# Evaluation of Design C

# Strengths of Design C

- Produce at least 96 cost weights for CPI

- Flexibility  and reduced burden

- Modeling offers opportunity to control costs while yielding a variety of data products with both detailed and aggregate expenditures (e.g., detailed grocery items in quarterly)

- These products include those for users described in Chapter 2 (health care, poverty measure, health care costs, etc.)

- Does not make unwarranted assumptions about the performance of respondents

# Weaknesses of Design C

- Large initial sample size and first interview not used in estimation

- Utility dependent on correlation structure—not directly collected annual household expenditures

- Complicated rolling sampling design

- Requires additional methodological work (creating and using new information on household purchasing behavior to tailor methods, modeling approaches, balancing contributions of the two surveys)

# Optimizing Utility

- Optimal for the purposes of constructing the CPI in its current form

- Remains useful for some government agencies

- Provides opportunity to ask about important intervening events (e.g., periods of unemployment across six months)

- Still collect income measures

- Would be useful for researchers if can successfully model annual expenditures at aggregate levels

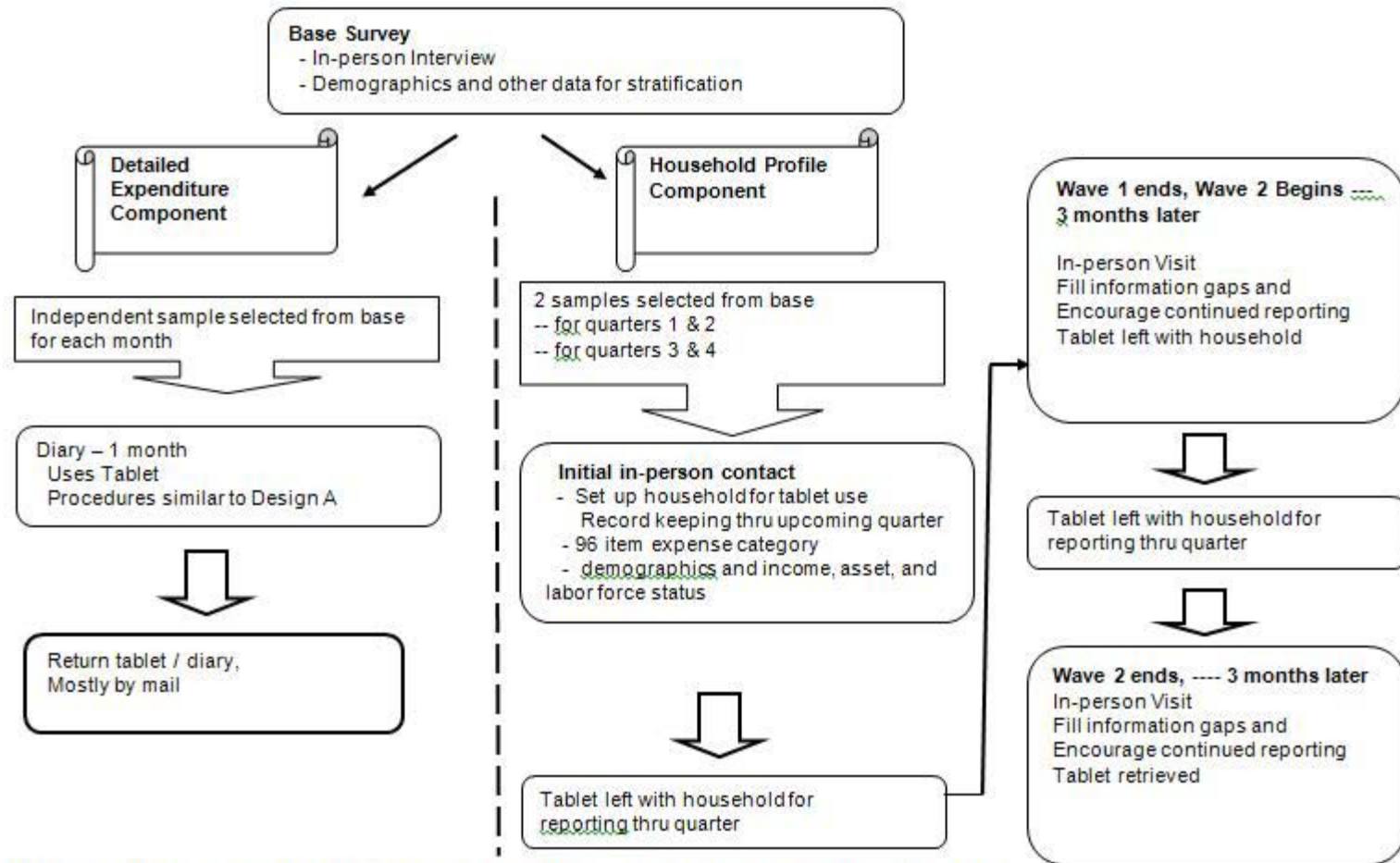**Design C – Dividing Tasks among Multiple Integrated Samples**

**Base Survey**
- In-person Interview
- Demographics and other data for stratification

**Detailed Expenditure Component**

**Household Profile Component**

**Wave 1 ends, Wave 2 Begins --- 3 months later**

In-person Visit
Fill information gaps and
Encourage continued reporting
Tablet left with household

Independent sample selected from base for each month

2 samples selected from base
-- for quarters 1 & 2
-- for quarters 3 & 4

**Diary – 1 month**
Uses Tablet
Procedures similar to Design A

**Initial in-person contact**
- Set up household for tablet use
  Record keeping thru upcoming quarter
- 96 item expense category
- demographics and income, asset, and labor force status

Tablet left with household for reporting thru quarter

Return tablet / diary,
Mostly by mail

**Wave 2 ends, ---- 3 months later**
In-person Visit
Fill information gaps and
Encourage continued reporting
Tablet retrieved

Tablet left with household for reporting thru quarter

**FIGURE 6-3 Process flow for Design C – Dividing Tasks among Multiple Integrated Samples.**

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# Precision

- Given the large initial sample size, more precise estimates from each survey can be created by adjusting to the overall sample characteristics

- The correlation structure based on information in the initial sample and the two survey subsamples can be used to develop regression estimates for missing expenditures at detailed and aggregate level and improve the precision of subgroup estimates

# Costs

- The sample size for the month-long journal can be reduced by as much as half and still provide better precision than the current diary

- Even with this reduction, the initial sample might still be large enough to allow for a small reduction in the sample size for the quarterly survey

- Again, the correlation structure could lead to gains in precision for subgroup estimates that also support these sample reductions

# Options

- Conduct three 4-month recall surveys using matrix sampling

- Only collect a two-week journal, but possibly twice during the year

- Have an overlap sample where a small subsample of respondents (perhaps 2000) complete both surveys which would provide more information for modeling

# Final Note

- The selection of a new CE design will require careful testing—a number of empirical questions must be answered

- In conducting this future research I suggest using a set of indicators based on respondent performance that are detailed in Tucker, Meekins, and Biemer (2010)

- While largely untested, these measures could provide a baseline for evaluating new designs against the current design