

Exploring the Impact of Outlet Questions on Data Quality and Respondent Burden

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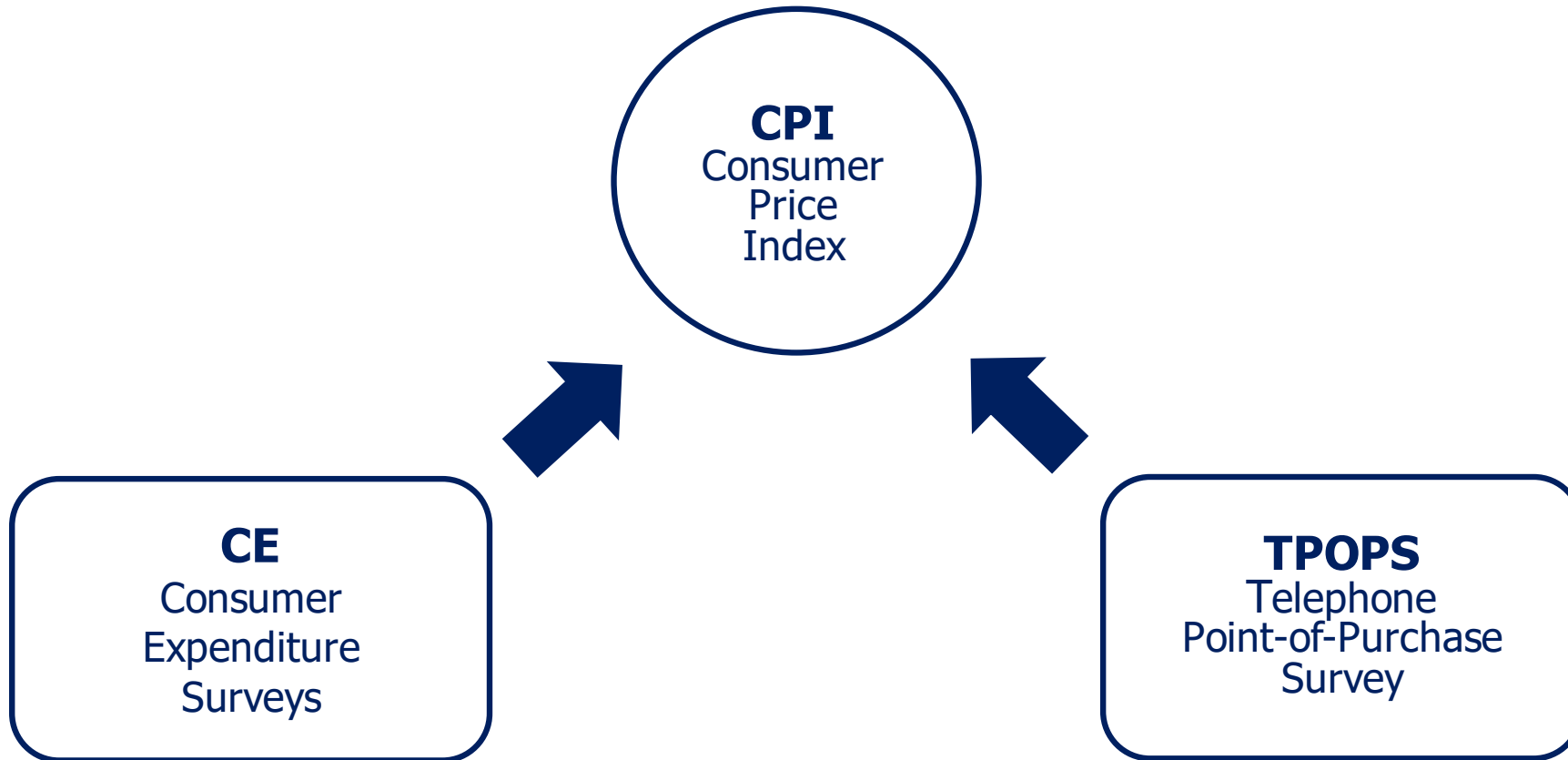


Outline

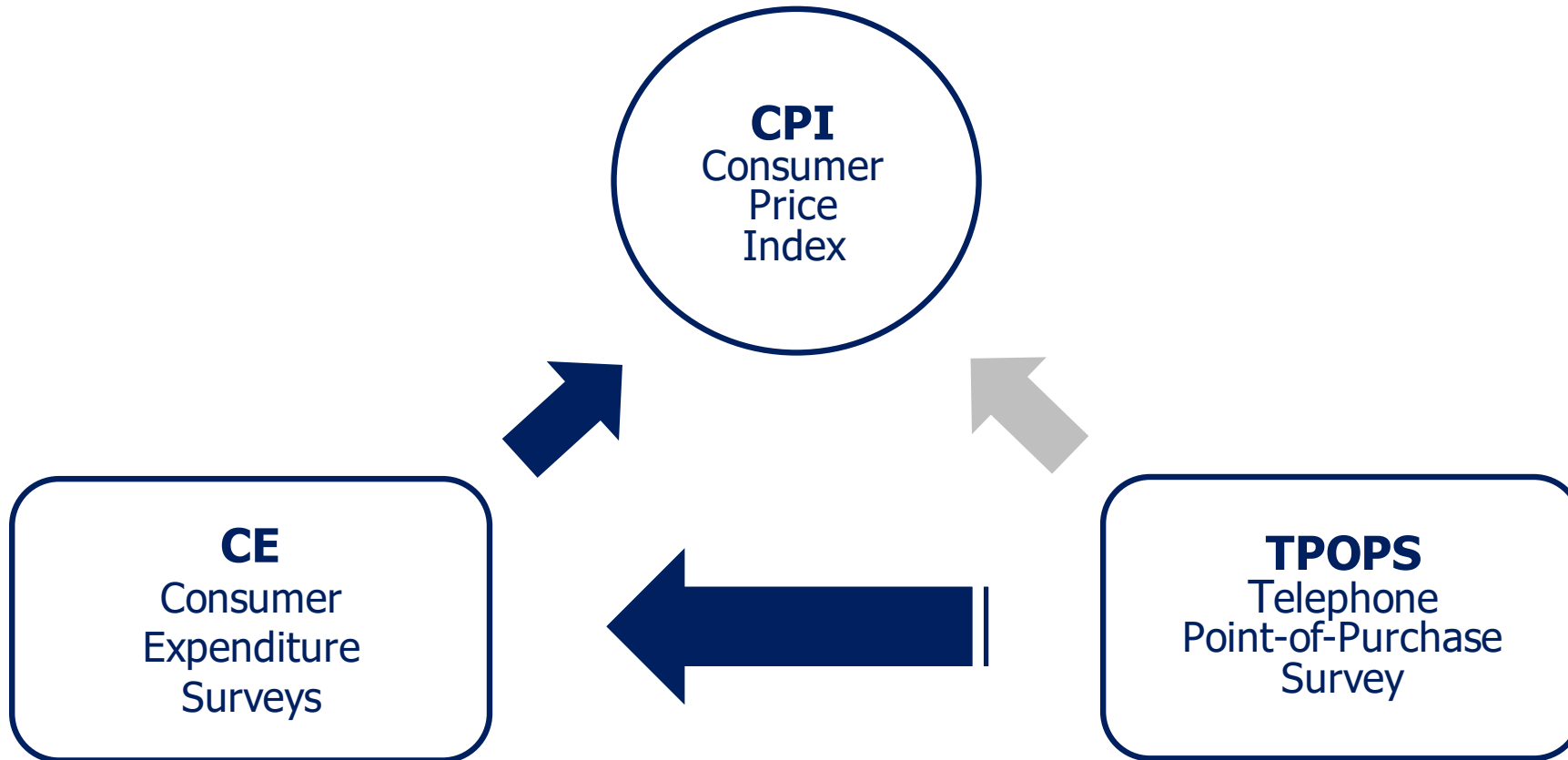
- Background
- Objective
- Data
- Results
 - ▶ Burden
 - ▶ Data Quality
- Summary
- Next Steps



Background



Background



Surveys

Consumer Expenditure Surveys (CE)

- Interview (CEQ)
 - ▶ Large purchases and recurring payments
 - ▶ 3 months recall
 - ▶ Rotating panel
 - ▶ 4 waves
 - ▶ In-person and telephone surveys
- Diary (CED)
 - ▶ Smaller purchases
 - ▶ Diary is placed for two weeks
 - ▶ Respondents record expenditures

Telephone Point-of-Purchase Survey (TPOPS)

- Collects where consumers purchase goods and services and how much they are spending
- Random Digit Dialed telephone survey
- Will be discontinued starting 2020



Integration

Benefits

- CPI market basket will have the same target population
- Serves as memory cues for recalling purchases
- Additional information during editing process

Risk

- Respondent Burden
- Data Quality



Test Outlet Questions in CEQ

- Asked in the final wave for 2017 CEQ data (Testing Phase)
- Are on path for those households assigned to an outlet group and those who reported expenditures
- Outlet group is assigned based on a rotation matrix to BLS defined non-rural PSUs
- Included in 10 sections

Where did you purchase this?

(Point of purchase)

Was this purchase online or in-person?

(Purchase mode)

City and State?

(Location)

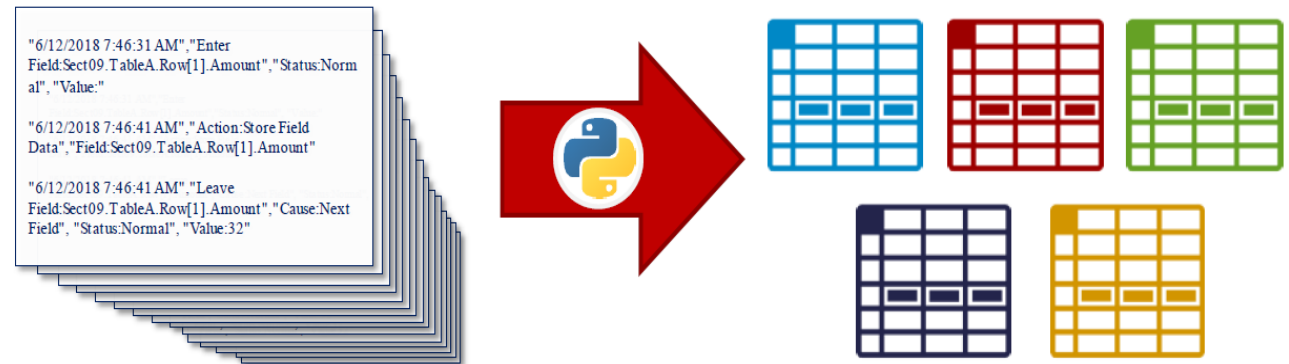
Objective

- What is the effect of introducing outlet questions into CEQ?
 - ▶ On data quality?
 - ▶ On respondent burden?
- Test Group
 - ▶ Households who were eligible to receive the outlet questions
- Control group
 - ▶ Households who were NOT eligible to receive the outlet questions

Data

■ Sources:

- ▶ From July 2017—March 2018
 - 4,517 completed final (4th) wave interviews
- ▶ Audit Trail Tables



Data

| Demographic | Not Eligible for Outlet Q (Control) | Eligible for Outlet Q (Test) |
|------------------------------|-------------------------------------|------------------------------|
| N | 3,417 | 1,100 |
| Median Respondent Age | 52 | 53 |
| Household Size | | |
| 1 | 29.7% | 30.5% |
| 1 | 33.5% | 34.8% |
| 2 | 15.4% | 13.5% |
| 4+ | 21.4% | 21.2% |
| Housing Tenure | | |
| Owner | 63.7% | 64.3% |
| Renter | 34.4% | 34.1% |
| Oth_Tenure | 2.0% | 1.6% |

Not statistically significant at $p < 0.05$, Chi-squared test & Wilcoxon

Rank Sum and Signed Rank tests

- Other demographics that were not statistically significant
 - ▶ Respondents' race
 - ▶ Respondents' sex
 - ▶ Respondents' Education



Data

| | N | Received Outlet Q | Did not Received Outlet Q |
|-----------------------|-------|-------------------|---------------------------|
| Eligible for Outlet Q | 1,100 | 46.3% | 53.7% |

- Percent of CUs that were designated in outlet group that actually received outlet questions



Burden: Time Spent by Outlet Types

| Question Type | N | Mean Time (sec) | Median Time (sec) | Min Time (sec) | Max Time (sec) |
|---------------|-----|-----------------|-------------------|----------------|----------------|
| Store name | 562 | 33.17 | 23 | 0 | 557 |
| Purchase Mode | 224 | 7.15 | 6 | 0 | 44 |
| Location | 447 | 16.04 | 12 | 1 | 129 |

- Data based on looking at each CE item, summing how much time was spent by each household that had an expense, then grouping by question type and finally taking averages
- The time estimate may be higher than actual time spent per question because households may have been asked to report more than one outlet for some CE items

Burden: Outlet Question on Survey Length, Income and Expenditures

| Group | N | Median Survey Length (mins) | Median Income | Median Total Quarterly Expenditures |
|-------------------------------------|-------|-----------------------------|---------------|-------------------------------------|
| Not Eligible for Outlet Q (Control) | 3,417 | 56.98 | \$40,464 | \$10,654 |
| Eligible for Outlet Q (Test) | 1,100 | 55.37 | \$39,060 | \$10,056 |

Not statistically significant at $p < 0.05$, Wilcoxon Rank Sum and Signed Rank test

Burden: Number of Questions Added to the Interview for those who received Outlet Questions

| | N | Median | Mean | SD | Min | Max |
|------------------------------|-------|--------|------|------|------|-------|
| Eligible for Outlet Q (Test) | 1,100 | 0.00 | 1.43 | 2.15 | 0.00 | 17.00 |
| Received Outlet Q | 509 | 2.00 | 3.10 | 2.19 | 1.00 | 17.00 |

Max amount of questions that could be received by a given CU: 25

- Data based on looking at each household and summing how many outlet questions were asked, and then taking averages of the households
- Note that not all of the outlet questions have follow up questions
 - ▶ Ex) Purchase mode was not asked for taxi, transportation, salon, parking, etc

Burden: Outlet Question on Perceived Burden

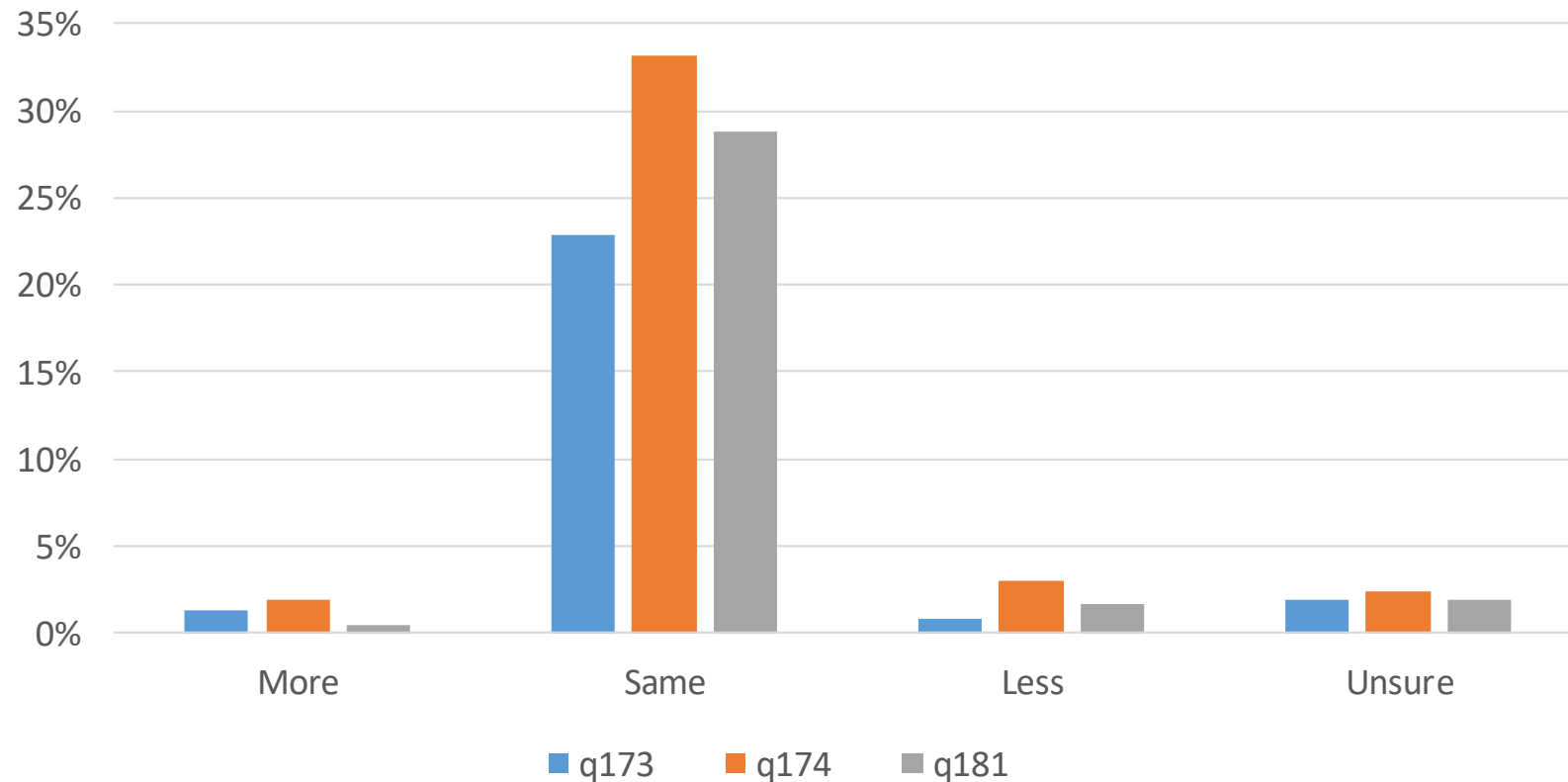
“How burdensome was this survey to you?”

| | N | No Burden | Burden |
|-------------------------------------|-------|-----------|--------|
| Not Eligible for Outlet Q (Control) | 3,305 | 33.2% | 66.8% |
| Eligible for Outlet Q (Test) | 1,071 | 35.5% | 64.5% |

Not statistically significant at $p < 0.05$, t test

- Data based on those who responded to burden question

Burden: Respondent's Cooperation Level (FR reported N=473)



■ Data based on those who responded to outlet and burden questions

Data Quality: Outlet Questions on Reported Expenditures

| | N | Median | Mean | SD | Min |
|--|-------|----------|----------|------------|--------|
| Not Eligible for Outlet Q (Control) | 3,417 | \$410.00 | \$728.15 | \$1,338.48 | \$0.00 |
| Eligible for Outlet Q (Test) | 1,100 | \$385.00 | \$664.84 | \$972.74 | \$0.00 |

Not statistically significant at $p < 0.05$, Wilcoxon Rank Sum and Signed Rank Test



Data Quality: Item Nonresponse by Household

| CE Item | Household | Outlet name | Purchase mode | Location |
|--|-----------|-------------|---------------|----------|
| Pre-paid phone | 216 | 1 | 0 | 0 |
| Appliances, Household Equipment: computers, Bicycles, etc. | 619 | 4 | 0 | 0 |
| Household Item Repairs and Service : Garbage disposal, washer, oven, etc. | 308 | 0 | 0 | 0 |
| Home Furnishings and Related Household item: renting, leasing, or repair of furniture | 308 | 0 | 0 | 0 |
| Clothing and Sewing Materials | 311 | 4 | 0 | 0 |
| Other Vehicle Operating Expenses: Gas, Parking, tolls | 446 | 16 | - | 1 |
| Subscriptions and Memberships | 216 | 0 | 0 | 0 |
| Miscellaneous Expenses: babysitting, toys, pets, etc. | 524 | 3 | 0 | 0 |
| Expense Patterns for Selected Services and Goods: Taxi, salon, and public transportation | 446 | 18 | - | 0 |



Results

- Overall, introducing additional outlet questions did NOT reduce the data quality nor increase respondent burden
- Median respondents spent 41 seconds to answer a series of outlet questions (Store name, Purchase mode, and Location)
- Respondents were asked an average of 2 additional outlet questions
- There were no statistical differences between Eligible Vs. Not eligible for Outlet Q groups on the following :
 - ▶ Survey length
 - ▶ Income
 - ▶ Total expenditures
 - ▶ Total reported expenditures associated with outlet questions
 - ▶ Perceived burden



Moving Forward

- From July 2018 on, outlet questions have been asked in all interview waves and added to an an additional 12 sections
- “Last Purchase” questions are asked for unreported expenses to capture additional outlets
 - ▶ Extended recall period: 3 months -> 5 years

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