

Testing the Feasibility of Integrating Outlets into the CE Diary

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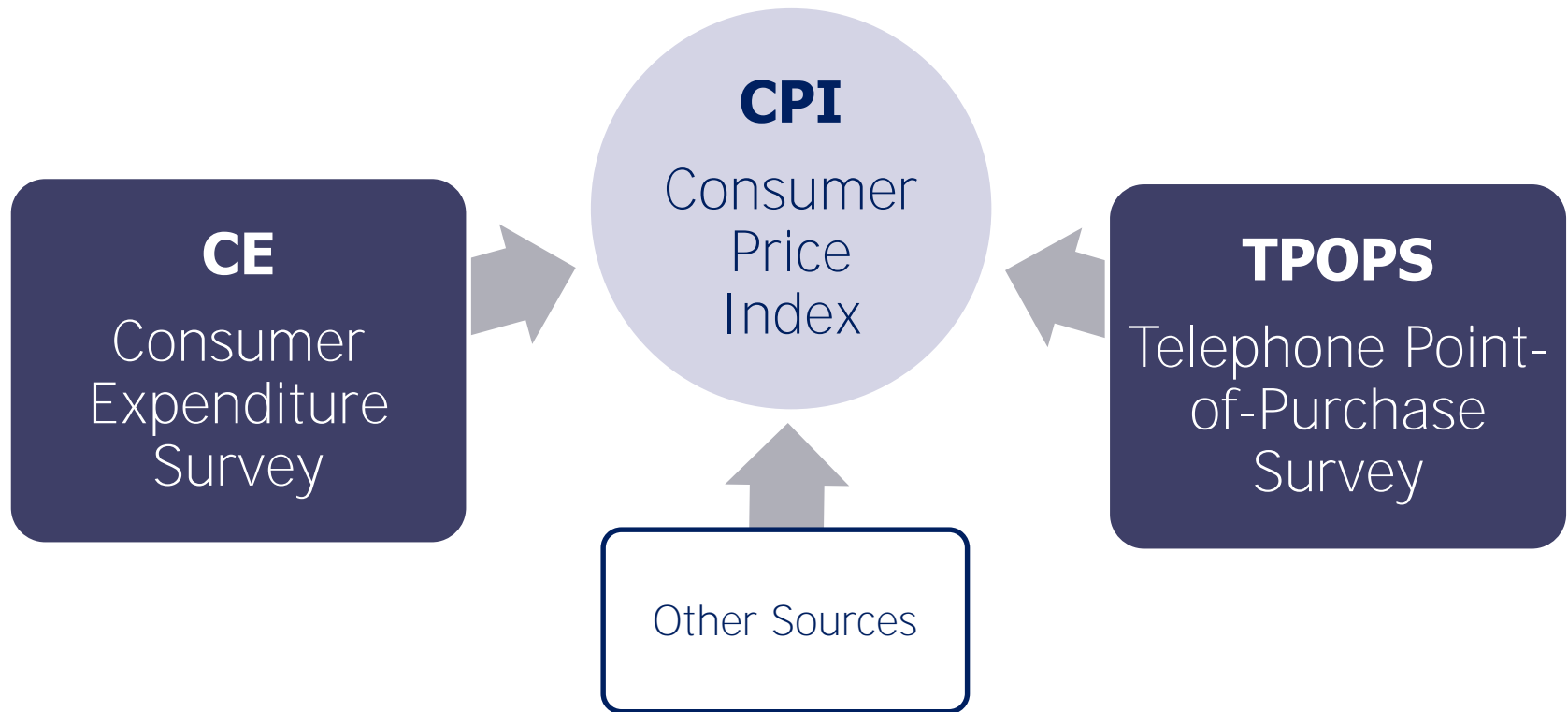
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Outline

- Background: CE, TPOPS, and CPI
- Research questions
- Study methods
- Findings: CE data quality and burden
- Findings: Outlet data quality
- Summary

Background: CE, TPOPS, and CPI



Background:

Telephone Point-of-Purchase Survey

- Primary source for outlet frame for CPI
- Interview is organized around expenditure categories
 - ▶ Expenditures collected for all in household
 - ▶ Categories are similar to those used in CE
 - ▶ Reference periods can be different to those used in CE; based on purchase frequency

Research Questions

If outlet questions are integrated into the CE Diary...

- What is the impact on data quality?
- What is the impact on respondent burden?

Answer: "It depends."

Two Ways of Integrating Outlets in the CE Diary

Item-Based

1. Shirt
 - a. July 13th
 - b. \$49.99
 -  c. **Macy's**
 - d. Age 16+
 - e. Female
2. Blender
 - a. July 13th
 - b. \$59.99
 - c. **Macy's**

- Embed the outlet field within the other follow-up questions
- Collect outlet for every item

Two Ways of Integrating Outlets in the CE Diary

Item-Based

1. Shirt
 - a. July 13th
 - b. \$49.99
 -  c. **Macy's**
 - d. Age 16+
 - e. Female
2. Blender
 - a. July 13th
 - b. \$59.99
 - c. **Macy's**

Advantages

- Minimal disruption to original design

Disadvantages

- Additional burden for every item

Two Ways of Integrating Outlets in the CE Diary

- Organize the diary around transactions
- Collect outlet once per transaction regardless of the number of items

Transaction-Based

1. **Macy's on July 13th**

a. Shirt

i. \$49.99

ii. Age 16+

iii. Female

b. Blender

i. \$59.99

c. Sports watch

i. \$32.99

ii. Age 16+

Two Ways of Integrating Outlets in the CE Diary

Advantages

- Potentially better match with the way people recall expenses

Disadvantages

- Major disruption to the original Diary design

Transaction-Based

1. **Macy's on July 13th** ←

a. Shirt

i. \$49.99

ii. Age 16+

iii. Female

b. Blender

i. \$59.99

c. Sports watch

i. \$32.99

ii. Age 16+

Experiment Design

- **“Control” diary**

Current CE Diary, item-based, without outlets

- **Control “Plus” diary**


Current CE Diary, item-based, plus an outlet field embedded in the other follow-up fields

- **“Transactions” diary**

Redesigned CE Diary organized around transactions, with outlet as an initial field

Participant Task

1. Introduction to CE
2. Told about a fictional expense
 - ▶ Item description, price, date, outlet name and location
 - ▶ Paper receipt to refer to at any time
3. Record expense into diary
4. Repeat steps 2-3



SUREWAY STORE 4035-43
184 125TH ST NE WASHINGTON, DC 19328

GROCERY

ARNLD SLC WHT BREAD	1.23	F
REG PRICE 1.55		
***TAX 0.00	BAL 1.23	
	CASH 2.00	
	CHANGE 0.77	

NUMBER OF ITEMS=1

HAVE A GOOD DAY!
12/14/14 8:01AM

Screenshot: "Control" Diary

United States Census Bureau
CONSUMER EXPENDITURE DIARY SURVEY

Back to Expense Summary

Date: 12/2/2014
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

Add Another Item
Finished Entering Items
Cancel

Date: 12/2/2014
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

Screenshot: "Control" Diary

United States Census Bureau
CONSUMER EXPENDITURE
DIARY SURVEY

Add an Expense Logout

Summary			
	Description	Item Cost	Delete
Edit	Milk	\$3.99	X
Edit	Bread	\$2.50	X

Add an Expense

Summary

	Description	Item Cost	Delete
Edit	Milk	\$3.99	X
Edit	Bread	\$2.50	X

Screenshot: "Plus" Diary

United States Census
CONSUMER EXPENDITURE
DIARY SURVEY

Back to Expense Summary

Date: 12/2/2014
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 Paid Online?
City, State: Washington DC

Add Another Item

Date: 12/2/2014
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

Paid Online?

Merchant Name: Safeway
City, State: Washington DC

Screenshot: "Plus" Diary

United States Census Bureau
CONSUMER EXPENDITURE DIARY SURVEY

Add an Expense

Logout

Summary			
	Description	Item Cost	Delete
Edit	Milk	\$3.99	X
Edit	Bread	\$2.50	X

Add an Expense

Summary

	Description	Item Cost	Delete
Edit	Milk	\$3.99	X
Edit	Bread	\$2.50	X

Screenshot: "Transactions" Diary

United States
Census
Bureau

CONSUMER EXPENDITURE
DIARY SURVEY

Enter Transaction Information

Expense Date: 12/2/2014
Merchant Name: Safeway
Paid Online?
City, State: Washington DC
Total Cost: 6.49

+ Add Item(s)

Save Transaction Cancel

Expense Date: 12/2/2014
Merchant Name: Safeway
Paid Online?
City, State: Washington DC
Total Cost: 6.49

+ Add Item(s)

Screenshot: "Transactions" Diary

United States Census Bureau
CONSUMER EXPENDITURE DIARY SURVEY

Enter Transaction Information

Expense Date: 02/20/04
Merchant Name: Safeway
Paid Online?:
City, State: Washington DC
Total Cost: \$6.49

Item Summary			
Description	Cost	Delete	
<input type="button" value="Edit"/> Milk	\$3.99	<input type="button" value="X"/>	
<input type="button" value="Edit"/> Bread	\$2.50	<input type="button" value="X"/>	
Total		\$6.49	

Item Summary		
Description	Cost	Delete
<input type="button" value="Edit"/> Milk	\$3.99	<input type="button" value="X"/>
<input type="button" value="Edit"/> Bread	\$2.50	<input type="button" value="X"/>
Total		\$6.49

Screenshot: "Transactions" Diary

United States Census Bureau

CONSUMER EXPENDITURE
DIARY SURVEY

[Add an Expense](#) [Logout](#)

Summary

	Date	Merchant	Cost	Delete
Edit	12/2/2014	Moonlight Diner	\$34.60	X
Edit	12/2/2014	Safeway	\$6.49	X

Summary

	Date	Merchant	Cost	Delete
Edit	12/2/2014	Moonlight Diner	\$34.60	X
Edit	12/2/2014	Safeway	\$6.49	X

Methods

- Cognitive lab study at the BLS
- $n = 60$ participants; 20 per diary
 - ▶ Convenience sample
 - ▶ Qualitative test of feasibility
 - ▶ Recruited from our database of participants, local community, contractors working in the building
- Task duration about 60 minutes
- Compensation of \$40

RESULTS: REPORTING EXPENDITURES

Data Quality: Item-level reporting

J
mart

JMART STORE 762
1101 J STREET, NW
WASHINGTON, DC 10991

WELCOME TO YOUR
JMART STORE 762

<u>HOUSEHOLD GOODS</u>		
002153998	WINDX SPRY 24OZ	
002129876	GLD TPRWRE 2PK	\$4.50
<u>GROCERY</u>		
110033919	2PCT BLYFRM MILK 1GAL	\$3.99

*** TAX	\$0.49
*** TOTAL	\$12.97

XXXXXXXXXXXX1234|
DEBIT APPROVAL 832445
AMOUNT DEBIT FROM CARD \$12.97

VF	DEBIT	\$12.97
	CHANGE	\$0.00

THANK YOU!

DECEMBER 10, 2014
5:32 PM

<u>HOUSEHOLD GOODS</u>		
002153998	WINDX SPRY 24OZ	\$3.99
002129876	GLD TPRWRE 2PK	\$4.50
<u>GROCERY</u>		
110033919	2PCT BLYFRM MILK 1GAL	\$3.99

- Bundle "household goods"?
- Make one entry for total expense rather than separate entries for items?

Data Quality: Item-level reporting

- No differences in understanding across diary conditions

Condition	n Total	n Adequate	n Inadequate	Proportion Adequate
Control	20	17	3	85%
Plus	20	15	5	75%
Transactions	20	19	1	95%

Data Quality: Meal-level reporting

Harvest Table
465 14th St, SR
Washington, DC 64858

Server: George 12/15/2014
Table: 11 8:46PM
Guests: 2 10034

2 Sodas 6.00
Artichoke dip 7.00
Spinach ricotta ravioli 12.00
Fish special 14.00

Subtotal	39.00
Tax	3.90
Total	42.90
Balance Due	42.90
Gratuity	<u>8.40</u>
Total	<u>51.30</u>

Subtotal	39.00
Tax	3.90
Total	42.90
Balance Due	42.90
Gratuity	<u>8.40</u>
Total	<u>51.30</u>

Signature: _____

CUSTOMER COPY

- Itemize dishes?
- Omit tax or gratuity?

Data Quality: Meal-level reporting

- No differences in understanding across diary conditions

Condition	n Total	n Adequate	n Inadequate	Proportion Adequate
Control	20	11	9	55%
Plus	18	11	7	61%
Transactions	18	13	5	72%

Data Quality: Follow-up questions

The image shows a data entry form with a callout box highlighting the follow-up questions section. The callout box contains the following fields:

- Gender:** Male, Female
- Age:** Under 2, 2-15, 16 and Over
- Purchased for someone outside the household
- Merchant Name:** [Dropdown menu]
- Paid Online?:**
- City, State:** [Text input] [Dropdown menu]

The main form also includes the following fields:

- Date: [Text input]
- Description: [Text input]
- Item Cost: [Text input]
- Category: Food and Drink Away From Home, Food and Drink for Home Consumption, Clothes, Shoes, Jewelry, and Accessories, All Other Products/Services
- Buttons: Add Another Item, Finished Entering Items, Cancel

- Pay more attention to entering outlets?
- Skip over CE follow-up questions?

Data Quality: Follow-up questions

- No differences in reporting across diary conditions

Condition	n Total	n Adequate	n Inadequate	Proportion Adequate
Control	20	18	2	90%
Plus	19	17	2	89%
Transactions	20	20	0	100%

Respondent Burden: Time taken for single-item transaction

J
jmart

JMART STORE 762
1101 J STREET, NW
WASHINGTON, DC 10991

WELCOME TO YOUR
JMART STORE 762

CLOTHING
008269213 CSL T-SHIRT \$14.99

*** TAX \$0.86
*** TOTAL \$15.85

XXXXXXXXXXXX1234
DEBIT APPROVAL 832445
AMOUNT DEBIT FROM CARD \$15.85

VF DEBIT \$15.85
CHANGE \$0.00

THANK YOU:

DECEMBER 13, 2014
1:32 PM

Gender

Age

Purchased for someone outside the household

Merchant Name

Paid Online?

City, State



- Task: report a single item purchased from a previously reported outlet
- How much time is added by collecting outlets?

Respondent Burden: Time taken for single-item transaction

- Significantly more time in Transactions condition

Condition	n Total	Mean	Median	SD
Control	20	53.2	54.3	15.2
Plus	17	62.4	59.7	25.6
Transactions	20	81.1	70.7	38.2

($F(2, 54) = 5.13, p < 0.009$); Transactions > Control, Bonferroni $p < 0.008$.

Respondent Burden: Time taken for multi-item transaction

<p>** Val U Mart ** STORE 326 295 UTANA WAY ARLINGTON, VA 43983</p> <p>WELCOME! LOW PRICES EVERYDAY!</p>		<p>985458 MILK 1GAL 2PCT 4.29 023134 GRNY SMTH APPLES 1.40 lb @ 2.29/lb 3.21 854873 NVL ORANGES 2.34 lb @ 1.59/lb 3.72 875498 CLEMENTINES 5LB 6.99 544893 BAG SPINACH 9OZ 2.99 475454 NBSC CRACKERS 3.49 436754 VALU COOKIES 1.09</p>
<p>985458 MILK 1GAL 2PCT 4.29 023134 GRNY SMTH APPLES 1.40 lb @ 2.29/lb 3.21 854873 NVL ORANGES 2.34 lb @ 1.59/lb 3.72 875498 CLEMENTINES 5LB 6.99 544893 BAG SPINACH 9OZ 2.99 475454 NBSC CRACKERS 3.49 436754 VALU COOKIES 1.09</p>	<p>**TAX 0.00 TOTAL 25.78</p> <p>CASH 30.00</p> <p>CHANGE DUE 4.22</p> <p>THANK U FOR SHOPPING AT VAL U MART</p> <p>12/13/14 22:21 TRNS 8548-6797</p>	

- Task: report multiple items purchased from a new outlet
- How much time is added by collecting outlets?

Respondent Burden: Time taken for multi-item transaction

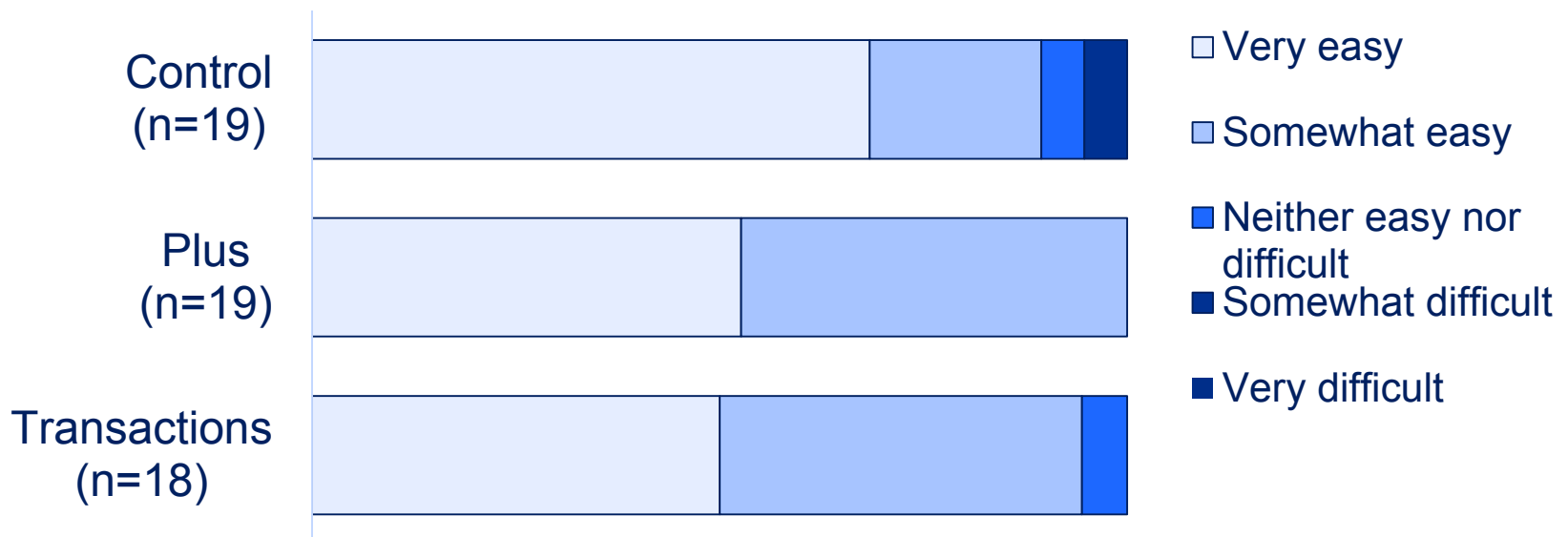
- No difference in time taken across diary conditions

Condition	n Total	Mean	Median	SD
Control	15	250.5	213.0	85.9
Plus	16	296.5	263.0	117.9
Transactions	19	252.8	223.0	113.3

($F(2, 47) = 0.94, ns$).

Respondent Burden: Participant ratings overall

- No difference in burden ratings across diary conditions



Preference for Diary Design

- Out of 20 participants asked for their preference
 - ▶ 16 participants preferred Transactions diary
 - ▶ 4 participants preferred Plus diary

RESULTS: REPORTING OUTLETS

Outlet Data Quality: Unusual outlet name

** Val U Mart **
STORE 326
295 UTANA WAY
ARLINGTON, VA 43983

WELCOME!
LOW PRICES EVERYDAY!

985458 MILK 1GAL 2PCT	4.29
023134 GRNY SMTH APPLES	
1.40 lb @ 2.29/lb	3.21
854873 NVL ORANGES	
2.34 lb @ 1.59/lb	3.72
875498 CLEMENTINES 5LB	6.99
544893 BAG SPINACH 9OZ	2.99
475454 NBSC CRACKERS	3.49
436754 VALU COOKIES	1.09

**TAX 0.00 TOTAL 25.78

CASH 30.00

CHANGE DUE 4.22

THANK U
FOR SHOPPING AT VAL U MART

12/13/14 22:21 TRNS 8548-6797

** Val U Mart **
STORE 326
295 UTANA WAY
ARLINGTON, VA 43983

- Spell the outlet name accurately?

Outlet Data Quality:

Unusual outlet name

Reported Outlet Name	Frequency
Val U Mart	34
grocery store	1
VAL U MART STORE 326	1
VAL-U-MART	1
ValUMart	1
Val U Maart	1
Vall U Mart	1

Outlet Data Quality: Unknown outlet name



While you're out that night [in Washington, DC], you had to pay for parking. You don't get a receipt so you enter the information as soon as you get home – the meter cost \$2.25

Outlet Data Quality:

Unknown outlet name

<u>Inadequate Outlet Names</u>	<u>n</u>
Parking	3
Park Now	1
Parking fee	1
J Street Cinema Parking	1
HARVEST TABLE	1
BTC PARKING	1
Jay's Parking Garage	1
j street cinema	1
don't know	1
PARKING	1
J Street Cinema	1
other	1

Outlet Data Quality: Unknown outlet name

- No differences in reporting across diary conditions

Condition	n Total	n Adequate	n Inadequate	Proportion Adequate
Control	-	-	-	-
Plus	18	9	9	50%
Transactions	16	7	9	44%

Summary

- Outlet data quality collected here is similar to data quality from TPOPS
- Outlet data quality and error types may change due to change in administration mode

Summary

- The collection of outlet information did not substantively increase or decrease CE data quality
- Participant ratings of burden show no large effects due to outlets
- Possible increase in time taken to enter items in the diary

Next Steps

- Would these results differ for the mobile diary?
- Can usability of the diary designs be improved?
- What is the impact of outlet collection on the CE recall interview?

Contact Information

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