

# The Gemini Project to Redesign the CE Surveys

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## **Gemini Design Team**

Office of Prices and Living Conditions  
Division of Consumer Expenditure Survey  
July 16, 2013



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# Outline

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1. Gemini Project
  - a. Background
  - b. Redesign Proposal
  - c. Current Design vs. Proposed Design
  - d. Road Ahead
  - e. Questions/Discussion

# BACKGROUND



# Motivation

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- Evidence of measurement error
- Changes in technology and spending behaviors
- Need for greater operational flexibility

# Objectives

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- Verifiable reduction in measurement error, with a particular focus on underreporting
- Reduction in burden

## OPLC Requirements

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- Minimum set of expenditure/non-expenditure data elements from each Consumer Unit
- Annual expenditure estimates of total household spending
- Month of expenditure(s) for each expenditure category
- Data collected at a minimum of two points in time, one year apart



## Key Proposal Inputs

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CE relied on several sources for proposal inputs:

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



## Design Features Recommended by CNSTAT

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- One sample design
- Flexible recall periods & interview structure
- Modular design with a core survey
- Increased use of technology, especially to encourage 'in the moment' reporting
- Increased use of records
- Reduced proxy reporting
- Mixed mode data collection
- Large incentives





## Design Features Recommended by Westat

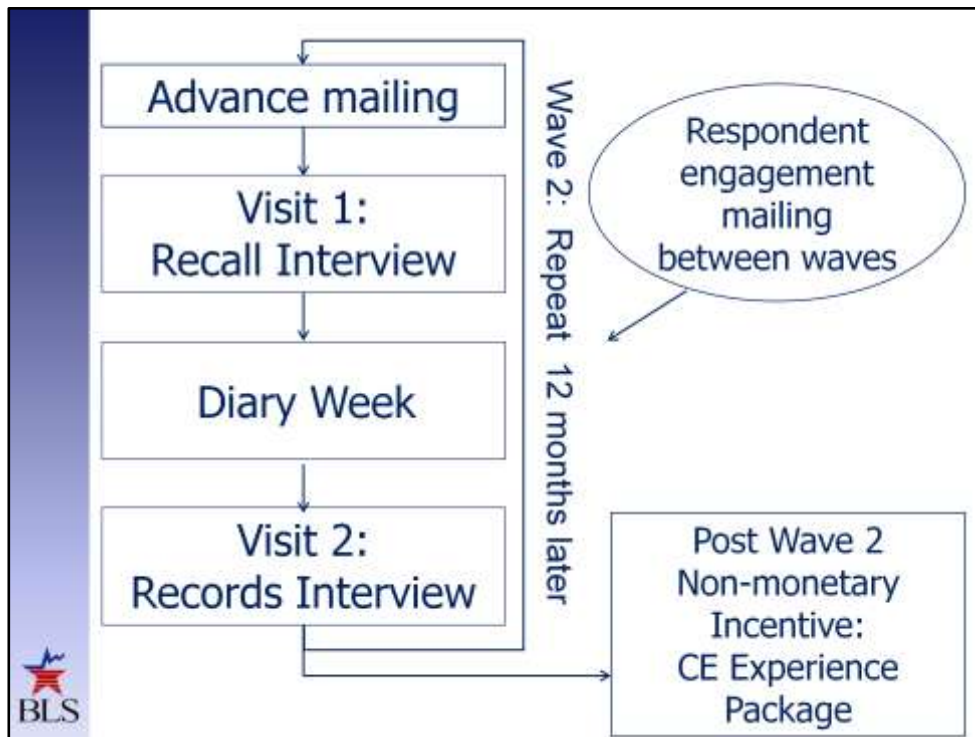
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- One sample design
- Two or three waves of data collection
- Individual diaries
- Use of a web-based diary to allow respondents to enter data via their Smart Phone, tablet or home PC
- Monitoring of incoming diary data during reporting periods with potential interviewer interventions
- Increased use of records
- Use of respondent-level incentives



# DESIGN PROPOSAL





Pending further research:

- When the experience package will be sent
- Amount of Token cash in advance mailing

# WAVE 1



## Visit 1: Personal Interview



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- Advance mailing with token cash incentive (\$2, pending research)
- Personal interview, similar to current structure with reduced content
- Time Goal: 45 minute average

## Visit 1: Recall-based expenditures



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Visit 1 content:

- Household roster
- Demographics
- Recall-based expenditures (3-month reference period)
  - items easily recalled such as appliances, vehicles, and doctor's visits
  - Infrequent purchases not likely collected in a one week diary
  - Items respondents would be able to report of other hh members (tuition, catered affairs)
- "Global" questions capturing at a more highly aggregated level what the Diary week will collect detail on

## Visit 1: Training



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- 1) Train respondent (and other household members, if possible) to complete the web diary
- 2) Train respondent on what records/bills to collect for the following personal visit interview

## Visit 1: Incentive

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At the conclusion of Visit 1, the respondent will receive a household based incentive of \$20 debit card (despite picture)



# Diary Week

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- All HH members 15+ maintain individual electronic diary for 1 week
- Offer paper diary for those that prefer
- FR contacts as necessary based on centralized diary monitoring

# Diary: Content



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Similar to current Diary: Open-ended to capture any expense during the week

Designed to best collect:

- smaller, more frequently purchased items
- Items more willing to report privately
- Items an proxy respondent would not know

## Diary Week: Incentive(s)



\$20 individual incentives for each eligible completed Diary.

## Visit 2: Personal Interview



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- Personal interview, with assistance from records gathered (as trained in Visit 1)
- Review of Diary
- Time Goal: 45 minute average



## Visit 2: Incentive



At the conclusion of Visit 2, the respondent will receive a household based incentive of \$20 debit card (despite picture) if no records are used, \$30 if records are used.

# WAVE 2



## Design Overview: Wave 2



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12 months later: repeat Wave 1

Visit 1

Diary Week

Visit 2

Post-wave 2 CE “experience package” as non-monetary incentive, for example:

Charts displaying HH wave 1 expenditures vs. national average

Information sheet listing helpful government websites

(future decision on whether to do this between waves or post-wave 2)



## Design Overview: Major Issues Addressed

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1. Incentives → addresses respondent motivation
2. Technology → encourages real-time data capture
3. Individual diaries → reduces proxy reporting
4. Shortened interview length, reduced survey content, and increased record use → improve data quality

## Design Overview: Future Decisions

Topics to be addressed during the redesign research development process:

- Mobile device application type
- Use of records as data input
- Acceptance of annotated grocery receipts
- Incentive amounts and structure
- Exact survey content
- Government provided technology
- Length of Wave 1 and Wave 2 visits
- When the experience package will be sent
- Inclusion of TPOPS-supporting outlets questions

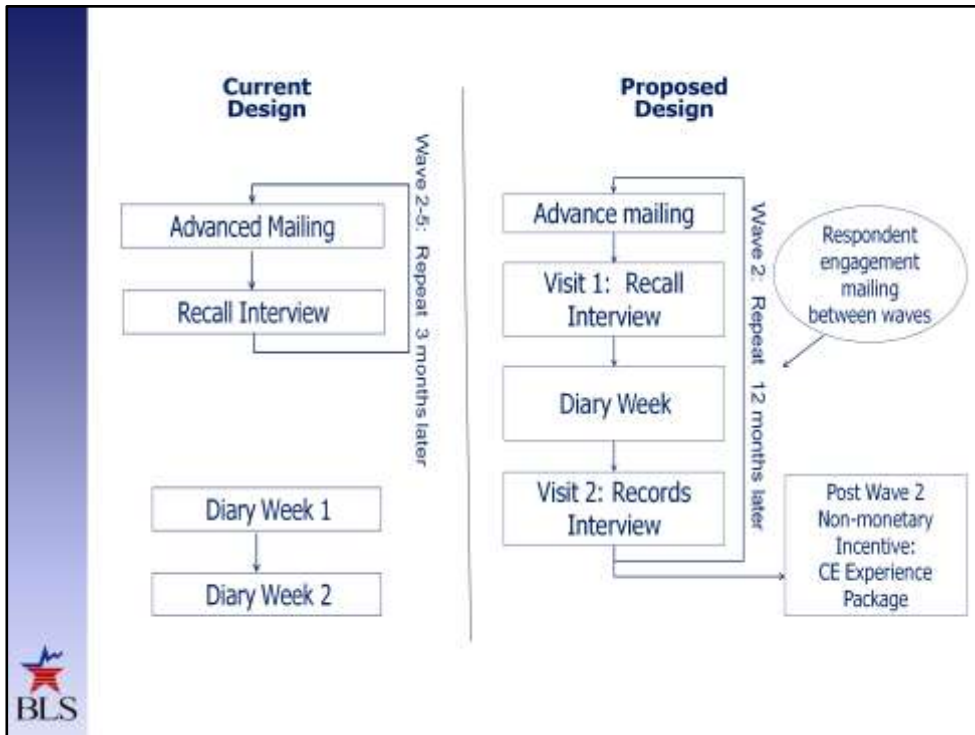


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- Mobile device application type – Whether to use a mobile-optimized web survey or a native application (app)
- Use of records as data input – capture and code information directly from records and input that information into the diary and/or interview
- Acceptance of annotated grocery receipts (in lieu of reporting in diary)
- Incentive amounts and structure – logistical issues, effectiveness of all planned incentives
- Exact survey content – Visit 1 vs. Visit 2 vs. Diary, Global questions, household diary
- Government provided technology – costs/risks, logistical issues
- Length of Wave 1 and Wave 2 visits – evaluate if goal of 45 minutes is realistic
- When the experience package will be sent
- Inclusion of TPOPS-supporting outlets questions – An option to add questions required to replace CPI's Telephone point of purchase survey, includes store name, location, and price.

# **CURRENT DESIGN VS. PROPOSED DESIGN**





## Current vs. Proposed: Sample Design

Current	Proposed
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



## Current vs. Proposed: Interview

Current	Proposed
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<sup>nd</sup> interview for complete spending from one household



## Current vs. Proposed: Diary

Current	Proposed
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



## Current vs. Proposed: Diary

Current	Proposed
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. Proposed: Incentives

Current	Proposed
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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- \* The field test we did showed fewer contact attempts were needed which saves money,
- \* It also showed positive (but not significant) indications of improved data quality.

# Current vs. Proposed: Expenditure Categories

Current	Proposed
Detailed UCC level	More highly aggregated

## Advantage:

- Fewer questions – reduced burden and interview length

## Disadvantage:

- Less detailed expenditure data
- CPI will need to analyze their process to adjust to less detail



## Current vs. Proposed: Waves

Current	Proposed
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 set far apart
- Some users need one year of expenditures and income for consumption analysis



## Development & Implementation Timeline

2013-14

- ▶ Approved redesign proposal released
- ▶ User impact of proposal
- ▶ Develop roadmap

2014-?

- ▶ Conduct testing & evaluation
- ▶ Develop, pilot, & implement new design



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The end point of when the redesign will be complete depends on the availability of funding.

Next slides elaborate testing/evaluation/development/piloting steps.

## Testing & Evaluation

- Proof-of-Concept test
- Visit 1 Recall Interview Test
  - ▶ Recall interview diary placement procedures
  - ▶ Recall interview length
  - ▶ Recall interview global questions
  - ▶ Effectiveness of token incentive & interview incentive
- Visit 2 Records Interview Test
  - ▶ Records interview procedures
  - ▶ Records interview length
  - ▶ Records interview global questions
  - ▶ Effectiveness of interview incentive



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Proof-of-concept test to determine if the main ideas behind the proposal are possible (one-sample design, etc)

## Testing & Evaluation, cntd.

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- Finalized Web and App Diary Test
  - ▶ Placement procedures, usability, and reporting for finalized web and app web diary
  - ▶ FR monitoring & respondent feedback procedures
- Pilot Test
  - ▶ Large sample size dress rehearsal of full design
  - ▶ Visit 1 recall interview, records training, diary placement
  - ▶ Diary keeping
  - ▶ Visit 2 records interview and diary pick-up
- Development, Training, & Implementation



## **Design Team (past and present)**

- Kathy Downey, formerly Bureau of Labor Statistics
- Jennifer Edgar, Bureau of Labor Statistics
- John Gloster, U.S. Census Bureau
- Dawn V. Nelson, U.S. Census Bureau
- Laura Paszkiewicz, Bureau of Labor Statistics
- Adam Safir, Bureau of Labor Statistics



## Questions/Discussion

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- Positive impacts on research?
- Negative impacts on your research?
- Specific design changes:
  - ▶ 12-month change instead of 12 months consecutive data (assuming no attrition)
  - ▶ Fewer, more aggregated expenditure categories
  - ▶ Diary reference period not aligned with Visit 1 and Visit 2 reference periods
- Information/training you need prior to implementation
- Amount of lead time needed prior to implementation





# Contact Information

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