The Gemini Project: The Consumer Expenditure Survey Redesign Initiative

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Presentation Outline

1. CE Program Overview
2. CE Methods Improvements
3. Redesign Overview
4. Proof of Concept Test Overview
5. Challenges Ahead

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Survey Goals

- To meet the need for timely and detailed information about the spending patterns of different types of households
- To provide the basis for revising the expenditure weights for the Consumer Price Index (CPI) every two years

Survey History

- First BLS survey was in 1888-1891, conducted sporadically until 1940s, and then every 10 years
- The continuing CE began in 1980, with a recognized need for a constant source of data on the economic condition of America's consumers
- The continuing CE allowed CPI to revise weights more often (initially a 3 year cycle, now a 2 year cycle with sample expansion in 2000)
- Current design based on 1972-73 survey format

Scope & Sample

- Nationwide survey designed to represent the U.S. civilian non-institutionalized population
- Data are collected from consumer units (CUs) - people living at one address who share living expenses (in most cases, same as HHs)
- The survey is designed to represent all urban and rural areas in the U.S. (of note, CPI only uses the urban sample)
- Sample selection begins with definition and selection of geographic areas (currently 91 PSUs in sample)

Data Collection

- The U.S. Census Bureau collects CE data for the BLS using two different surveys, with separate samples:
  - Interview, quarterly, 4 interviews, n=28K per year
  - Diary, 2 weekly diaries, n=14K per year

- Respondents in both surveys are asked to describe "all" of their spending. Business expenses and reimbursements are excluded.

Interview & Diary Improvements (1)

- CAPI Interview (2003)
- CAPI Diary demographics and income (2004)
- Contact History Instrument (2005, 2006)
- User Friendly diary (2005)
- Diary auto-coding system (2005)
- Biennial Interview questionnaire revisions (2005-15)
- Elimination of bounding interview, reducing survey from 5 to 4 waves (2015)

Interview & Diary Improvements (2)

- Timely and relevant questionnaire revisions
  - Medicare prescription drug program (2006)
  - Tax stimulus: amount and how used (2008, 2009)

- Statistical methods improvements
  - Income imputation (2004)
  - Improved Diary/Interview source selection for best publication estimates (biennially since 2007)
  - Income tax estimation implementation (2013)

Gemini Project: Motivation

- Evidence of measurement error
- High level of burden (presumed to negatively affect data quality)
- Need for greater operational flexibility
- Changes in spending behaviors and technology

Gemini Project: Motivation


BUSINESS INSIDER

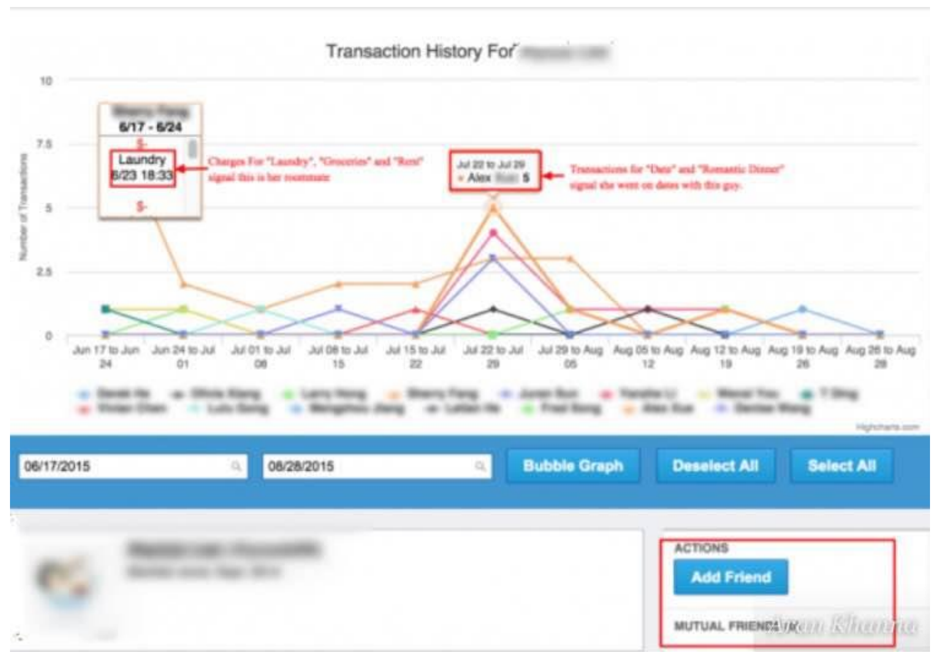
TECH

Have you left a money trail for anyone to find on Venmo?

Aran Khanna, Medium

Oct. 30, 2015, 2:23 PM 4,561


emdot via Compfight cc



The transaction history for a user I am not friends with and have no mutual friends with.

Gemini Project: 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

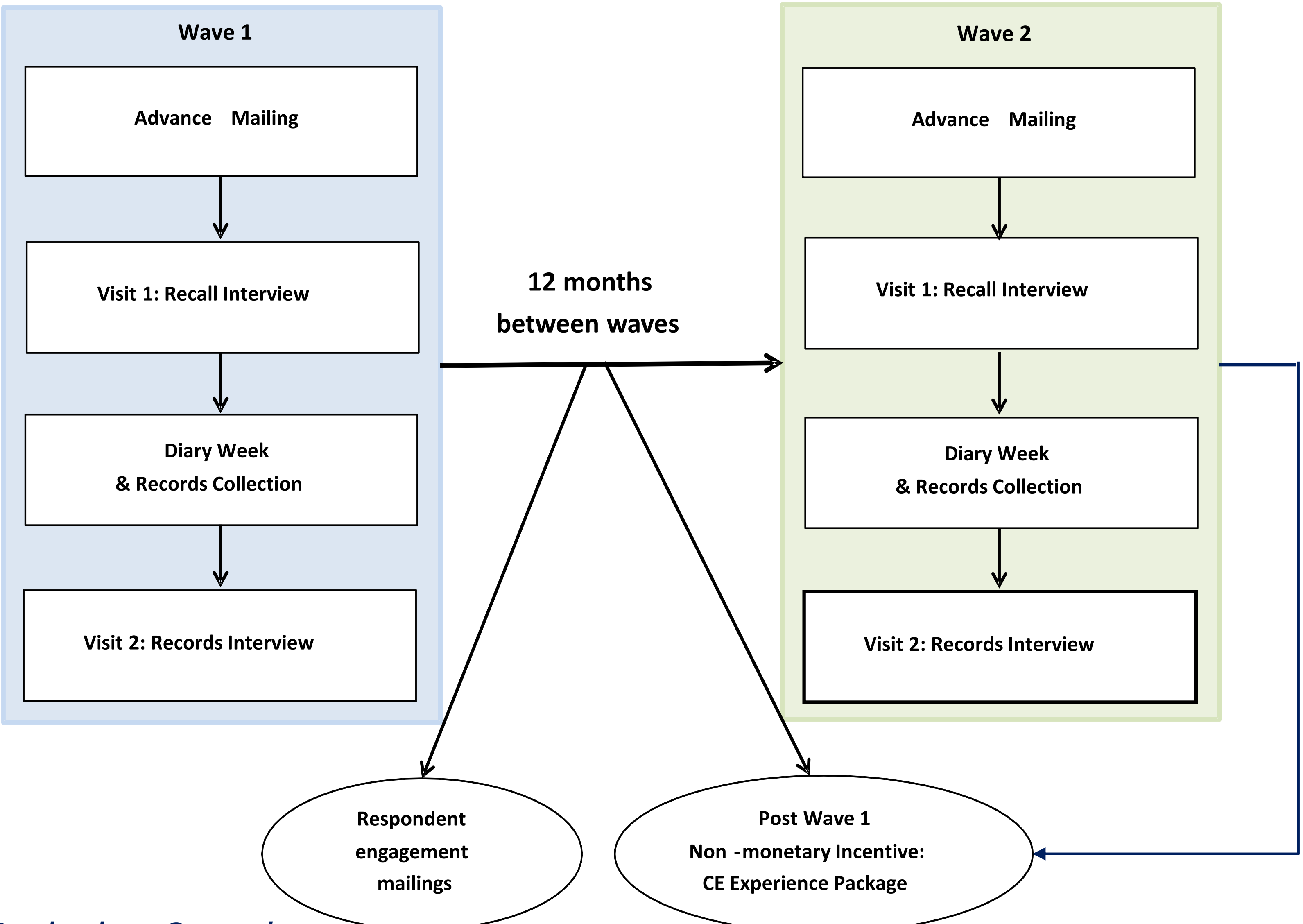
Data Requirements

- Annual expenditure estimates of total household spending for the U.S. population
- Month of expenditure(s) for each expenditure category
- Data collected at a minimum of 2 points in time, 1 year apart
- Minimum set of expenditure/non-expenditure data elements from each household

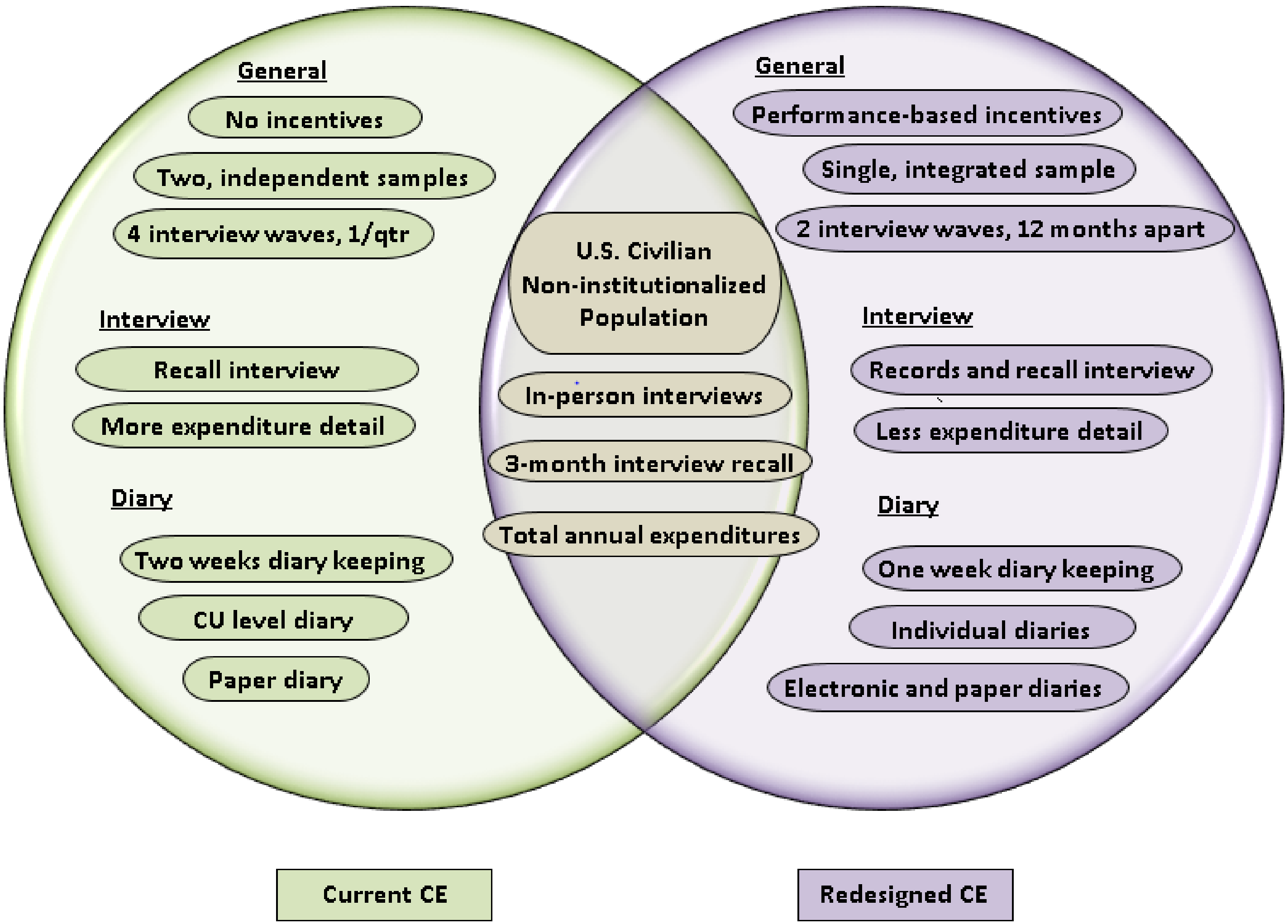
Key Proposal Inputs

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

Design Proposal



Comparison of Design Features



Current vs. Redesign: Sample Design

Current	Redesign
Two independent Samples (Diary and Interview)	One Integrated Sample (Interview, with Diary keeping component)

Advantage:

- Reduced costs of maintaining two samples
- Diary level detail for all CUs

Disadvantage:

- Potential burden for household completing both the Interviews and Diary

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Current vs. Redesign: Interview

Current	Redesign
Single Interview for large, recurring expenditures	2 interviews: Recall based and Records based

Advantage:

- Ease respondent burden with half of typical content of the current interview
- Better quality data for records focus

Disadvantage:

- Rely on completion of 2^{nd} interview for complete spending from one household

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Current vs. Redesign: Diary (Mode)

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

Advantage:

- Electronic diary – more flexible and easier for respondent
- Electronic diary – in the moment reporting
- Respondent uses mode most comfortable with (Electronic or Paper)

Disadvantage:

- Design of electronic diary does not meet respondent expectations

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Current vs. Redesign: Diary (Mode)

fedscoop

USDS execs: Americans expect Uber-like government

Federal agencies haven't kept up with Americans' expectations fueled by private-sector technology, and that's eroding citizens' trust in their government, experts say.

By *Billy Mitchell*

NOVEMBER 12, 2015 5:20 PM

BIO

With the invention of the smartphone and a culture driven by on-demand, on-the-go apps, U.S. Digital Service Administrator Mikey Dickerson said Americans' expectations for their interactions with government are being set by companies like Apple, Facebook and Uber.

Challenges Ahead

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Current vs. Redesign: Diary (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.

Current vs. Redesign: Incentives

Current	Redesign
No Incentives	Performance-based incentives at the individual and household level

Advantage:

- Increase response rates
- Increase respondent motivation/Improved data quality
- Fewer contact attempts needed to complete interview (saves money)

Disadvantage:

- Costly

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Current vs. Redesign: Expenditure Categories

Current	Redesign
Detailed UCC level	More highly aggregated

Advantage:

- Fewer questions – reduced burden and interview length

Disadvantage:

- Less detailed expenditure data

Current vs. Redesign: Waves

Current	Redesign
4 waves - 12 consecutive months of expenditures per CU, each wave treated independently	2 waves - 3 months of expenditures, set 12 months apart, each wave treated independently

Advantage:

- Improvement of annual variance estimates
- Reduced measurement error resulting from conditioned underreporting
- Analysis of 12-month change in expenditures/income

Disadvantage:

- FR may lose rapport with respondent between waves
- Some users need one year of expenditures/income for analysis

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Linking Redesign Features with Data Quality Improvements

Redesign Feature	Link to Data Quality Improvement
Incentives	Increase cooperation & engagement
Technology	Promote real-time data capture
Individual diaries	Reduce proxy reporting
Reduced interview length Reduced survey content	Reduce burden
Increased record use	Increase accuracy

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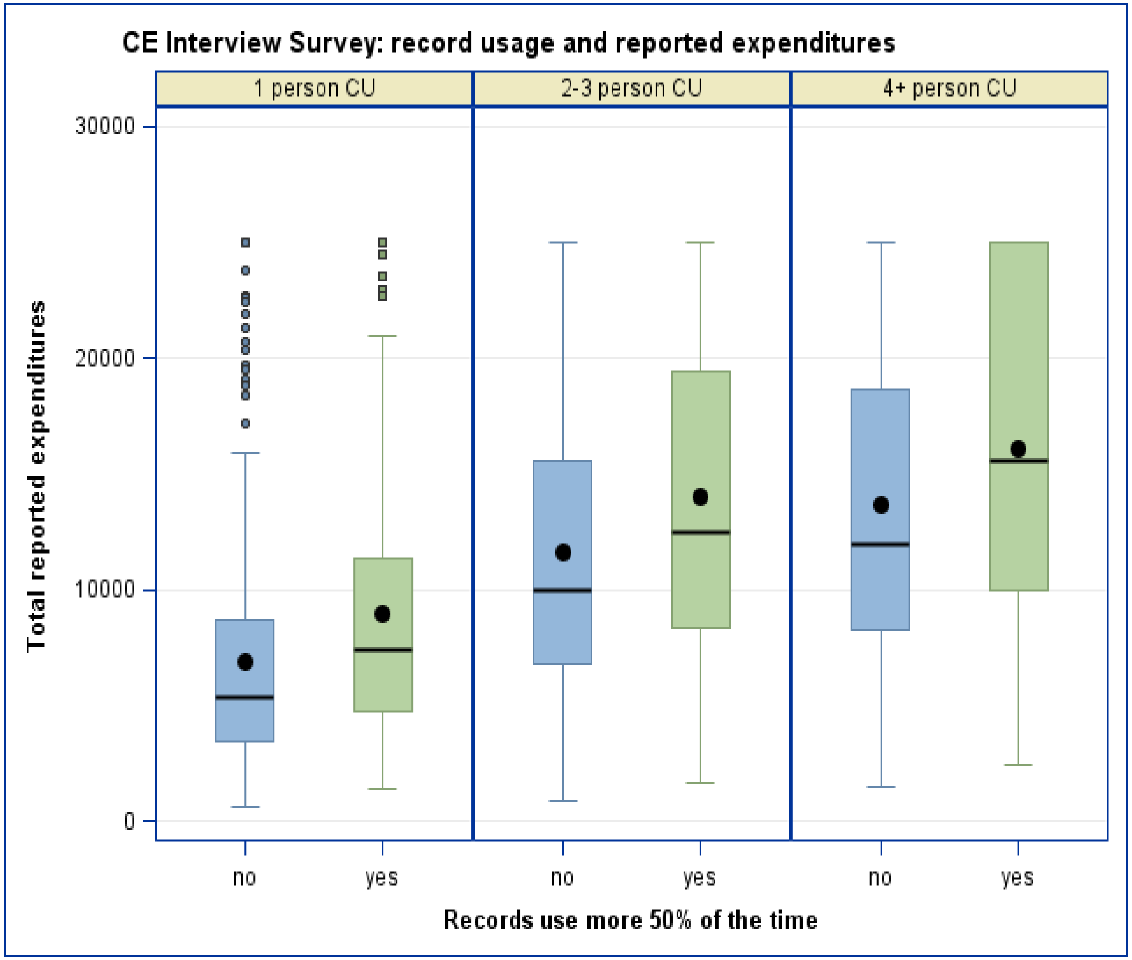
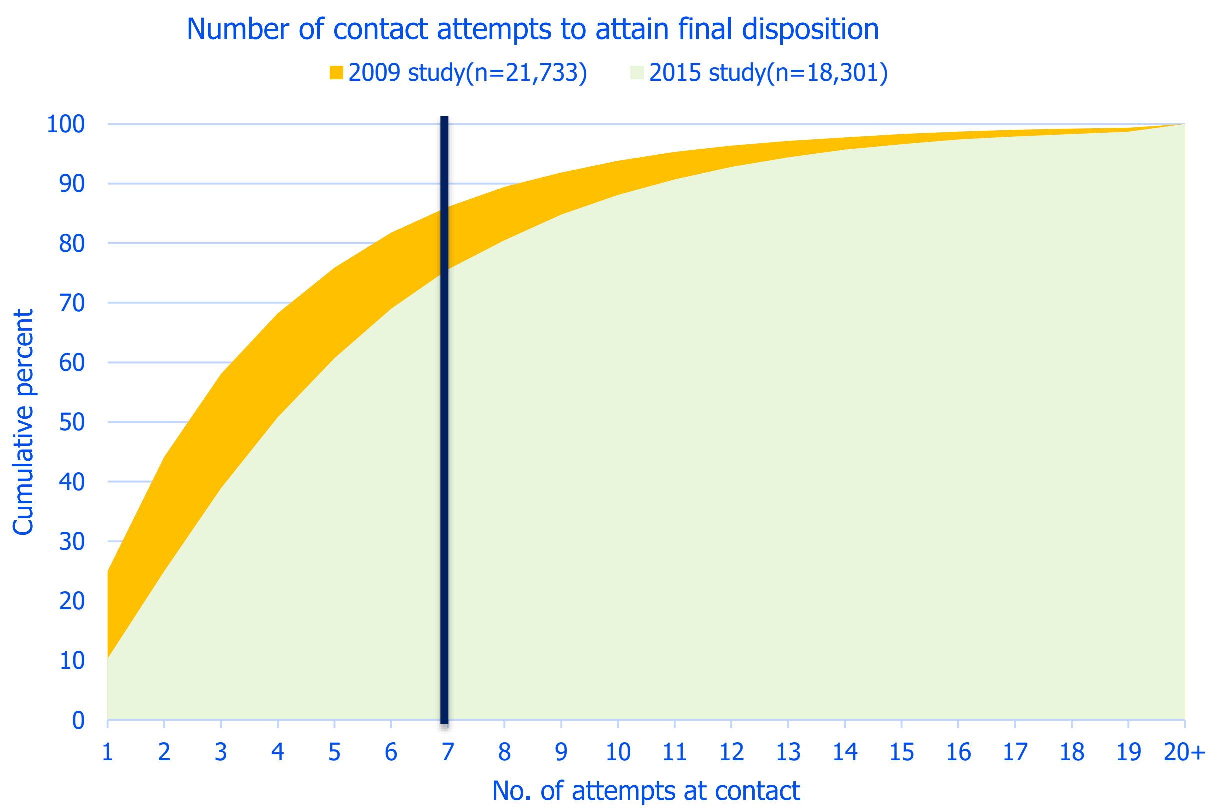
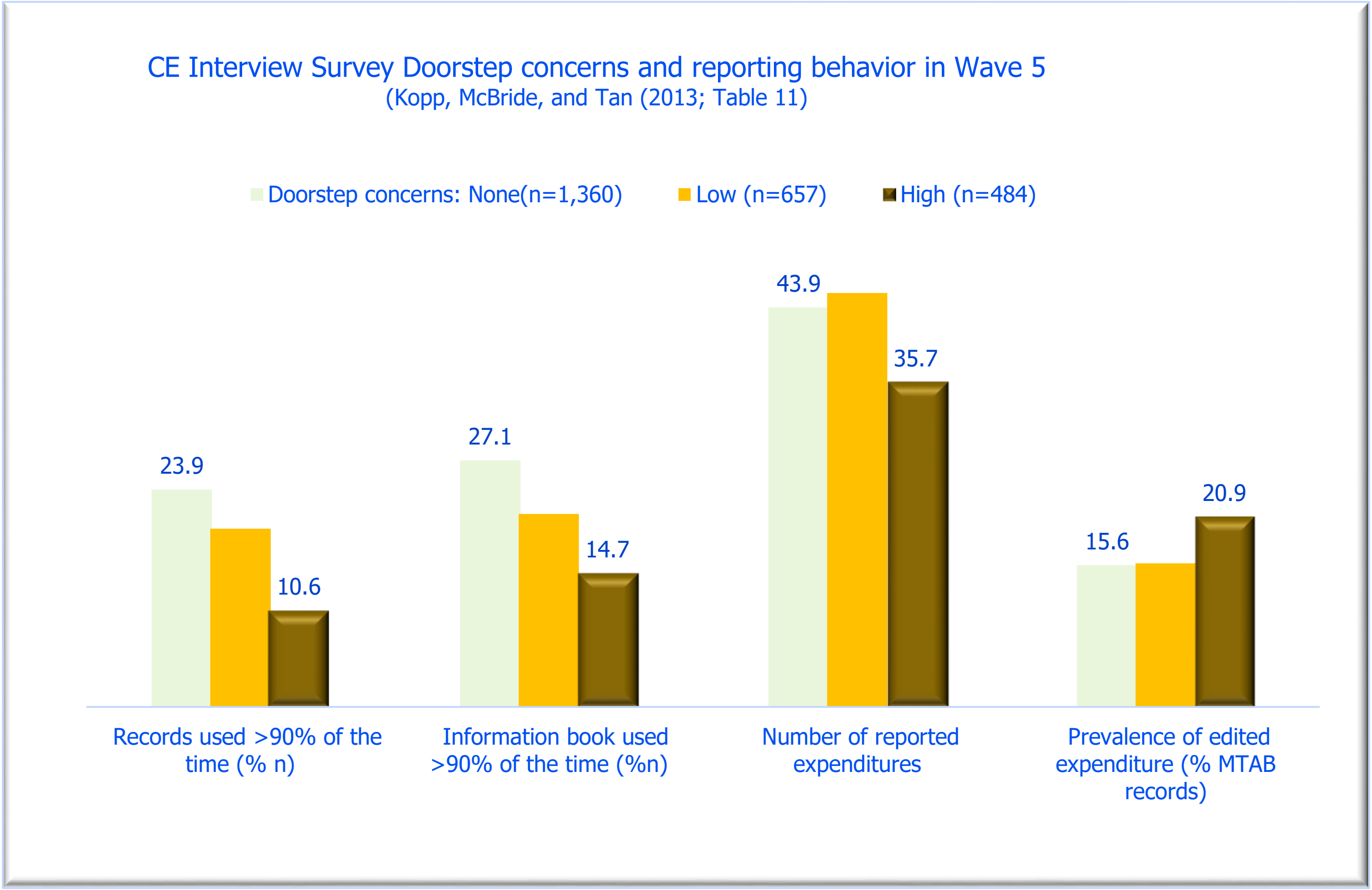
Redesign Features: Benefits of Record Use



Redesign Features: Benefits of Incentives (1)



Redesign Features: Benefits of Incentives (2)



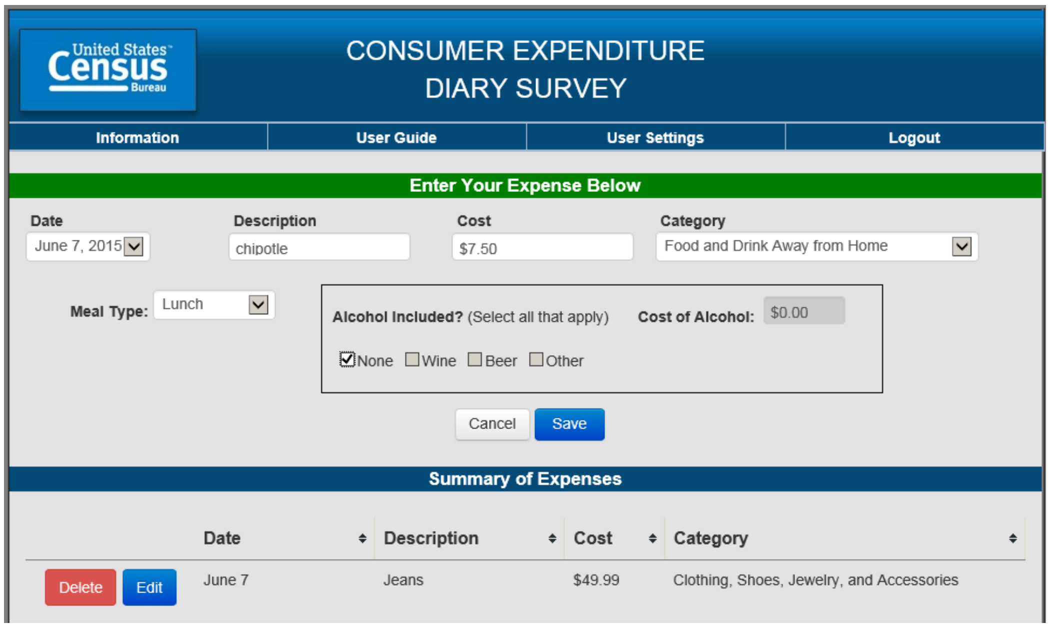
Proof of Concept Test (POC): Overview

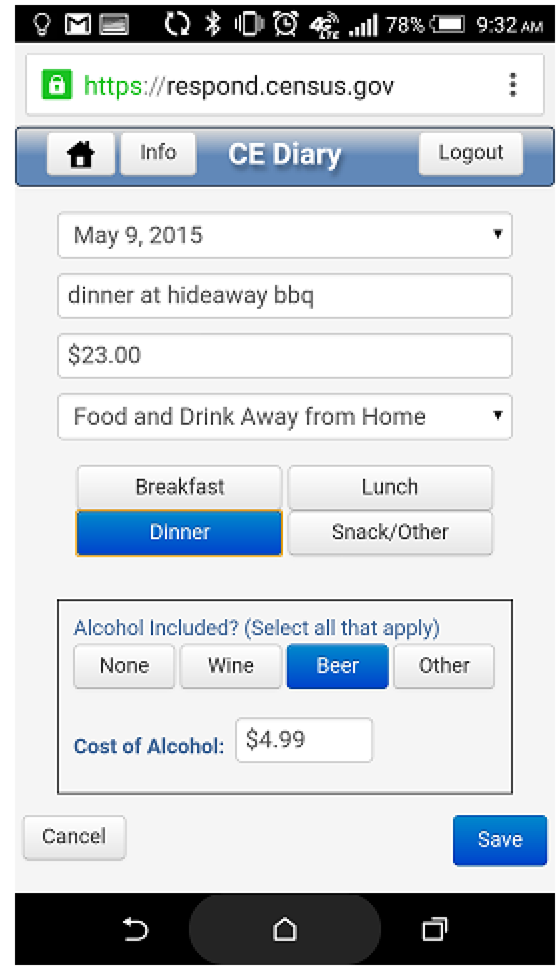
- Ensure that the basic underlying structure and components of the new design are feasible
- Designed to mirror the proposed design to the fullest extent possible
- Conducted with Census production FRs
- Sample performance –
  - 53 percent response rate (preliminary)
  - n=515 (expected)

Proof of Concept Test (POC): Research Objectives

- Methodological issues - Ability & willingness of respondents to complete all components, i.e. provide recall information, complete diary, provide records
- Operational factors - Contact attempts needed, length of visits, technical issues with individual diaries, effectiveness of or logistical issues with incentives
- Experiential factors –
  - Respondent experience (task difficulty, level of effort, reactions to materials/incentives)
  - FR experience (difficulties completing interview, time spent on each case)
- Effectiveness of system and material improvements

POC Web Diary





Our interview is on ________________ at ________

RECORDS CHECKLIST

FOR THE MONTHS OF

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

COLLECT AND ORGANIZE YOUR HOUSEHOLD'S RECORDS IN 3 STEPS

FIND IT AT HOME OR ONLINE | FILE, SAVE, OR PRINT | CHECK THE BOX

Housing

- ☐ Mortgage loan statement
  principal, interest, escrow payments
- ☐ Purchase or Sale of a property
  Closing costs, HUD-1 statement
- ☐ Rent
- ☐ Real Estate or Property Taxes
- ☐ HOA or Condo Fees
- ☐ Maintenance and repairs
  plumbing, gutters, landscaping, construction jobs
- ☐ Household operations
  moving fees, storage, security

Utilities

- ☐ Telephone/Cell phone bill
- ☐ Cable/Satellite TV bill
- ☐ Internet bill
- ☐ Electricity/Natural gas bill
- ☐ Water/Sewer bill

Vehicles

- ☐ Bill of sale or lease agreement
  new, used, or leased cars, boats, campers, motorcycles
- ☐ Financing agreements
- ☐ Licensing, registration, and inspection fees and property taxes

Insurance

- ☐ Homeowner's/Renter's insurance statement
- ☐ Health insurance statements
- ☐ Vehicle insurance statement
- ☐ Life insurance statements
- ☐ Other insurance
  long term care, supplementary health, pet insurance, umbrella policies, flood insurance

Medical Care

- ☐ Out-of-pocket payments
  copayments, coinsurance, reimbursable expenses
- ☐ Doctor's appointments, dental visits, eye exams
- ☐ Lab tests, x-rays, hospital stays
- ☐ Adult care
  nursing or convalescent homes, daycare
- ☐ Eye glasses and hearing aids
- ☐ Rental equipment
- ☐ Prescriptions

Remember to get all...

- ☐ Paystubs
- ☐ Checkbook registers
- ☐ Credit Card statements
- ☐ Bank statements

Your Field Representative will not collect your records and your information will remain confidential and not shared with anyone.

POC Preliminary Findings

- Response rates exceeded expectations based on earlier tests (although still lower than production)
- Feedback about the new design from the FRs via debriefings was very positive
  - Liked the ability to hand the incentives to the respondent after completed interview
  - Felt incentives helped gain cooperation and improve quality throughout the process
- An early look at Visit 2 shows record use to be strong, with at least 1 record for 88% of interviews (and almost half of the 10 sections)

Timeline for Redesign Development & Implementation

Design Proposal and Planning

- Approved redesign proposal released (July 2013)
- User impact of redesign (July-December 2013)
- Roadmap developed (September 2013)

Field Tests (Develop, Field, Analyze)

- Individual and Web Diaries (2012-15)
- Proof-of-Concept Test (2015)
- Incentives Test (2016)
- Large-Scale Feasibility Test (2019)
- Dress Rehearsal (2021)
- Implementation date depending on funding availability

Challenges Ahead: Organizational

- Meeting (or amending) redesign requirements
  - Reducing respondent burden due to data security requirements for online instruments
  - Enabling FR handling of incentives
  - Returning "data of value" to respondents through a spending summary report

- Administrative data linkage projects
  - Incorporating innovations and lessons learned from using auxiliary housing and income data files from 3rd party aggregators (in conjunction with CARRA)

Challenges Ahead: Timing

- *Challenge*: Synthesizing test results into in-progress redesign testing and implementation

- *Question*: With the redesign project schedule constrained by time and funding, how to develop a structured approach to designing and implementing successor tests without complete information from predecessor tests, and options for updating test plans in progress?

Challenges Ahead: Technological (1)

- *Challenge*: Keeping up with the pace of technological change & meeting respondent expectations

- *Question*: With the increased pace of technological innovation and social penetration/adoption, thoughts regarding extent of the program office's redesign resources to be allocated to ongoing environmental scanning and evaluating new approaches, in the context of an existing full scale redesign effort; also thoughts on opportunity and cost structure trade-offs?

Challenges Ahead: Technological (2)

- *Challenge*: Negotiating the promises and pitfalls of emergent private sector technologies, many with limitations that are not yet fully understood or well suited to the Federal government data collection environment?

- *Example*: Frequently hear some variation of "why don't you just use Mint.com", but no discussion of:
  - respondent concern about government data linking
  - unbanked respondents
  - incomplete account linking
  - lack of entries for cash transactions
  - insufficient details in big box store transactions
  - vast differences in technological sophistication by both FRs and respondents

Contact Information

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