Receipts make it difficult to identify items (abbreviations)
- Knowing and applying rules may produce inaccurate recordings that are difficult to catch.
- Information may not be available in a timely way, e.g. auto deductions from bank account.
- Society changes (see interview discussion) also apply here.



Motivation as a barrier

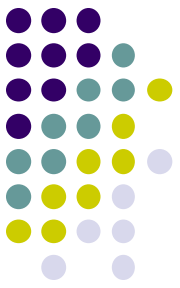
- Recording requested detail on daily basis may be seen as a considerable burden.
- Long itemized receipts may be difficult to enter, e.g. if discount applied to an entire bill and abbreviations used.
- Abbreviations may be impossible to interpret.
- Respondents may delay shopping trip to avoid the “need” to record.

In Sum, Diary responses are negatively affected by...



- ...both knowledge (e.g. proxy reporting) and motivation.
- In addition, design and layout procedures present problems—some respondents decide only to collect receipts because of how difficult the task seems to be.
- An outcome. Some diaries (especially second week) do not get completed.

Is one of these modes (interview vs. diary) fundamentally better than the other?



- A difficult question to answer.
- The original goal was to collect different kinds of information—big and recurring expenses from interview and small detailed ones from diary.
- Each now asks some of the same topics, but in different ways, e.g. food for home consumption.
 - **Interview- “What has been your or your household usual WEEKLY expense for grocery shopping?”**
 - **Diary—A listing of each item that asks, e.g. white vs. wheat bread, types of meat, and if purchase was for someone else.**
- These are quite different questions, subject to different kinds of errors associated with “estimation” vs. “reporting of details”.

A cognitive perspective on the search for improved accuracy



- Typical approaches to getting better measurement include:
 - Ask more detailed questions.
 - Create a memory context, e.g. daily activities and event history of last three months.
 - Personalize questions to how people are most likely to recall expenditures.
- **Observation: These kinds of efforts make a demanding survey interview/diary even longer and more demanding?**

Possible Synopsis of Major problems of Interview vs. Diary as now implemented



While the interview asks people to report detail they never knew or can't recall (primarily a knowledge problem)...

The diary asks people to do something they won't do (primarily a motivation problem).

A related question: Is the extreme detail necessary?



- The CE surveys serve multiple purposes:
 - CPI Index
 - Administration of government programs
 - Policy analyses
- Are less detailed estimation questions adequate for some of these purposes, but not others?
- Is the extreme detail necessary for any of these purposes (e.g. white vs. wheat bread)?
- Would recall and reduction of proxy reporting in self-administered reporting produce better data than on-the-spot-estimates of expenditures.

Other demand issues (Conclusions 5-15 to 5-16).



- Response rates for diary and interview have both been declining and are in the low 70's.
 - Interview quality seems to go down with the push Field Representatives face from respondents to use the telephone.
 - Diary quality seems to go down with the second week of collection.
- Administrative data may provide a potential to “fill-in” data.



Conclusion

- The issues described today are only some of the issues that involved extensive discussion among panel members, and with most panels there were many viewpoints expressed.
- These discussions provided background for developing recommendations that will be discussed by Carol House, National Academies Study Director for the CE Panel.