

The Consumer Expenditure Survey: Proposed New Diary Instrument

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Outline

1. CE Redesign Overview
 - Background
 - Inputs

2. Improving CE Diary Methods
 - Protocol comparisons
 - CE electronic diary

3. Lessons Learned
 - CE Field Tests
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CE Redesign: Background

Motivation

- Evidence of measurement error
- Changes in technology & spending behaviors
- Need for greater operational flexibility
- High level of burden – linked to data quality

Objectives

- Verifiable reduction in measurement error, with a particular focus on underreporting
- No harmful effect on response rates
- Neutral impact on budget
- Secondary objective: Reduction in burden

CE Redesign: Key Inputs

CE relied on several sources for proposal inputs:

- Expert panels
- External discussion events
- Ongoing research on key topics
- National Academies' Committee on National Statistics (CNSTAT)
- Westat independent proposal
- Census staff and Field Representative (FR) input

CE Redesign: Current Protocol

Interview

- 5 waves of personal interviews
- 3 month recall
- Most expenses collected
- Estimates use: Large or recurring expenditures

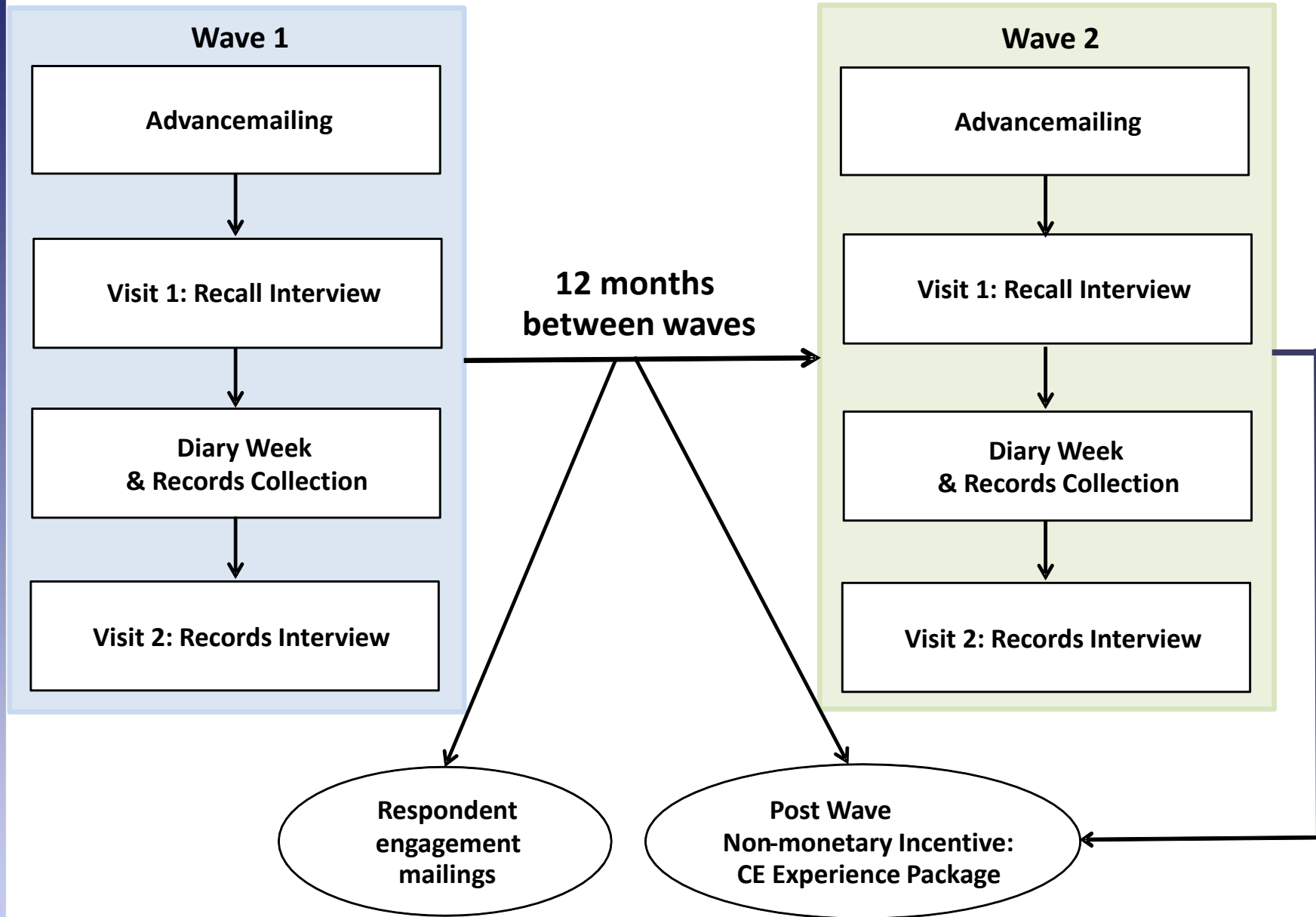
Diary

- 2 one-week household paper diaries
- Contemporaneous recall
- All expenses collected
- Estimates use: Small, frequently purchased items

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graph TD; Interview[Interview] --> Estimates[Consumer Expenditure Survey Estimates]; Diary[Diary] --> Estimates;
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**Consumer Expenditure
Survey Estimates**

CE Redesign: New Protocol



Proposed New Protocol for the Diary

- Open-ended diary, designed to collect:
 - ▶ Smaller, more frequently purchased items
 - ▶ Items more willing to report privately
 - ▶ Items an proxy respondent would not know
- All HH members 15+ maintain individual diary
- 1 week diary keeping period
- Available via the web (using a PC, mobile phone, or tablet) or paper
- Centralized monitoring of diary reporting
 - ▶ Interviewers follow-up with respondents as necessary
- \$20 individual diarist incentives

Diary Protocol Comparison: Mode

Current	Redesign
Two one-week open ended paper diaries	Electronic one-week diary with paper back-up

Advantage:

- Electronic diary –
 - Offers greater flexibility and ease of use for respondent
 - Facilitates in the moment reporting, in any location
- Respondent uses mode most comfortable with (electronic or paper)

Disadvantage:

- Design of electronic diary does not meet respondent expectations

Diary Protocol Comparison: Reporting Level

Current	Redesign
Single paper diary per household	Individual diaries for all households 15 and over.

Advantage:

- Reduce error due to proxy reporting
- Spreads burden across household members, instead of on an individual respondent
- Increased salience among participants

Disadvantage:

- Requiring all household members to complete diary could reduce response.

CE Electronic Diary: Entering Expenses

Entering Expenses

Below are examples of your home screen where you will be able to view a summary of your entered expenses. To help you find a particular entry, you can also click or tap on the column headings to sort the items.

Desktop Version

To add an expense, you will enter information about your expense right under the "Add an Expense" section at the top of the screen.

The desktop interface features a blue header with the 'United States Census Bureau' logo and the title 'CONSUMER EXPENDITURE DIARY SURVEY'. Below the header are navigation tabs for 'Information', 'User Guide', 'User Settings', and 'Logout'. A green bar contains the text 'Enter Your Expense Below'. The form below has four fields: 'Date' (set to February 26, 2010), 'Description' (with a placeholder 'Enter Description'), 'Cost' (set to \$3.20), and 'Category' (with a dropdown menu 'Select Category'). 'Clear' and 'Save' buttons are at the bottom of the form. Below the form is a 'Summary of Expenses' table with columns for Date, Description, Cost, and Category. Each row includes 'Delete' and 'Edit' buttons.

Date	Description	Cost	Category
February 26	Electric bill	\$136.25	All Other Products and Services
February 26	Strawberries	\$3.20	Food and Drink for Home Consumption
February 26	Soup and salad	\$6.22	Food and Drink Away from Home
February 26	Gas	\$46.50	All Other Products and Services
February 25	Dinner at Irish Pub	\$62.80	Food and Drink Away from Home
February 24	Jeans	\$48.90	Clothing, Shoes, Jewelry, and Accessories
February 24	Coffee	\$3.20	Food and Drink Away from Home

Mobile Version

To add an expense, tap on the green "Add an expense" button. After you've added an expense, you will see it listed on your home screen.

The mobile interface has a blue header with 'Info', 'CE Diary', and 'Logout' buttons. A large green button labeled 'Add an expense' is centered on the screen. Below it is a list of expenses with columns for Date, Description, and Cost. Each entry has an 'Edit' button to its left.

Date	Description	Cost
Feb 26	Gas	\$46.50
Feb 26	Electric bill	\$136.25
Feb 26	Strawberries	\$3.20
Feb 26	Soup and	\$6.22

CE Electronic Diary: Entering Expenses

Adding Expenses to Your CE Diary (Mobile Version)

The screenshot shows the 'CE Diary' mobile app interface. At the top, there is a navigation bar with a home icon, 'Info', 'CE Diary', and 'Logout'. Below this, the form contains the following elements:

- A date selector showing 'February 24, 2015'.
- A text input field labeled 'Enter Description'.
- A numeric input field showing '\$0.00'.
- A category selector labeled 'Select Category'.
- A 'Cancel' button at the bottom left.
- A 'Save' button at the bottom right.

Callouts provide instructions for each field:


- Select the date.** (points to the date selector)
- Describe the expense.** (If Food and Drink Away from Home, describe the meal. For all other categories, describe the item. See examples on Page 6.) (points to the description field)
- Enter the cost.** (Include tax and tip for Food and Drink Away from Home. For all other categories, do not include tax.) (points to the cost field)
- Select the category.** (points to the category selector)
- To cancel and return to your home screen, select Cancel.** (points to the Cancel button)
- To save the expense entry, select Save.** (points to the Save button)

CE Electronic Diary: Editing Expenses

View, Edit, or Delete an Expense

Desktop Version

To delete an expense, click on the red "x" next to the expense. To view or edit an expense, click on the "Edit" button next to the expense. In the expanded entry space, you will be able to make and changes and select "Save" or "Cancel."

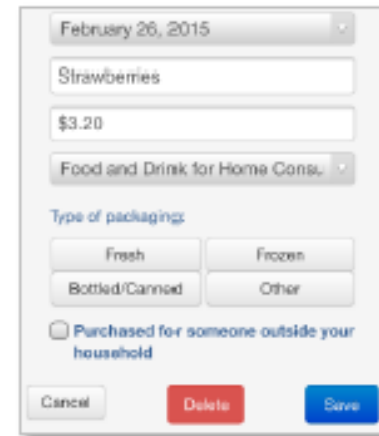


The screenshot shows a desktop interface titled "Summary of Expenses". It features a table with columns for Date, Description, Cost, and Category. Each row has a red "Delete" button and a blue "Edit" button. The third row is expanded, showing a date picker for "February 26, 2015", a text input for "Strawberries", a cost input for "\$3.20", and a category dropdown for "Food and Drink for Home Consumption". Below the input fields, there is a "Type of packaging" dropdown set to "Select One" and a checkbox for "Purchased for someone outside your household".

Date	Description	Cost	Category
February 26	Gas	\$61.50	All Other Products and Services
February 26	Electric bill	\$136.35	All Other Products and Services
February 26, 2015	Strawberries	\$3.20	Food and Drink for Home Consumption
February 26	Soup and salad	\$6.22	Food and Drink Away from Home

Mobile Version


To view, edit, or delete an expense, tap on the "Edit" button next to the item on the home screen. You can then delete the entry by tapping on the red "Delete" button or you can make any changes and select "Save" or "Cancel."



The screenshot shows a mobile interface for editing an expense. It includes a date picker for "February 26, 2015", a text input for "Strawberries", a cost input for "\$3.20", and a category dropdown for "Food and Drink for Home Consumption". Below these are options for "Type of packaging" (Fresh, Frozen, Bottled/Canned, Other) and a checkbox for "Purchased for someone outside your household". At the bottom are "Cancel", "Delete", and "Save" buttons.

CE Electronic Diary: Passwords

User Settings

If you would like, you may change your password by clicking on the “User Settings” button on the Desktop version or tapping on the settings button  on the home screen of the Mobile version. Make sure your new password meets all of the requirements that are specified on the Change Password page. You will also be required to enter your Email address and select and answer a Security Question.

Passwords must contain all of the following:

- At least 8 characters
- At least 1 uppercase letter
- At least 1 lowercase letter
- At least 1 number
- At least 1 special character from the following: ! # \$ * & ? ~

CE Electronic Diary: Receipts

All Other Categories

For all of the other three categories, you will enter each item purchased as a separate entry and enter the cost of the item without tax.

VALMART
FALLS CHURCH, VA 23156 - 703.893-8934

Barcode

267198321	VM WHOLE MILK	3.29
986945631	6-PK SOCKS	7.99
063022838	PAPER TOWELS	11.99
073965782	LAUNDRY DETERGENT	18.99
037121340	SHAMPOO	2.94
037121345	CONDITIONER	2.94
256971531	SZ 3 DIAPERS	41.99
SUBTOTAL		99.30
VA TAX 5.0%		4.97
TOTAL		104.27

SIGN UP FOR A VALMART CARD
AND SAVE 5% ON EVERY PURCHASE!

Form 1: February 24, 2015
Whole Milk
\$3.29
Food and Drink

Form 2: February 24, 2015
6 pack socks
\$7.99
Type of pack: Fresh
Bottled/Canned
 Purchased for someone outside your household

Form 3: February 24, 2015
Paper Towels
\$11.99
Gender: Male
Age: Under 2
All Other Products and Services
 Purchased for someone outside your household

CE Electronic Diary: Groceries

Food and Drink Away from Home

In the Food and Drink Away from Home category, you will enter the entire meal/purchase as one entry and enter the total cost of the meal including tax and tip.

The image shows a receipt from Green Onion Bistro and a corresponding data entry form. Red circles and arrows indicate the mapping of data from the receipt to the form.

Receipt Data:

Green Onion Bistro	
Artichoke dip	8.00
Beef short rib ravioli	18.00
Ginger lemon chicken	16.00
Berry lemon pie	6.00
Chocolate pudding	6.00
Soda	3.00
Red wine	9.00
Subtotal	66.00
Sales Tax	6.60
Total	72.60
Gratuity	15.00
Total	87.60
Signature: <i>[Signature]</i>	
986 Divine Way Washington, DC 20964	

Data Entry Form Fields:

- Date: February 24, 2015
- Category: Dinner at Restaurant
- Amount: \$87.60
- Sub-category: Food and Drink Away from Home
- Meal Type: Dinner (selected)
- Alcohol Included? (Select all that apply): Wine (selected)
- Cost of Alcohol: \$9.00

Arrows indicate the following mappings:

- Green Onion Bistro (circled) → Dinner at Restaurant
- Red wine (circled) → Wine (selected)
- Red wine (circled) → Cost of Alcohol: \$9.00
- Total (circled) → \$87.60

Lessons Learned: Field Tests

Web Diary Feasibility Test

Assessed the feasibility and impact of collecting Diary Survey expenditures, relying on a prototype desktop-based online diary. Highlights include:

- Reported higher median expenditure in certain sections
- Lower item non-response rates, and greater median number of entries for respondents who logged in within the first 3 reporting days
- Identification of operational issues and strategies to address them in forthcoming tests of an alternate online mode for the diary survey.

Individual Diaries Feasibility Test

Evaluated the feasibility and impact of using both individual diaries and multiple modes to collect CE diary expenditures. Each CU member in the research sample was sequentially offered a mobile application, then a web survey to enter diary expenditures for two weeks.

- Usability testing, December 2013
- Pilot test fielded, March 2014
- Main data collection fielded, August – December 2014

Lessons Learned: In General

- Degree of comfort with technology
 - ▶ Transitional period in society, continuum of comfort
 - ▶ True for respondents AND interviewers
- Technical limitations
 - ▶ Data collection vendor
 - ▶ Device & technology adoption rate in general population
 - (e.g., phablets, QR codes)
- Data security issues
 - ▶ Theory in practice: Paper vs. electronic self-admin instruments
 - ▶ Sponsoring organization and data security staff sometimes working at cross purposes
 - ▶ Likelihood of risk vs. severity of risk
 - Respondent access vs. risk of breach, intrusion, malicious software, data integrity, etc.

Contact Information

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