Revising the CE Surveys to Collect Outlets

Erica C. Yu
Office of Survey Methods Research
CE Survey Methods Symposium
July 2018
Background: Inputs to the CPI

- CE Surveys: identify what is in the market basket and how expenses should be weighted
- Telephone Point-of-Purchase Survey: build a frame of businesses where consumers shop
Considerations of Adding Point-of-Purchase Questions to CE

- Fact: Increase in number of questions asked

- How would that affect the survey experience?
  - Will answering these questions be effortful?
  - Will these questions change the ‘survey context’?

- How will the quality and characteristics of the point-of-purchase data be affected?
  - Will the CE survey yield enough data?
  - Will the CE survey yield high quality data?
Challenges of Integrating Two Surveys

- Different definitions of item categories
- Different reference periods
- Different sample sizes
- Different modes
- Different materials and aids
Research Overview

- **Step 1**: Exploratory lab studies to evaluate feasibility (any show-stoppers?) and feedback on perceived burden for Diary and Interview.
- **Step 2**: Limited implementation in production to evaluate data quality and objective burden.
- **Step 3 (ongoing)**: Exploratory online studies to try new questions to collect more data.
Step 1a: Feasibility in CE Diary

- n = 60 participants in the lab
- Simulated data entry from receipts
- Computer task
- Three group comparison:
  - Group 1: “item-based” data entry
  - Group 2: “transaction-based” data entry
  - Group 3: control, no outlet entry
Item-Based Data Entry

Description: Milk
Item Cost: $3.99

- Food and Drink Away From Home
- Food and Drink for Home Consumption
- Clothes, Shoes, Jewelry, and Accessories
- All Other Products/Services

Packaging: Fresh, Frozen, Bottled/Canned, Other

- Purchased for someone outside the household

Merchant Name: Safeway
City, State: Washington, DC
Transaction-Based Data Entry

Transaction-Price Sheet

Merchant Name: Safeway
Paid Online?: No
City, State: Washington, DC
Total Cost: $6.49

Item Summary

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk</td>
<td>$3.99</td>
<td></td>
</tr>
<tr>
<td>Bread</td>
<td>$2.50</td>
<td></td>
</tr>
</tbody>
</table>

Total: $6.49

Add More Items
Step 1a: Feasibility in CE Diary

- Analysis focused on comprehension of data requirements, time taken to enter data, participant feedback about ease of use and preference.
- No significant differences between groups though trend towards preference for transaction-based diary.
Step 1b: Feasibility in CE Interview

- n = 642 participants online
- Participants “purchased” items as part of a fictional narrative and then answered CE interview questions to recall those items
- Three group comparison:
  - Group 1: “item-based” outlet as follow-up prompt
  - Group 2: “transaction-based” prompts
  - Group 3: control, no prompts for outlets
Item-Based Recall

Did you buy any sofas?

*If not, continue on to the next page*

<table>
<thead>
<tr>
<th>Description of the Expense</th>
<th>Amount ($)</th>
<th>Month of the Expense</th>
<th>Merchant Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Item</td>
<td>living room sofa</td>
<td>390</td>
<td>July</td>
</tr>
<tr>
<td>2nd Item</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd Item</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th Item</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th Item</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th item</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7th item</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Transaction-Based Recall**

Now let’s talk about Home Furnishings and Related Items.

You mentioned that you shopped at Sofas R Us.

What did you get there? Are you reminded of any other shopping that you have not yet reported?

*If entering an item purchased from somewhere else, just change the merchant name.*

<table>
<thead>
<tr>
<th>Description of the Expense</th>
<th>Amount ($)</th>
<th>Month of the Expense</th>
<th>Merchant Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Item</td>
<td></td>
<td></td>
<td>Sofas R Us</td>
</tr>
<tr>
<td>2nd Item</td>
<td></td>
<td></td>
<td>Sofas R Us</td>
</tr>
<tr>
<td>3rd Item</td>
<td></td>
<td></td>
<td>Sofas R Us</td>
</tr>
<tr>
<td>4th Item</td>
<td></td>
<td></td>
<td>Sofas R Us</td>
</tr>
<tr>
<td>5th Item</td>
<td></td>
<td></td>
<td>Sofas R Us</td>
</tr>
<tr>
<td>6th Item</td>
<td></td>
<td></td>
<td>Sofas R Us</td>
</tr>
<tr>
<td>7th item</td>
<td></td>
<td></td>
<td>Sofas R Us</td>
</tr>
</tbody>
</table>
Step 1b: Feasibility in CE Interview

- Analysis focused on number of items reported, price reporting error, duplicate reporting, and participant feedback about ease of use and preference.
- No significant differences between groups on number of items or price accuracy.
- Participant ratings of the transaction-based group showed higher burden and behavior showed more duplicate reporting.
Conclusions on Feasibility

- Addition of point-of-purchase questions likely to have no major effect on data quality or perceived respondent burden

- Optimal format varies by survey
  - Diary: Transaction-driven format lends itself to a transaction-based diary
  - Interview: Long reference period with recall from long-term memory lends itself to an item-based interview with follow-up prompts
Step 2: Adding Questions to CE Interview

- A handful of point-of-purchase questions were added to interviews
  - 2016 Quarter 3, 4th wave interviews
  - New questions spanned across 5 interview sections
Step 2: Adding Questions to CE Interview

- Audit trails were used to gauge how much time it takes to collect point-of-purchase data
  - Store name: 19 seconds
  - Purchase mode: 7 seconds
  - Location: 15 seconds
  - Respondent confusion leads to more interviewer probing (e.g., point-of-purchase for gasoline)

- Expenditure data were used to assess impact on CE data quality
  - Don’t knows and Refusals not changed
  - Possible data quality check for re-mapping expenses
Conclusions from Implementation

- Addition of point-of-purchase questions leads to a non-negligible amount of time added to the interview (approximately 40 seconds per item category)
- Interviewers reported that collecting point-of-purchase information is a natural extension
- Evidence of possible improvement of CE data quality through re-mapping
- *The interview may not yield enough outlet data for CPI*
New Design - Interview

“What is the name of the business that provided the service contract, maintenance, or repair?”

“Was this paid for online, in person, or by mail or telephone?”

In what city is (business name) located? In what state is (business name) located?
# New Design - Diary

## Food and Drinks for Home Consumption

<table>
<thead>
<tr>
<th>What did you buy or pay for?</th>
<th>Is this item:</th>
<th>Cost</th>
<th>Mark (X) if purchased for someone not on your list</th>
<th>Name of Store or Website</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>fresh</td>
<td>frozen</td>
<td>bottled/canned</td>
<td>other</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

## Meals, Snacks, and Drinks Away from Home

<table>
<thead>
<tr>
<th>Mark (X) one that best describes the type of meal</th>
<th>Restaurant or vendor</th>
<th>Mark (X) one that best describes where you made this purchase</th>
<th>Total Cost with tax &amp; tip</th>
<th>If alcoholic beverages included, mark (X) all that apply</th>
<th>Enter the total cost of the alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>breakfast</td>
<td>lunch</td>
<td>dinner</td>
<td>snack/or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

## All Other Products, Services, and Expenses

<table>
<thead>
<tr>
<th>What did you buy or pay for?</th>
<th>Cost</th>
<th>Mark (X) if purchased for someone not on your list</th>
<th>Name of Store or Website where purchased</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>without tax</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

## Clothing, Shoes, Jewelry, and Accessories

<table>
<thead>
<tr>
<th>What did you buy or pay for?</th>
<th>Cost</th>
<th>Was the item for:</th>
<th>Mark (X) if purchased for someone not on your list</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>without tax</td>
<td>Child</td>
<td>Boy</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2-15</td>
<td>2-15</td>
</tr>
</tbody>
</table>

---

Future Challenges

- Educating interviewers about the reasons for the questionnaire changes
- Monitoring the impact of collecting point-of-purchase in the Diary
  - Burden unknown, difficult to measure
  - New tech developments: Receipts?
- Incorporating the new point-of-purchase data into review processes to improve data quality
Contact Information

Erica C. Yu
Office of Survey Methods Research
Bureau of Labor Statistics

www.bls.gov/osmr
202-691-7924
Yu.Erica@bls.gov