

Workshop on Redesigning the Consumer Expenditure Surveys

Issues in Implementing Change in a Complex Survey

Chet Bowie (NORC at the University of Chicago) – Discussant

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Introduction

The ongoing Consumer Expenditure Surveys (CES) that began in 1980 consists of two separate components, each with its own questionnaire and sample: 1) an interview survey in which each of the consumer units (CUs) in the sample is interviewed every 3 months over a 12-month period, and 2) a diary survey in which CUs complete a diary of expenses for two consecutive 1-week periods. Data collection for both survey components is done by the Census Bureau under contract with the Bureau of Labor Statistics (BLS). The two survey components are designed to capture different types of consumer expenditures – larger or regularly occurring expenditures that can be easily recalled over a period of time, such as car purchases and rent and utility payments, in the Interview Survey; and smaller, more frequent purchases that cannot be easily recalled, such as grocery items or housekeeping supplies, in the Diary Survey. Since CUs are asked to record all expenditures made during the reporting period in the Diary Survey, an overlap in coverage occurs between the two components.

The BLS has begun a major project to investigate alternatives for redesigning the surveys. The primary objective of the redesign effort is to improve expenditure estimates through a reduction in measurement error, with a particular emphasis on underreporting. This effort is designed to maintain or improve response rates and keep survey costs at their current level. The project aims to address how survey estimates have been impacted by changes in society, new consumer products and spending methods, and to explore how new data collection technologies can improve expenditure reporting.

As part of this process BLS has contracted with the National Academy of Sciences, Committee on National Statistics (CNSTAT) to conduct an independent review of the design options available and to make specific recommendations for redesign. CNSTAT has organized a Panel of experts to carry out that task. The Panel initiated a Request for Proposal (RFP) through the National Academy of Sciences (NAS) for design options and a discussion of the relative merits of the options. As a result of the RFP, the NAS awarded two subcontracts to come up with options to redesign the surveys. The subcontractors are WESTAT and a partnership between the University of Wisconsin-Milwaukee, University of Nebraska, and Abt SRBI. These two subcontractors presented their results in a workshop scheduled on October 26, 2011 in Washington, DC.

The NAS asked me to be a formal discussant at this workshop focusing on the issues of implementing change in a large ongoing survey, particularly the proposed redesigns offered by the subcontractors. This paper summarizes the comments I made at the workshop.

The comments and views expressed in this paper and presented at the workshop are mine and do not represent those of NORC at the University of Chicago.

Issues

I discussed the following issues at the workshop related to implementing change in a complex survey:

- Context
- Planning the change
- Stakeholders (internal and external)
- Staffing
- Testing and Implementation
- Funding
- Cost
- Change in Contractor

Context

I believe I was chosen to be the discussant for this session because of the experience and knowledge I have gained as a survey professional in both the federal government and the private sector. I spent 33 years at the Census Bureau, the last 9 of which I was the Director of the Demographic Surveys Division (DSD). In this position I was responsible for conducting many of the large scale national surveys for the federal statistical community. Three of these surveys – the Current Population Survey, the National Crime Victimization Survey, and the Consumer Expenditure Surveys – I will use as examples of change implementation in my discussion today. I have now been in the private sector for 6 years – 2 of which was with a marketing research company and the last 4 at NORC at the University of Chicago. So I have had an opportunity to look at survey operations from both perspectives.

Current Population Survey Redesign – I was the senior executive at the Census Bureau responsible for this effort. At that time we called it a modernization effort. It began in 1986 and was implemented in January 1994. Among the overhaul efforts were to: 1) Revamp the questionnaire in its entirety, taking into account cognitive interviewing techniques: 2) conduct

the survey entirely by computer-assisted means (no longer could an interviewer just ask a respondent if anything changed since the last interview); and 3) develop a state-of-the-art processing system that would accommodate the first two.

National Crime Victimization Survey Redesign – Although the NCVS underwent a redesign in 1992 (while I was still at the Census Bureau), the basic design of the survey has remained constant through its almost four decades of existence. Revisions to the survey's screening questions, because they would impact the amount and nature of the offenses measured by the survey were implemented in 1992. The revised crime screening questions were designed to better assist respondents in remembering events they had experienced by adding specific cues and prompts, targeting some offenses such as violence by intimates and rape, and varying the frames of reference. The redesign also added sexual assault other than rape as an offence measured by the survey.

I was also involved in various phases of a later NCVS redesign effort since I joined NORC. The Bureau of Justice Statistics has initiated several research projects to support the NCVS redesign. Seven projects, in six subject areas began in fiscal years 2007, 2008 and 2009. A solicitation on sub-national estimates of criminal victimization was initiated in FY 2010.

The subject areas covered by these projects are:

1. Local area estimation
2. Interview mode
3. Sample design
4. Survey reference period
5. Non-response bias
6. Crime screener analysis
7. Sub-national estimates of criminal victimization

NORC conducted an examination of a 12-month reference period and an analysis of possible non-response bias.

Introduction of CAPI in the CE Interview Survey – The CE CAPI development project was an interagency effort, with management representatives from both BLS and the Census Bureau serving on the CAPI Steering Group. The steering group developed the strategic plan for the project and chartered numerous working teams that were then assigned to establish instrument design standards, write specifications, program and test the CAPI instrument and related systems, develop a new Case Management System, establish new interviewer training, and plan a large “dress rehearsal” to assess the impact of CAPI on CE estimates.

Planning the Change

In my opinion, this is the most critical aspect in implementing change in a complex survey because if you fail to plan, you plan to fail. As I noted previously, the planning for the CPS redesign started in 1986, 8 years before the redesign was to be implemented. In 1986, a high-level working group that included the top leadership of both the Bureau of Labor Statistics and the Census Bureau convened. These experts met for 2 years, during which they formulated an extensive plan to modernize the CPS during the 1990's.

The planning for the introduction of CAPI in the CE Interview Survey was started years before the technology was introduced in the survey in April 2003.

When these redesign planning groups are initiated, you have to decide on an organizational structure (who's in charge of what aspects of the planning), the schedule and periodicity of meetings, and how to resolve conflicts when they arise which they will.

Structure around the planning is important. You don't want the structure so complex that nothing gets done, but you have to determine how to breakdown the redesign activities, what types and how many workgroups/subcommittees are needed, who heads up these groups and the process and periodicity for reporting back to the redesign leaders. The important point here is to ensure there is accountability and order for the planning that is taking place.

Meetings are a time consuming and integral part of the planning process. For the CPS redesign effort, BLS and the Census Bureau staff met one day a week for 2 years to formulate an extensive plan to overhaul the CPS from top to bottom during the 1990's. This is a big commitment for both the survey sponsor and the data collection organization. During this 2 year planning period a partnership was developed between the 2 agencies that served the redesign process better than a client/contractor relationship would have. Both groups had the same vision and a shared investment in the success of the redesign. Both groups were working toward the same goals and outcomes. There was a very collegial bond formed between the two agencies that carried forward in future years.

There were times when conflicts arose, however. And these conflicts were at times intense and passionate. As a result of the partnership that had been established and the mutual respect that was shared across the agencies, the conflicts were resolved. There were instances when the expertise of the individuals involved was in their opinion the overriding factor to be considered that agreement could not be reached. In those cases, BLS was the final decision maker.

BLS has established a planning process – the Gemini Project – to plan the CE redesign. BLS initiated this survey redesign plan in February 2010 to account for the length of time needed to develop, evaluate, pilot test, and implement a large-scale redesign. If this process goes according to their original schedule, the Gemini Project will have a redesign roadmap in place by 2013.

Their timeline for development and pilot testing is not more than 5 years, with a new survey planned to be in the field within 10 years.

The Gemini project is managed by a project leader and steering team, with guidance from an executive management group. The project steering team is seeking input from a panel of survey experts from outside BLS, who meets with the team periodically over the course of the project.

I want to commend BLS for the thoroughness of their planning process for the redesign.

Stakeholders

Wikipedia defines stakeholders as a person, group, organization, or system who affects or can be affected by an organization's actions.

The stakeholders for the CE redesign are many and varied and include all groups involved in or concerned about the impact of survey design changes on the collection, processing, editing (including imputation and allocation), weighting, estimation, evaluation, quality, and use of the data. These groups include:

- BLS (Office of Prices and Living Conditions, Division of Consumer Expenditure Information Systems, Division of Consumer Prices and Price Indexes, Division of Price and Index Number Research, Division of Price Statistical Methods/Branch of Consumer Expenditures)
- Census Bureau (Demographic Surveys Division, Demographic Statistical Methods Division, Field Operations, Population Division/construct experimental poverty measures)
- Other Federal Agencies (Bureau of Economic Analysis, the Internal Revenue Service, and the Department of Defense)
- Congressional committees request special tabulations on issues such as the potential impact of increases in the minimum wage
- Office of Management and Budget (OMB needs to be consulted early and throughout the planning process)
- Academic community and research organizations for analytical work
- Private companies for marketing their products and services
- Prospective entrepreneurs for developing their business plans

Once you identify the stakeholders that will influence (either positively or negatively) the survey redesign, you need to anticipate the kind of influence, again positive or negative, these groups will have on the initiative. Finally you need to develop strategies to get the most effective support possible for the redesign and reduce any obstacles to its successful implementation (managing expectations).

BLS has already initiated or planned a series of information-gathering meetings, conference sessions, forums and workshops to address this whole stakeholder involvement. These events include:

- Conference on Research in Income and Wealth (CRIW) – National Bureau of Economic Research (NBER) Conference on Improving Consumption Measurement (July 2009)
- Survey Redesign Panel Discussion, co-sponsored by the Washington Chapter of the American Association for Public Opinion Research (DC-AAPOR) and the Washington Statistical Society (WSS) (January 2010)
- Data Capture Technology Forum (March 2010)
- AAPOR Panel Presentation on Utilizing Respondent Records (May 2010)
- Data Users' Needs Forum (June 2010)
- CE Methods Workshop (December 2010)
- Household Survey Producers Workshop (June 2011)
- CE Redesign Options Workshop (October 2011)

BLS has done a commendable job in stakeholder outreach and has gone beyond the outreach that was done for the CPS modernization effort.

BLS will need to add more of these information sharing events in the future once they decide on a final design option and get the results from the redesign testing phase.

Staffing

For the CPS, separate staffs were established to conduct the ongoing monthly survey and the survey redesign activities. Although senior staff was involved in both activities, the day-to-day operations of both were conducted by separate staffs. In this way there were no conflicts in priorities and the schedule and operational aspects of both operations were maintained.

Testing and Implementation

The questions to address here involve:

- What to test?
- Is each change evaluated separately?
- Is an overlap survey required?
- Providing new technology to survey respondents
- How to phase-in the redesign?

Whenever significant changes are made in an ongoing survey operation, there is always the expectation that those changes will affect the characteristics of the data obtained. It is important to measure any such effects. A large number of survey design features are proposed to be changed in the CE redesign and a number of them, alone or in combination, could result in significant changes in the estimates. BLS should want to be able to explain to their stakeholders why differences between the new and old series occur and to comment on whether any changes reflect improvements in the quality of the data. They also need to understand from a scientific point of view the effect of different design features on consumer expenditure estimates. A third reason for wanting to know the reasons for the differences between the two surveys is to use the information diagnostically to ensure a smooth transition to the implementation of the redesigned CE in 2020.

The RFP requested recommendations for the design of a study or studies to evaluate the feasibility and effectiveness of the proposed redesign option. Both options suggested further investigation and experimentation in areas such as:

- Software development
- Length of the diary period
- Effects of the use of technology
- The extent and level of incentives
- The level and frequency of interviewer-respondent interaction
- Collection of administrative data

While the RFP did not request a test to compare the redesigned survey to the current production survey, one of the option papers suggested that such a test should be conducted. The field experiments mentioned above can help compare the redesigned methods with the current methods. However, a comparison using representative samples and a full data collection cycle would provide a more rigorous test of the new data collection methods, any improvements in

data quality and the effect on the survey estimates. These types of comparisons are expensive but if funding becomes available, I highly suggest that BLS consider such a test.

One of the redesign options proposes to provide each household with a computer tablet, barcode reader, and a portable scanner for recording their information. They estimate that the data collection contractor would need 6,000 to 8,000 sets of these devices per month (this allows flexibility in the delivery and pick up of the units as well as replacement units and sufficient numbers of units to accommodate geographic dispersion of the sample across the U.S.). These units will require service warranties and/or insurance. Broadband internet access will be required for all the consumer units. Finally, the consumer units will need to be trained to use this technology.

Providing these devices to respondents will add a level of complexity to the redesign implementation. An infrastructure will have to be developed to procure the devices, get them to interviewers to be placed in the consumer unit, train the respondent, arrange for insurance or a warranty and to provide broadband internet access. It's not clear how payment for the internet access will be handled – direct payment to the provider or reimbursement to the respondent. An inventory control system will be required to track the devices over time as they move from respondent to respondent and through the maintenance system. All of this is doable; it just adds an extra level of complexity to an already complex survey operation.

Another issue involved in using this new technology is the repository that will be required to collect, house and merge the information for each consumer unit. This repository will receive information in many different forms (paper/electronic/scanned) and a thorough test of the operation should be conducted to ensure the right information is connected to the appropriate consumer unit.

Finally, the most concerning aspect for me in the use of technology for collecting the expenditure information is IT security. Consumer units will be transmitting personally identifiable information (PII) over unencrypted lines. The data repository will house a large amount of PII. There are physical as well as IT security issues. BLS pays a great deal of attention to protecting a person's PII. They also require continuous monitoring and security requirements for NIST 800-53 Rev. 3. If technological solutions are adapted for the redesign, much attention and resources will need to be devoted to IT security.

Funding

A redesign effort that will extend over 10 years from planning to implementation will require a sustained funding stream. The current political landscape is uncertain and funding for new initiatives is unclear. A change in Administrations during this time period is possible and a new Administration may bring different priorities and visions for how the federal budget should be

allocated. It would be a travesty to begin the redesign effort and the required level of funding is dramatically reduced or eliminated during the lifecycle of the redesign process.

Funding for the CE Survey modernization effort was included in the FY 2011 budget and the President's request for FY 2012. It appears that \$8.8 million is requested in the 2012 budget to modernize the CE but it's unclear from the budget narrative how this funding is to be allocated.

Cost

One of the Gemini Project objectives states that the costs of a redesigned survey cannot exceed current budget levels. To allow for an unpredictable budgetary environment, BLS is planning to address both a complete redesign of the CE surveys as well as more limited modifications to the current design.

Both option papers provide cost estimate projections for a total redesign of both the quarterly and diary surveys. The cost projections provided are 2 to 3 times greater than the current ongoing program costs. Unless the budget climate changes in the future, the cost objective stated above is not attainable. BLS will have to make choices about which components of the two options are the most useful to achieve their objectives based on future budget availability.

Change in Contractor

The Census Bureau has been conducting the CE surveys since 1980. One must assume that BLS has been satisfied with the responsiveness of the Census Bureau and the quality of the program deliverable for this relationship to continue for this long. However, is it time to evaluate whether a change in the data collection contractor is warranted given the changes that are being proposed for the surveys' redesign?

I would suggest the following scenario. Once a redesign option is chosen and the requirements for its design, testing and implementation are decided, BLS should request the Census Bureau to develop a technical approach and a cost estimate based on that plan. BLS should also release a competitive RFP with the same requirements and statement of work for the private sector to bid on.

BLS loses little following this approach other than the staff time required to develop and evaluate the proposals that are submitted through the RFP process. They will use the same quality metrics, proposed management plans, staff qualifications, and past experience to evaluate the technical feasibility and costs of the Census Bureau's and private sector proposals. In this way they will have the information needed to make an informed decision.