

# **Testing the Feasibility of Collecting Expenditure Data via Individual Mobile and Desktop Diaries**

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# Presentation Outline

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- I. Individual Diaries Overview
- II. Sample Performance & Characteristics
- III. Feasibility
- IV. Expenditure Reporting
- V. Individual Web Mode Data Quality
- VI. Conclusion

# **I. INDIVIDUAL DIARIES OVERVIEW**

# Consumer Expenditure Diary (CED) Overview

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- The CED currently uses 1 paper diary to collect household expenditures for a week (x2)
- Interviewers “place” the diary in-person and conduct up to two more visits
- The CED gathers more detailed expenditures than the Consumer Expenditure Interview Survey
- The Diary is divided into four sections:
  - ▶ Food Away From Home
  - ▶ Food for Home Consumption
  - ▶ Clothing, Shoes, Jewelry and Accessories
  - ▶ All Other Products, Services and Expenses

# Individual Diaries Background

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- The Individual Dairies Feasibility Test (IDFT) was designed to inform the operational and data quality aspects of collecting expenditures from household members using personal electronic diaries
- Since 2004, there have been various ongoing initiatives to test various forms of instruments to address the limitations of one paper diary for households with multiple members
- Two modes of electronic diaries were tested:
  - ▶ Mobile internet (via smartphone)
  - ▶ Desktop internet

# Individual Diaries Logistics

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- Data Collection Period – Aug - Dec 2014
- Starting Sample Addresses – 1,200 (Philadelphia, Chicago, & Los Angeles Regional Offices)
- Targeted sampling on area mobile usage, internet penetration, multi-person households, and English speaking households
- Developed separate online mobile & desktop applications
- Diary placement occurs once across the 2-week recording period
- Interviewers provide username and password to Respondents
- No individual-level outcome codes for Ind. Diary (final disposition)
- New materials
  - ▶ Mobile User Guide
  - ▶ Desktop User Guide
  - ▶ YouTube Online Tutorials

# Individual Diaries Eligible Cases & Assignment Protocol

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- Eligible Individual Diaries Cases
  - ▶ English only
  - ▶ No Multi-CU HHs or Replacement HHs
  - ▶ Home internet access via PC, tablet, Smartphone
- Assignment Protocol
  - ▶ If a household screens in as eligible, household members are offered modes sequentially
  - ▶ Mobile mode first and, if they do not have a Smartphone, then
  - ▶ Desktop mode, including tablet

# Individual Diaries Monitoring Protocol

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- Individual Diaries did not provide interviewers the opportunity to monitor if diary entry occurred during the recording period (due to technical/resource limitations)
- Interviewer Follow-up Calls
  - ▶ Reminder Calls (or visits if necessary) on Day 3 and Day 8 were encouraged for all participating households
  - ▶ Tailored follow-up calls were made to households that Census flagged for going three consecutive days without logging into the instrument



# Individual Diaries Training and Materials

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- Training conducted in-person for one day and was a departure from standard CE training protocols - focused more heavily on protocol changes
- Respondent Materials
  - ▶ Mobile and Desktop User Guides – Focus on logging in and entering expenses
  - ▶ Three YouTube Online Tutorials
    - ▶ Getting Started
    - ▶ What to Enter in the CE Diary
    - ▶ Entering and Editing Expenses

## **II. SAMPLE PERFORMANCE & CHARACTERISTICS**

# Characteristics of Sampled Households versus Restricted Production

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- Restricted Production (RP) – Production cases from the same time period and regions restricted to match IDFT test sample by only including English speaking HHs with internet access who had diaries double placed.
- IDFT vs. RP
  - ▶ More homeowners (70.7% vs. 63.2%)
  - ▶ Fewer single-person HHs (16.5% vs. 23.7%)
  - ▶ Lower prevalence of converted refusals (1.2% vs. 3.7%)

# Characteristics of Individual Diarists by HH Assigned Diary Type

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- Diary Types – Mobile, Desktop, Mix (Mobile & Desktop) & Paper
- Compared to desktop-only HH diarists, mobile diarists were more likely to be under the age of 50, college graduates, white, of Hispanic origin, and live in larger HHs.
- Younger members were particularly receptive to the mobile diary, as 41% of mobile diarists were between the ages of 16 & 34 compared to 27% of paper diarists.

# Sample Performance

## ■ Difference in Rates – (IDFT – RP)

	ID	RP	Diff	% Diff
Screen-out rate	25%	31%	-6%	-19.4%
Contact rate	96%	95%	1%	1%
Cooperation rate	23%	28%	-5%	-17.9%
Response rate	22%	27%	-5%	-18.5%
'Non-response' rate (or non-placement rate)	59%	64%	-6%	-7.8%

- The higher non-response & screen-out rates in the RP sample may be attributed to the IDFT sample design.

# **III. FEASIBILITY**

# Adherence to Protocol

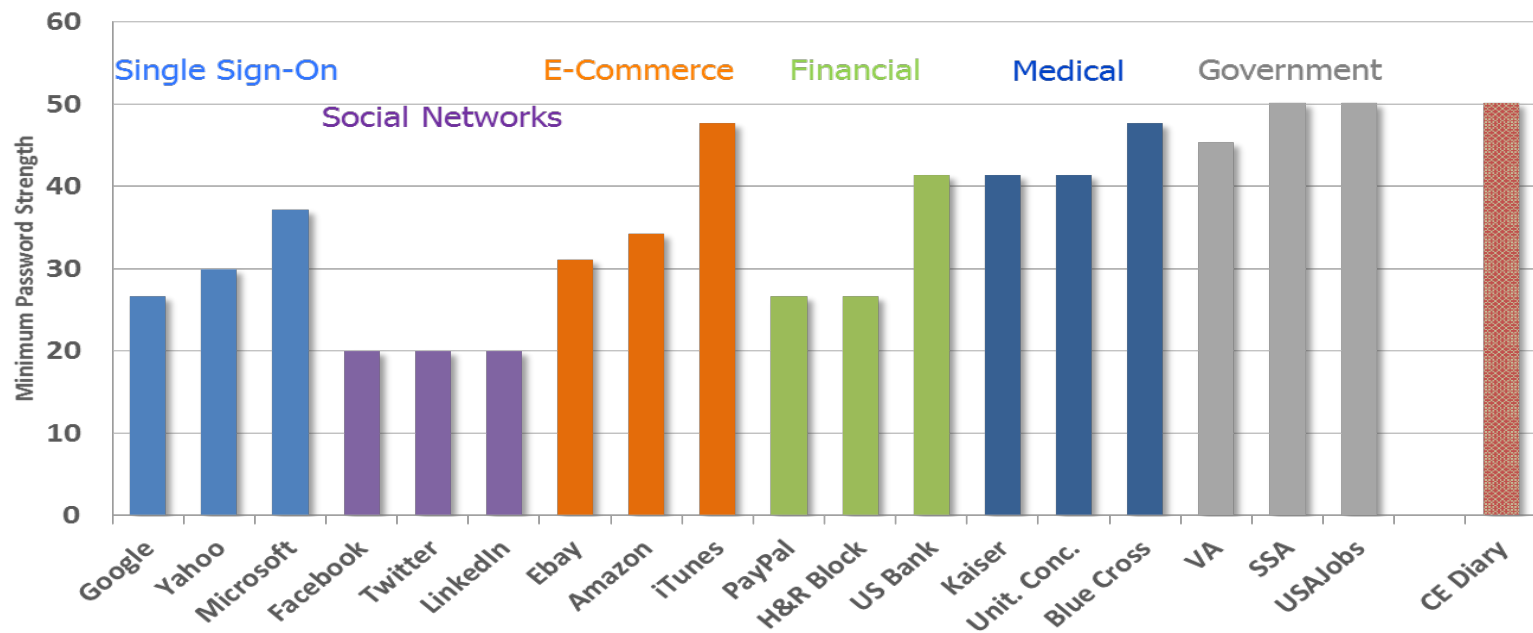
- Multi-member HHs – Interviewer reports of ‘central person’ diary recording
- Interviewer monitoring of diary logins

	N	% with follow-up attempt
PHI	88	5%
CHI	152	31%
LA	175	4%
Average:		14%

- ▶ HHs that were contacted were significantly more likely to complete their diaries than those that were not (70% vs. 49%)
- ▶ HHs that were successfully contacted had a significantly higher average number of entries (52 vs. 25)

# Obstacles to Accessing Web Dairies

- URL – <https://respond.census.gov/ced>
- Username & Password Requirements

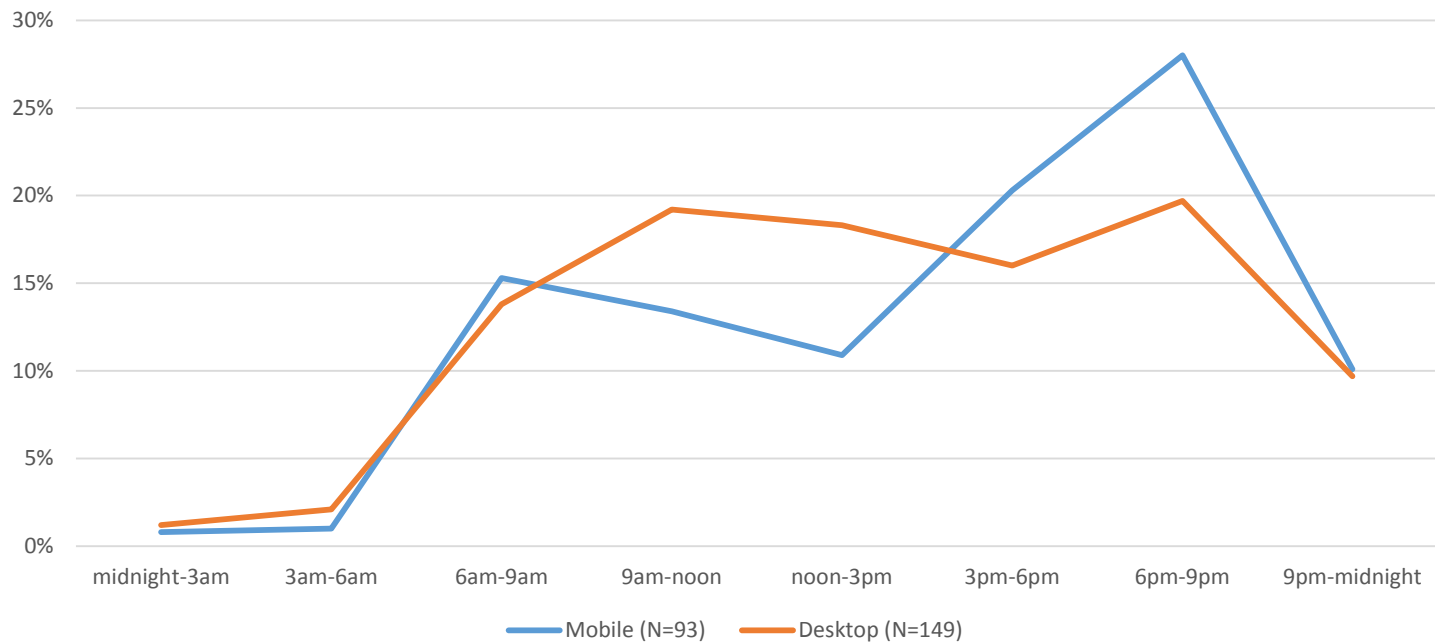




# **IV. EXPENDITURE REPORTING**

# Contemporaneous Reporting

- 28% of mobile diary entries came between 6pm & 9pm versus just 19.7% for desktop diary entries.



# Expenditure Reporting: Individual vs. Household

- Mean and median number of HH entries by group –multiple diarists

	<b>N</b>	<b>Mean</b>	<b>Median</b>
ID	57	70.4	59.0
RP	139	89.4	85.0
Diff (ID-RP)	-	-19.0	-26.0
% Difference	-	-21.3%	-30.6%

- Count of HH entries by size and group

	<b>2 diarists/age-eligible members</b>			<b>3+ diarists/age-eligible members</b>		
	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>
ID	47	64.8	57	10	96.8	109
RP	98	82.1	76	41	107.0	114
Diff (ID-RP)	-	-17.3	-19.0	-	-10.2	-5.0
% Difference	-	-21.1%	-25.0%	-	-9.5%	-4.4%

# **V. INDIVIDUAL WEB MODE DATA QUALITY**

# Number of Entries at the HH Level

- Mean & median number of HH entries by group – all diarists

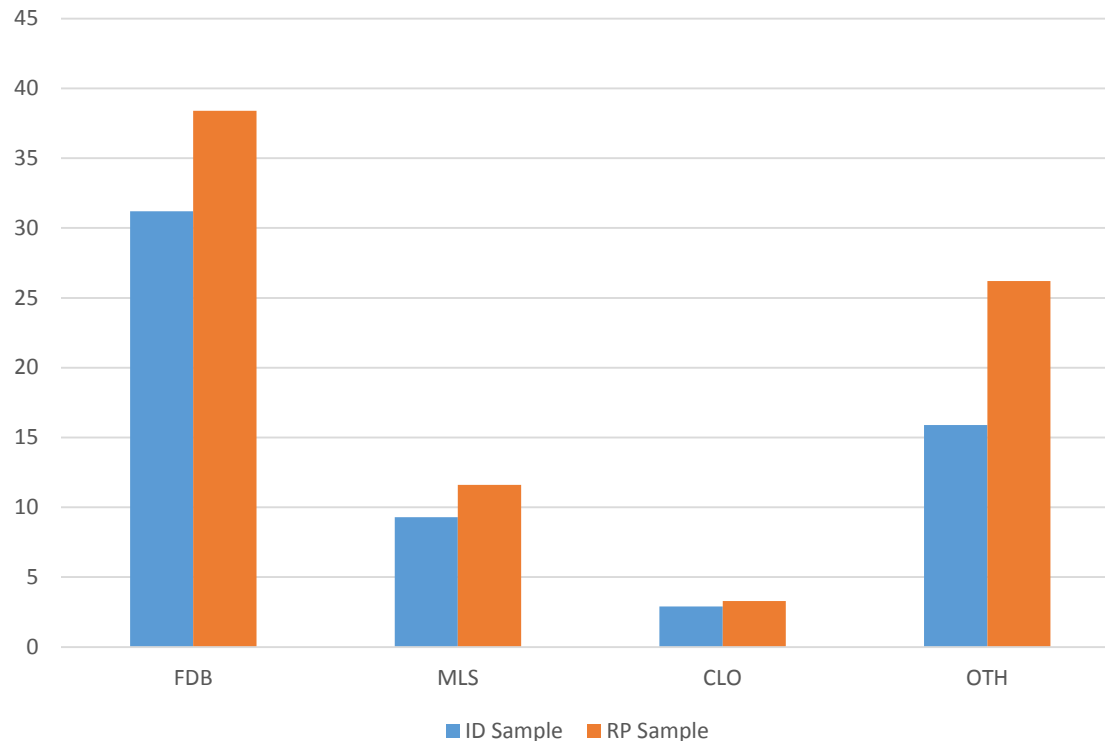
	No. CUs	Mean	Median
ID	164	59.4	50.5
RP	190	79.5	72.0
Diff (ID-RP)	-	-20.1	-22.5
% Difference	-	-25.3%	-31.3%

- Mean & median entries per single-member HHs by group – all diarists

	N	Mean	Median
ID	30	36.1	37.5
RP	51	52.3	47.0
Diff (ID-RP)	-	-16.2	-9.5
% Difference	-	-30.9%	-20.2%

# Number of Entries at the HH Level

- Count of average HH entries per section by group



# Number of Entries by Diary Mode

- Descriptive statistics of entries by diary mode

	No. diarists	Mean	Median	Min	Max
Mobile	87	33.5	21.0	1.0	133.0
Desktop	146	41.9	31.0	2.0	177.0
Recall	16	44.5	32.5	1.0	113.0

# Prevalence of Entries by Recall/Receipts

- Percentage of HHs reporting expenses through recall/receipts by group.

	No. CUs	At least 1 entry by Recall/Receipts	Total Recall
ID	210	29.5%	21.9%
RP	200	NA	5.0%
Diff (ID-RP)	-	-	16.9%
% Difference	-	-	338%

- Few respondents who reported expenditures through recall reported technical difficulties, suggesting that busyness or burden played a part in how they reported.



# **VI. CONCLUSION**

# In Summary

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- There were challenges implementing the test protocol as designed.
  - ▶ The data indicated a lower than expected prevalence of all eligible household members cooperating with the survey request in multi-member CUs. Other measures beyond offering individual diaries, such as the offering of incentives, may be needed to maximize within-CU participation.
  - ▶ The need to enter a long web site address and the complexity of password requirements made logging in to the web diaries a difficulty for many respondents.
  - ▶ The CE Program needs improvements in the infrastructure supporting web diary monitoring to be able to take advantage of the full functionalities of web diaries.

# In Summary

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- There was no improvement in household cooperation rates for the ID sample compared to the RP sample.
- The examination of contemporaneous reporting of expenses for respondents with web diaries was hampered by data limitations.
- Single proxy respondents using paper diaries reported more median entries than diarists assigned individual web diaries, among multi-member CUs.

# In Summary

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- There were fewer entries and lower reported expenditure totals among the ID sample CUs compared to the RP sample CUs.
- We identified characteristics that were associated with a larger number of entries and higher expenditure amounts among CUs given web diaries.
- Feedback from diarists in the ID sample who responded to debriefing questions was largely positive regarding the ease of recording expenses and the security of their data.

# Contact Information

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