Exploring a Balance Edit Approach in the Consumer Expenditure Quarterly Interview Survey

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EXECUTIVE SUMMARY

Overview

The purpose of this study was to examine the application of a balance edit procedure to a modified Consumer Expenditure Quarterly Interview Survey (CEQ), and to evaluate its effects on indicators of data quality and respondents' experience in the survey. Respondents began by answering a series of global spending questions about the household that encompassed all of the expenditure categories covered by the current CEQ, and provided information about household income and changes in assets and liabilities. We examined and presented to respondents their resulting income-to-spending ratios for the 1-month reference period. When the ratio deviated from perfect income-to-spending balance (i.e., 1.0) by more than 20 percent (15 percent for households making less than $30,000), we initiated a balance edit procedure. The first component offered respondents the opportunity to review and revise their previous reports. If respondents' reports remained unbalanced (i.e., if they had ratios that deviated by more than 10 percent from 1.0), they were asked a brief set of follow-up probes designed to capture expenditure and income sources that might have been missed. Following administration of the modified CEQ survey with balance edit, we conducted a debriefing session to collect information about respondents' survey experience, and probe about potential sources of reporting error.

Key Findings

Effectiveness of the Balance Edit

Change in Income-to-Spending Ratio (Balance)
Only four of eighteen participants who received the balance edit in this study obtained acceptable income-to-spending ratios by the end of the interview. The balance edit did improve respondents' income-to-spending ratios - that is, the majority of respondents (13 of 18) moved closer to being balanced as a result of the balance edit process. However, despite making relative gains in their ratios during the interview, these respondents' reports remained notably unbalanced, with an average deviation of 42 percent from unity. Most of the movement towards balance was the result of respondents (8 of 13) who initially reported higher income than spending but then subsequently reported additional expenditures. Only one participant did worse over the course of

the interview, and four individuals essentially remained unchanged (either by making no adjustments to their reports, or by switching the sign of their ratio but not decreasing its magnitude).

Levels of Reporting

During the initial review-and-revise component of the balance edit procedure, nearly two-thirds of respondents made changes to their reported spending (with an average of one change per respondent), a third made changes to reported income (with an average of two changes per respondent), but relatively few revisions were made to reported changes in assets or liabilities (average number of changes per respondent: 0). The mean dollar change in expenditures during the review and revise phase of the balance edit was $159 ($SD_{\overline{X}}$ = $429); this represented a mean change of 6.2% in respondents' initial total reported expenditures. The mean change in income was $1,866 ($SD_{\overline{X}}$ = $2,621); this represented a mean change of 45.3% in respondents' initial total reported income. During the final phase of the balance edit, in which respondents were probed about possible sources of spending and income missed earlier in the questionnaire, 56% of our sample reported additional expenditures (overall mean: $188; reporter mean: $503) and 50% reported additional income (overall mean: $973; reporter mean: $1,757).

Factors Affecting Data Quality in a Balance Edit

In subsequent debriefing, respondents identified several factors that they felt affected accuracy. Five participants said that they could have reported more accurately if they had been given advance notice to record their expenses in some form (e.g. using an excel spreadsheet, using their phone, bringing records to reference, writing it down on paper). The size, frequency, and saliency of expenditures was mentioned by half of the respondents as contributing to their reporting accuracy, with smaller everyday expenses like food and transportation reported as more difficult to recall accurately than more stable items like income, mortgage payments, and utilities. Respondents' household composition – its size and the division of financial responsibilities – also played a role.

Respondents reactions to the balance edit fell into one of three groups. The first group (n=3) initially felt confused by the chart; they didn't understand its purpose or what it was supposed to represent, and had a hard time comprehending the concept of income-plus-net-assets-and-liabilities. A second group of respondents (n=5) understood the purpose of the balance edit but it elicited some emotional reaction, often somewhat negative. For example, several respondents said that it was somewhat surprising and uncomfortable to be confronted with information that showed spending in excess (sometimes far in excess) of their income. Others in this group whose reports were unbalanced initially made an inference that they must have done something wrong (e.g., "*I felt a little stupid.*"), or that by being asked to review their previous reports that the interviewer mistrusted them in some way ("*I was a little frustrated because I knew I was being truthful.*"). Finally, half of our respondents (n=10) seemed to generally comprehend the objective of balance edit, and either have no emotional reaction or be genuinely intrigued by the information presented and motivated to resolve reporting discrepancies. Moreover, there did appear to be a relationship between these groupings and the magnitude of change in the income-to-spending ratio over the interview and in the final balance status (see page 22).

Recommendations

Despite evidence that our balance edit led to some improvements in our data quality measures, we cannot on the basis of this study recommend its use for the current CEQ without substantial additional testing. The efficacy and appeal of a balance edit will depend largely on the overall survey design (e.g., its mode, use of detailed vs. global items, length, etc.) and its analytic purposes. Depending on design changes under consideration for the CEQ, further research should be done on whether a balance edit is feasible over the phone, with a larger set of detailed reports, and with a longer reference period. If CE is interested in pursuing the possibility of including a balance edit measure, we recommend that subsequent studies attempt to examine measurement error more directly, for example through the use of record validation, or studies of within-household reporting consistency/reliability (e.g., comparing reports between spouses). In addition, Statistics Canada conducted some analysis on the Survey of Household Spending (SHS) 2008 data and the results suggested that expenses from the unbalanced questionnaires were not much different from those of balanced questionnaires (personal communication, May 2011). It

would be worth exploring the specifics of this finding, and Statistics Canada's decision to again drop the SHS balance edit starting in 2010, in more detail.

1. INTRODUCTION

1.1   Background

The U.S. Consumer Expenditure Survey is an ongoing monthly survey conducted by the U.S. Bureau of Labor Statistics (BLS) that provides current and continuous information on the buying habits of American consumers. The Consumer Expenditure Survey consists of two independent components: The Quarterly Interview (CEQ) Survey and the Diary (CED) Survey.   For the CEQ, interviewers visit sample households five times over the course of thirteen consecutive months. Each interview is conducted with a single household respondent who reports for the entire household. The first interview establishes cooperation, collects demographic information, and bounds the interview by collecting expenditure data for the previous month. This ‚bounding' interview is designed to limit forward telescoping, which is the process by which respondents remember and report events or purchases as taking place more recently than they actually occurred. The four remaining interviews are administered quarterly and ask about expenditures in the 3-month period that just ended. In the second and fifth interview, respondents are asked additional detailed questions about household income, assets, and liabilities.

The CEQ survey presents a number of challenges for both interviewers and respondents. The interview is long, the questions detailed, and the experience can be perceived as burdensome. In part because of these challenges, there is concern that some CEQ data are underreported (e.g., Shields & To, 2005; Bosworth, Burtless, & Sabelhaus, 1991). Underreporting has been variously attributed to recall error, to panel conditioning, to respondent fatigue, and other causes.

One approach that has been used in other expenditure surveys to combat response errors like underreporting is the use of a data quality control measure known as a ‚balance edit' check. The implementation of this measure differs across surveys, but the basic process is one in which respondents are given the opportunity to review and revise their reported expenditures, income, and changes in assets and liabilities. For example, in the 2009 Survey of Household Spending (SHS) conducted by Statistics Canada, households that had expenditures that were out of balance with the reported cash flow (i.e., spending that was significantly above or below income plus net assets and liabilities) were probed to identify and reconcile possible sources of error. There is evidence from two empirical studies that

the data resulting from use of a balance edit are of higher quality than those collected by the alternative methods (Brzozowski & Crossley, 2011; Hurd & Rohwedder, 2010; see Section 2.1 and 2.2).

1.2   Study Objectives and Design Considerations

The current CEQ uses built-in range edit checks to flag reports that exceed normative thresholds for an expenditure category and consistency edits to flag reports that are inconsistent with data in related fields. The purpose of this study was to explore the feasibility of including a balance edit check based on a household's computed total spending relative to its income, assets, and liabilities. Given time and resource constraints within our organization, and because this was our first attempt to examine a balance edit measure in the CEQ, we conducted a small-scale lab study that addressed three basic areas of inquiry: (1) the effects of a balance edit in identifying and correcting reporting errors; (2) respondents' reactions to the balance edit process; (3) and the factors that impact the quality of respondents' reports or their reactions to the reconciliation process.

The study is qualitative in nature and exploratory, and there were a number of design considerations that impacted its scope and analytic objectives. One consideration was the potential increase in respondent burden that might accompany a balance edit process. The current CEQ asks an extensive battery of questions that takes an average of 65 minutes to administer. We were concerned that incorporating balance edits at the end of the existing CEQ would lengthen an already long and burdensome interview. Moreover, for some households the number of reports respondents would need to review could be unduly large, therefore making a balance edit process impractical to implement. In addition, in this study we wanted to be able to conduct real-time balancing checks and immediately follow-up with respondents during the interview. This necessitated the development of an electronic instrument that would record and tally respondents' expenditure, income, asset, and liability totals, and it was not feasible to do this for the full CEQ questionnaire given the project timeline and available resources.

On the basis of these considerations, and after consulting with CE management, we decided to test a balance edit measure using a modified CEQ in which the detailed expenditure questions were replaced with a fewer number of global items that asked respondents to report their total household spending in each of the CEQ section categories (see Section 3.1 for details). We

acknowledge that the use of global questions and (therefore) a shorter interview are significant departures from the current CEQ procedures, that both factors may affect the nature of response errors, and that these effects have the potential to interact with the balance edit response process. Nevertheless, we view this study as a useful first step in investigating the feasibility of implementing a balance edit, and in gathering some initial information about factors that may affect its outcome (e.g., frequency of purchase; topic sensitivity; household size and respondent knowledge; conceptual clarity; cognitive difficulty; etc.).

2. PREVIOUS RESEARCH

Two surveys have implemented some form of a balance edit procedure in an effort to improve the quality of expenditure estimates – the Survey of Household Spending (SHS) conducted by Statistics Canada, and the American Life Panel (ALP) maintained by RAND Labor and Population. We briefly summarize these surveys and their use of this approach below, and discuss the studies that have examined the impact of reconciliation procedures on data quality.

2.1   Survey of Household Spending (SHS)

The SHS is a face-to-face survey that collects household expenditure and income data for the previous calendar year. To help combat recall errors arising from the long recall period, Statistics Canada allows respondents to report expenses for smaller and more frequently purchased items (e.g., food) on a weekly or monthly basis, and encourages respondents' use of records during the interview. In addition, the SHS has implemented a balance edit check in which respondents' reported expenditures are compared against the sum of reported income and net change of assets in the household. When expenditures were more than 20 percent different from reported income/assets, the interviewer attempted to collect additional information to bring the two into better balance (i.e., 15 percent or less). According to Statistics Canada, most of the changes respondents made to their reports during this process were to reported income and assets (personal communication, May 2011). SHS households that remained unbalanced were deemed unusable and excluded from estimates.

In 2006, SHS data collection moved to computer-assisted personal interviewing (CAPI) and the balance edit was not used in the collection phase that year. Instead, balancing was applied at the processing phase (with no active involvement or reconciliation by respondents), and this had the unexpected consequence of significantly increasing the number of records that were deemed „out of balance' (from 546 in 2005 to 4,300 in 2006!). This comprised an unacceptably large percentage of completed SHS questionnaires for 2006 (29.4%), so a decision was made to reinstitute a field balance edit feature for 2007 data collection. To assess the effect of the balance edit on data quality, Brzozowski and Crossley (2011) compared SHS data from 2006 (no interview-based balance edit procedure) with data from 2005 and 2007. They found no differences in income or expenditure reporting across the three years for the top 15 income vigtiles. However, respondents in the bottom of the income distribution (lowest 5 vigtiles) under-reported income when there was no field balance edit.

2.2   American Life Panel (ALP)

The ALP is an Internet panel of approximately 1,500 respondents who are solicited once a month to participate in surveys typically taking less than 30 minutes to complete. From June 2009 through December 2010, a cohort of ALP respondents was asked to complete a monthly questionnaire that collected information about household spending in 25 medium- to high-frequency purchase categories and a quarterly questionnaire that collected data on spending in 11 less frequently purchased categories. Because outliers are a problem in self-administered surveys (where there is no interviewer to probe unusual reports), the ALP presented these respondents with a „reconciliation' screen at the end of each survey that provided a summary table listing the individual reported expenditures and the spending total for the household. Respondents then were asked to review this information and correct any items, but no automatic edit checks were used. Examining data from this panel, Hurd and Rohwedder (2010) found that ALP respondents corrected about 2 – 3% of entries per interview wave, and that there were significant reductions in item nonresponse and in the frequency and magnitude of outliers due to the reconciliation process. There also was good agreement between the total annual spending estimates derived from the reconciliation-aided ALP and those from CE over this time period (i.e., ALP spending was 96% of CE spending).

2.3   Gaps in Existing Research

Although the studies by Brzozowski and Crossley (2011) and Hurd and Rohwedder (2010) provide evidence that offering respondents an efficient means of reviewing and making appropriate changes to their prior responses improves the quality of survey estimates, there is no published empirical work that has examined the cognitive underpinnings of this effect. How do respondents interpret their task? What changes do they make to their reports? (The SHS work suggests that they are more likely to change reported income and assets, but this may be an artifact of the types of probes used by Statistics Canada, which tended to focus on missed income or sources of financing for larger purchases, not expenditures.) What are respondents' reactions to being questioned about previous reports, or to seeing their household spending totals? The answers to these questions are important for understanding the quality and consequences of implementing this kind of procedure, and the present study was designed to begin to fill a gap in the literature on these and related issues.

3. METHODS

3.1   Design and Procedures

The study was a small-scale, lab-based test that presented participants with a modified version of the CEQ survey and a balance edit procedure for reconciling expenditure-cash flow disparities. The test sessions were conducted in the Office of Survey Methods Research (OSMR) laboratory in the Bureau of Labor Statistics (BLS). At the start of each session, a researcher explained the study's purpose and procedures and obtained informed consent from the participants. Study participants then took part in a CAPI interview that asked a brief set of demographic questions about the household, global expenditure questions for 34 categories (covering all of the CEQ section topics), and questions about household income and changes in assets and liabilities for the reference month (see Appendix I). All participants were given a modified version of the CEQ Information Booklet to refer to throughout the survey. The booklet contained a set of flashcards that provided a list of examples of the kinds of expenditures asked about in each category. All three authors served as interviewers.

Expenditures, assets, and liabilities were collected for the preceding month (1-month recall period). We used a 1-month recall period rather than a 3-month period (as the CEQ does) or a

flexible reference period (as is done in the SHS) for two reasons. First, we needed to measure the change in assets and liabilities over the reference period (e.g., depletions/additions to savings; changes to credit card balances) to get a full picture of the household cash flow. We felt that asking respondents to recall the relative change in their accounts over a longer recall period would be very difficult, especially in a lab setting in which respondents had limited or no access to their household records. The second reason was practical – it was not feasible to program and administer an electronic collection instrument that allowed flexible recall periods and tailored question fills; the resulting database tracking required for the balance edit would have been too complex for this study. The drawback of using a 1-month recall period is that it likely misses larger and less frequent purchases, and it is possible that these types of purchases could affect both the need for reconciliation and participants' response processes during reconciliation. We attempted to probe for this information during a post-interview respondent debriefing.

For household income, we allowed respondents to report using a flexible reference period (weekly, bi-weekly, monthly, quarterly, or annual) because there were relatively few income questions (so programming was manageable), and we felt that respondents would provide more accurate information if they could choose their preferred time period. One potential problem with this approach was that our unit of measure for the balance edit check was one month. We had to aggregate up from weekly and bi-weekly income reports (by multiplying by four or two, respectively) or disaggregate quarterly and annual reports (by dividing by three or twelve, respectively) in order to get a 1-month income value[1]. Income can naturally fluctuate for some people over time, however. The extent to which the (dis)aggregated income values differ from respondents' true income for the reference period impacts the likelihood of triggering the balance edit, with potentially more effort focused on „fixing' the derived income values. Again, we examined the effect of this issue on the survey outcomes and respondents' reactions to the survey.

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[1] In addition to giving participants the flexibility to choose their preferred recall period for income, they could report pre-tax or after-tax income. When pre-tax income was reported, the instrument automatically calculated the after-tax value based on current federal, state, and county tax schedules.

3.1.1 Balance Edit Procedure

Data were recorded in an Excel workbook that calculated the ratio of participants' income-to-spending over the reference period[2]. We calculated the ratio as follows:

$$ITS - ratio_i = (I_i - C_{Ai} + C_{Li}) \div S_i,$$

where I_i is the (derived) monthly, after-tax household income for household i, C_{Ai} and C_{Li} are the change in assets and liabilities, respectively, for the household in the reference month, and S_i is the total spending for the household in the month. A ratio less than 1.0 indicates that the household <u>spent more</u> than its reported available income (plus net assets and liabilities). A ratio greater than 1.0 indicates that the household <u>spent less</u> than its total available income.

After all of the basic expenditure, income, asset, and liability questions were asked, the interviewer showed participants a graph depicting the ratio of their income-to-spending and read the following text:

> *Thank you very much for your time so far. I'd like to take a look now at the overall picture of your household finances last month based on the information we've collected from you. This simple chart plots your reported household expenditures and your income plus any assets and liabilities. Ideally, we'd expect to see that these two figures match up pretty closely. [IF RATIO EXCEEDS THRESHOLD, READ:] However, sometimes when there is a big difference between these two amounts in a given month, it's because we missed some of your HH's expenditures or income, or need to make other changes to bring these in line.*

The balance edit check was triggered by one of two income-to-spending ratios. For households with at least $30,000 in annual income, the balance edit was triggered if this ratio deviated by 15% or more from 1.0. For households with annual income below $30,000, the balance edit was triggered if the ratio differed by 20 percent or more from 1.0. When respondents' income-to-spending ratios indicated acceptable balance at this stage of the interview (Phase 1), the interviewer terminated the interview and proceeded to the debriefing portion of the study session.

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[2] Throughout the remainder of the report we use the phrase ‚income-to-spending ratio' for convenience to refer to the ‚income-plus-net-assets-and-liabilities-to-spending ratio' unless otherwise stated.

If households were out of balance (based on the criteria above), respondents were given the opportunity to review a summary page of their reported expenditures, income, assets, and liabilities (individual reports and summed totals), and to make changes to their earlier reports in order to bring their ratio closer to 1.0. We recorded any changes made by respondents during this review and revision phase (Phase 2), and then showed them a revised graph of their updated household income-to-spending figure. If the household still was unbalanced at that point in the interview, the interviewer administered a brief set of probes designed to capture additional sources of income and expenditures that might have been missed (Phase 3; see Appendix II for the full set of balance edit materials). The balance edit procedure was terminated in Phase 2 or Phase 3 when expenditures were within 10 percent of reported income plus net assets and liabilities, or when all of the CEQ items and follow-up probes had been administered.

3.1.2 Debriefing Procedure

Following administration of the modified CEQ (with any balance edit checks required), respondents filled out a short paper-and-pencil questionnaire and then participated in a semi-structured debriefing session with the interviewer. The purpose of the debriefing was to assess the following topics:

- Respondents' general reaction to the survey and the balance edit procedure;
- Respondents' perceptions of the accuracy of their reported data;
- Sources of confusion or conceptual difficulty (e.g., global items, reference period, proxy reporting);
- Respondents' perceptions of survey burden

Appendix III contains the full debriefing protocol.

3.2 Participants

Participants for this study were recruited from an OSMR-maintained database of individuals who responded to advertisements for research studies placed in DC-area newspapers. We used a non-probability based convenience sample but attempted to recruit participants who varied in their family size, educational attainment, household income, and employment status[3]. We interviewed

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[3] We achieved reasonable balance on participant education, gender, and family size, but higher-income households and employed individuals were over-represented in our sample. We had only two respondents with household incomes under $30,000 (sample mean: $67,800) and only three who were unemployed or retired.

twenty participants but report findings for only 19; one individual provided insufficient data during the survey and debriefing session. All twenty participants were paid $40 for their time. Interviews lasted approximately one hour on average – 30 minutes to administer the modified CEQ survey and balance edit, and 30 minutes to conduct the participant debriefing session.

3.3   Data Quality Indicators

In the next section of the report we present our study findings. We focus on several key results. We do not have a benchmark for ‚true' spending and income, so we examine the level of expenditure reporting as one commonly accepted measure of data quality. Balance edit check measures have been developed primary to reduce the likelihood of response errors due to underreporting, and thus more reporting is taken as evidence of better reporting. Another one of our primary measures of interest is the change in the household income-to-spending ratio across the interview. If the balance edit procedure implemented in this study was effective, we would expect to see those ratios improve (i.e., get closer to 1.0). Finally, we explore the qualitative responses obtained in our debriefing session to give us some additional insight into the quality of the data reported in the interview, the factors that may impact the effectiveness of a balance edit, and respondents' reactions to their survey experience.

4. RESULTS

4.1   Effect of Balance Edit on Income-to-Spending Ratios

Table 1 shows the distribution of respondents' income-to-spending ratios at different phases of the survey. The first column shows the ratio criteria that we used to determine degree of balance. The second column indicates the number of respondents who fell into each ratio category at the end of Phase 1 of the interview (prior to any balance edit procedures). Only one respondent obtained an income-to-spending ratio good enough - 0.91 - to obviate the need for a balance edit. Two additional respondents obtained ratios of 0.82 and 1.19 in Phase 1, respectively, but the balance edit procedure was triggered because they had annual household incomes over $30,000 (for which ‚balance' was defined as a deviation of 15 percent or less from a ratio of 1.0). The remaining 16 respondents were considerably unbalanced at the completion of the basic

questionnaire, with a mean deviation from unity of 43 percent (i.e., reporting 43 percent more available household income than reported spending).

Table 1. Number of Respondents in Each Income-to-Spending Ratio Group by Interview Phase

Deviation from Income-Spending Ratio of 1.0	End of Phase 1 (Main questionnaire)	End of Phase 2 (Review & Revise)[a]	End of Phase 3 (Additional Probing)[b]
0.0 – 10.0%	1	2	2
10.1 – 15.0%	0	3	3
15.1 – 20.0%	2	3	3
20.1% +	16	10	8

[a] Includes only respondents who were out of balance at the end of Phase 1 (n=18).
[b] Includes only respondents who were asked the additional expenditure and income probes (n=16)

The third and fourth columns of Table 1 give one indication of the extent to which the balance edit procedure was effective. Recall that once the balance edit was triggered in this study (using the 15% or 20% deviation criterion at Phase 1), a household was deemed 'balanced' if it achieved an income-to-spending ratio between 0.90 and 1.10. Examining the first row of the table, we see that two additional respondents achieved balance after being given the chance to review a summary of their reports and make revisions (Phase 2, column 3), and two more respondents achieved balance after answering the additional expenditure and income probes (Phase 3, column 4). Thus, a total of 5 respondents out of 19 obtained acceptable income-to-spending ratios; one respondent did so without going through the balance edit and four did so only with the help of the balance edit.

The shaded cells in Table 1 show the number of respondents who did not reach balance in any phase of the interview by our study criteria. Nevertheless, there is some indication in these cells that the balance edit did have a positive impact on respondents' income-to-spending ratios in the aggregate. For example, the number of respondents with ratios deviating by more than 20 percent from 1.0 was cut in half by the end of the balance edit process (from 16 to 8). This effect is even more evident when we examine the pattern of changes in income-to-spending ratios for individual respondents over the course of their interviews (see Table 2).

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Table 2. Distribution of the Direction of Ratio Changes in the Interview[d]

Type of Ratio Change	# of Respondents
Moved Closer to 1.0	13
More Income than Spending (ratio > 1.0)	8
More Spending than Income (ratio < 1.0)	3
Below 1.0 to Above 1.0	2
Above 1.0 to Below 1.0	0
Moved Farther from 1.0	1
Flipped	2
No Change	2

[d] Includes only respondents who were administered the balance edit (n=18).

Table 2 presents the number of respondents whose ratios improved, worsened, stayed the same, or simply switched direction but not magnitude over the course of the interview. The majority of our respondents (13 of 19) moved closer to being balanced as a result of the balance edit process. (However, despite making relative gains in their ratios during the interview, these respondents' reports remained notably unbalanced, with an average deviation of 42 percent from unity.) Most of the movement towards balance in this group was the result of respondents (8 of 13) who initially reported higher income than spending but then subsequently reported additional expenditures (these respondents' ratios got smaller but remained above 1.0). Five respondents initially reported significantly more spending than income and moved closer to balance throughout the interview by making small reductions to their reported spending and increases to income (e.g., reporting additional wages or forgotten tax refunds). Only one participant did worse over the course of the interview, and four individuals essentially remained unchanged (either by making no adjustments to their reports, or by flipping the sign of their ratio but not decreasing its magnitude).

4.2   Levels of Reporting

Table 3 gives a more concrete look at respondents' reporting throughout the interview. The second column shows the average number of reports and average dollar amounts given by our study participants for the different survey topics in the main questionnaire (Phase 1). Consistent with our earlier findings, prior to the balance edit check our sample in the aggregate reported slightly more income (plus net change in assets and liabilities) than spending. During the initial

review and revise component of the balance edit procedure (Phase 2), 61 percent of respondents (n=11) made changes to their reported spending (with an average of one change per respondent), 33 percent (n = 6) made changes to reported income (with an average of two changes per respondent), but relatively few revisions were made to reported changes in assets or liabilities (average number of changes per respondent: 0).[4]

Table 3. Reporting Incidence and Level by Topic and Interview Phase

	Phase 1 (Main Questionnaire) (n=19)		Phase 2 (Review and Revise) (n=18)		Phase 3 (Additional Probes) (n=16)	
	$\overline{X}$ Total (\$)	$\overline{X}$ # Reports	% Reporting Change	$\overline{X}$ Change (\$)	% Reporting Change	$\overline{X}$ Change (\$)
Expenditures	\$4,781	14	61%	\$92	56%	\$188
Income	\$5,196	2	33	\$589	50	\$973
Change in Assets	\$67	1	22	\$28	n/a	n/a
Change in Liabilities	\$49	0.5	5	-\$528	n/a	n/a

The mean dollar change figures shown on the right-hand side of the Phase 2 column reflect averages across the entire eligible sample (i.e., all respondents who were administered the Phase 2 balance edit, regardless of whether a change was made or not). Restricting our analyses to only those respondents who made revisions in Phase 2, the mean dollar change in expenditures was $159 ($SD_{\overline{X}}$ = $429); this represented a mean change of 6.2% in respondents' initial total reported expenditures (the overall sample mean – for changers and non-changers – was 3.6% of total expenditures). The mean change in income was $1,866 ($SD_{\overline{X}}$ = $2,621); this represented a mean change of 45.3% in respondents' initial total reported income (the overall sample mean was 14.3% of initial total income). During Phase 3, in which respondents were probed about possible sources of spending and income missed earlier in the questionnaire (but not new changes in assets or liabilities), 56 percent (n=9) of our sample reported additional expenditures (overall mean: $188; reporter mean: $503) and 50 percent (n=8) reported additional income (overall mean: $973; reporter mean: $1,757).

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[4] Only one participant in this study revised her reported change in liabilities, recalling that she had paid off a business loan for $9500 during the reference month.

4.3   Debriefing

Following the completion of the modified CEQ survey, respondents completed a self-administered questionnaire that asked them to rate how comfortable they felt sharing expenditure, income, asset, and liability information during the interview, and how accurate they felt those reports had been. The original questions used a 5-point Likert scale – ranging from „very uncomfortable' to „very comfortable,' and „very inaccurate' to „very accurate,' with a neutral „neither' middle response option. We collapsed the „very' and „somewhat' categories for each dimension and omit the middle response option data for reporting purposes. Table 4 presents those data.

Table 4. Respondents' Ratings of Comfort and Accuracy (%) by Reporting Category (n=19)

	Comfort		Accuracy	
Category	Very or Somewhat Uncomfortable	Very or Somewhat Comfortable	Very or Somewhat Inaccurate	Very or Somewhat Accurate
Expenditures	**5%**	**65%**	**5%**	**80%**
Income	**30**	**55**	**0**	**85**
Change in Assets	**30**	**60**	**5**	**85**
Change in Liabilities	**15**	**60**	**0**	**95**

The majority of our study respondents reported feeling „very' or „somewhat' comfortable providing the household financial information asked during the interview, though reporting income was more sensitive for some respondents than discussing expenditures or changes in assets and liabilities. In response to a follow-up question, several participants acknowledged that they felt awkward disclosing income to a stranger, but understood the purpose of the question and believed that their responses were important and would be kept confidential. Additionally, several participants said that they were comfortable reporting income information for themselves, but had been reluctant or unable to do so for other household members.

Respondents' ratings of the accuracy of their reports were very high (80% - 95%). On the one hand, this may simply reflect the effects of self-presentation management – the desire to represent

oneself as a diligent and accurate participant in the data collection effort. On the other hand, a number of respondents in this study evinced behavior or made explicit comments that indicated that they had engaged in effortful and thorough recall and reporting. For example, most respondents followed along with the Information Booklet during the interview and said during debriefing that it provided definitional clarity to some of the global expenditure categories/items, and helped them recall expenditures they would otherwise have forgotten to report. Two respondents spontaneously brought out their checkbooks or personal calendars during the interview to aid reporting. In addition, the balance edit process itself may have strengthened respondents' perceptions of accuracy since most respondents made adjustments to their reports (recalling forgotten items, revising earlier reports with greater specificity) and saw visual evidence that those efforts led to improvements in their household cash flow balance.

The self-administered questionnaire also included items to assess respondents' perception of survey length and burden. We asked respondents to estimate how long the interview lasted under the assumption that those estimates would exceed actual survey length if respondents felt burdened (see, e.g., Block, 1990). The average estimated interview duration was 32.3 minutes, about five minutes longer than the actual interview duration (mean 27.2), suggesting some degree of respondent burden. However, when asked whether the interview was "too long, too short, or about right," all respondents replied that the survey length was ‚about right.' In addition, we asked respondent to rate how burdensome they felt the survey was and again the responses were uniformly positive (e.g., *It was not at all burdensome." "It was great." "...very interesting and easy.").*

4.3.1   Factors Affecting Accuracy

In subsequent debriefing, respondents identified several factors that they felt affected accuracy. Five participants said that they could have reported more accurately if they had been given advance notice to record their expenses in some form (e.g. using an excel spreadsheet, using their phone, bringing records to reference, writing it down on paper). The size, frequency, and saliency of expenditures was mentioned by half of the respondents as contributing to their reporting accuracy, with smaller everyday expenses like food and transportation reported as more difficult to recall accurately than more stable items like income, mortgage payments, and utilities.

Respondents' household composition – its size and the division of financial responsibilities – also played a role. Eleven out of fourteen participants who lived in multi-person households said that they had a ‚good sense' of what other people in their house bought and how much they spent, but they also identified gaps in that knowledge (e.g., food eaten out by spouses or children; gas expenditures; purchases made on other's credit cards; etc.). To a lesser extent, respondents made similar comments about their knowledge of other household members' income, assets, and liabilities. In fact, four participants admitted to ‚forgetting' to include some or all of their other household members' expenditures and income (e.g., "*I was just focused on me!*"). Two of those participants were able to remedy these omissions during the balance edit, but two did not realize their mistake until the debriefing discussion.

We also asked respondents whether the 1-month reference period presented any reporting difficulties and if a 3-month reference period would have been easier or more difficult. One self-employed participant said the 1-month reference period was difficult because her income varied considerably from month to month, but none of the other participants reported difficulties with the monthly time frame. Respondents' views about the efficacy of a longer reference period varied by topic. For expenditures, 17 participants said that using a 3-month reference period would be more difficult than using a 1-month reference period because of the additional memory demands and the fact that some expenses are intermittent and therefore more likely to be forgotten. We asked respondents how they would come up with their total household expenses for three months. The word "estimate" was used often, and many respondents said that they would think of their ‚typical' monthly expenses and multiply by three. A few respondents did say that they would think of the expenses for each specific month and try to systematically calculate an accurate 3-month figure. For income, two-thirds of our study participants said reporting for a 3-month period instead of 1-month period would be essentially the same because their income was fairly regular and stable. For assets and liabilities, our sample was split: about half preferred the 1-month and half preferred the 3-month reference period. The responses depended largely on how closely the respondent tracked their accounts and how regular or irregular their account activity usually was.

4.3.2   Reactions to the Balance Edit

We were interested in exploring respondents' reactions to various features of the balance edit implemented in this study. We began by asking them about the chart they were shown at the end of the basic questionnaire which displayed their income-to-spending ratio. Opinions fell into one of three groups. The first group (n=3) initially felt confused by the chart; they didn't understand its purpose or what it was supposed to represent, and had a hard time comprehending the concept of income-plus-net-assets-and-liabilities. These respondents indicated that the accompanying explanation about the chart provided by the interviewer was helpful in deciphering its meaning, or at least in clarifying the overall objective of the balance edit process.

A second group of respondents (n=5) understood the purpose of the chart and balance edit but it elicited some emotional reaction, often somewhat negative. For example, several respondents said that it was somewhat surprising and uncomfortable to be confronted with a chart that showed spending in excess (sometimes far in excess) of their income. Others in this group whose reports were unbalanced initially made an inference that they must have done something wrong (e.g., "*I felt a little stupid.*"), or that by being asked to review their previous reports that the interviewer mistrusted them in some way ("*I was a little frustrated because I knew I was being truthful."*). In contrast, two respondents in this group whose reports were reasonably balanced and showed more income than spending expressed satisfaction upon seeing the chart (e.g., "*I don't want to be balanced. I want to have more income so I can spend and save more.*").

Finally, half of our respondents (n=10) seemed to generally comprehend the chart and the objective of balance edit, and either have no emotional reaction or be genuinely intrigued by the information presented and motivated to resolve reporting discrepancies. The respondents in this group were able to clearly articulate the objective of the edit process in their own words and did not appear to have any conceptual difficulties or negative emotional reactions.

Table 5 shows the relationship between these subjective respondent groupings and the balance edit outcomes. Given the small and disproportionate sizes of the three groups, caution should be used when making inferences based on the results in this table. However, it does appear that there is a relationship between these groupings and the magnitude of change in the income-to-spending ratio over the interview (column 3) and in the final balance status (column 4).

Table 5. Relationship Between Respondents' Initial Reactions to Balance Edit and Survey Outcome[e]

	Ratio Moved Closer to 1.0	$\overline{X}$ Change in Ratio	Achieved Balance
Group 1 – Initially Confused (n=3)	3	-52.3%	0
Group 2 – Emotional Response (n=5)	3	50.7%	0
Group 3 – Understood/Positive Response (n=10)	7	-2.0%	4

[e] Includes only those respondents who were administered the balance edit (n=18).

Respondents who were confused by the chart and balance edit objective (Group 1) initially reported greater income than spending. Those who had an emotional reaction initially (Group 2) reported greater spending than income. The magnitude of the average ratio change was very similar for both groups, and no respondents in either group achieved balance. Respondents who understood the chart and edit objective without any associated negative emotional reaction (Group 3) made smaller (or at least off-setting) changes on average during the balance edit than respondents in the other two groups, and all of the balanced households came from this group.

We also queried respondents on their reactions to Phase 2 of the interview in which we gave respondents the chance to look over a summary page of their reports and make any corrections or additions they felt were needed. Again, reactions tended to be split. Most respondents did not express any substantive opinion about this page – they simply engaged in the review process and moved on. Three respondents gave only cursory examination of this page and either did not fully understand their task or chose not to exert the effort required to review the information more carefully; they made no changes on this screen. A few participants described the review and revise process as ‚daunting' or ‚chastising' because it forced them to examine (in front of the interviewer) some hard truths about their household finances. And, finally, several other respondents said that they really liked the table and task because it prompted them to consider the

relative amounts reflected in each category or because the presentation triggered memories of additional items that they then could report.

Some of the most frequent adjustment and additions made on this page stemmed from respondents' memories for expenditures related to landmark events (e.g., birthdays, trips, Mother's Day). Another common change that respondents made stemmed from financial activities by other household members. As noted earlier, sometimes this information was neglected altogether in respondents' answers to the basic questionnaire, other times it was only partially reported or respondents simply provided best guesstimates. This page afforded respondents the chance to re-focus attention on proxy-related items they may have missed (e.g., spouses contributions to retirement accounts), or revise their estimates for other household member items in order to achieve better balance. There also were a few instances in which we believe that respondents were just simply trying to improve the household balance by making seemingly arbitrary adjustments, but this was not common.

In the final phase of the interview, respondents who remained unbalanced were asked a brief set of additional probes about possible sources of expenditures and income. Fifteen of the 16 participants who received these questions said that they were clear and easy to answer. The two most common items that we picked up as a result of these probes were child care expenses and tax refunds/tax payments (the reference month in this study was April).

5. DISCUSSION

5.1   Summary

The purpose of this study was to examine the application of a balance edit procedure to a modified CEQ, and to evaluate its effects on indicators of data quality and respondents' experience in the survey. Respondents began by answering a series of global spending questions about the household that encompassed all of the expenditure categories covered by the current CEQ, and provided information about household income and changes in assets and liabilities. We examined and presented to respondents their resulting income-to-spending ratios for the 1-month reference period. When the ratio deviated from perfect income-to-spending balance (i.e.,

1.0) by more than 20 percent (15 percent for households making less than $30,000), we initiated a balance edit procedure. The first component offered respondents the opportunity to review and revise their previous reports. If respondents' reports remained unbalanced (i.e., if they had ratios that deviated by more than 10 percent from 1.0), they were asked a brief set of follow-up probes designed to capture expenditure and income sources that might have been missed. Following administration of the modified CEQ survey with balance edit, we conducted a debriefing session to collect information about respondents' survey experience, and probe about potential sources of reporting error.

The findings from this small study shed some light on the challenges and opportunities that a balance edit introduces to expenditure surveys. We found that 18 of 19 participants in this study provided reports in the initial interview that were sufficiently unbalanced to trigger the balance edit. The balance edit procedure improved income-to-spending ratios for 13 participants, but only 4 individuals actually achieved balance (i.e., obtained ratios that were within 10 percent of unity). Despite the relative improvements in the ratios of the remaining 9 participants, their final average deviation from unity remained quite high (42 percent). The debriefing session revealed that a sizable minority of individuals in this study either did not understand the purpose in the balance edit or had somewhat negative reactions to the process. In addition, we identified a number of factors that likely contributed to its effectiveness (e.g., respondent knowledge of other household members' spending/income; the size, frequency, and salience of the expenditure category).

5.2   Limitations

Our study was limited by a number of factors that may have impacted the results. First, we used a small, convenience sample; a larger, probability-based sample would have strengthened our ability to generalize the results and reduced the influence of outliers introduced by individuals with very large (small) reports. Second, some of the respondent confusion evidenced in this study may have stemmed from our specific implementation of the balance edit – a hybrid between the approaches taken in the SHS and ALP. In particular, the language we used to introduce the objective of the edit and to describe the chart reflecting the income-to-spending ratio likely could be improved based on what we learned in this study. In our roles as

interviewers, we strove to provide respondents additional task clarification as necessary, but further refinement and standardization of this feedback might have improved respondent understanding. Finally, our decision to use global expenditure questions may have affected the incidence of out-of-balance households. Global questions may tend to encourage respondents to provide rough estimates for many expenditure categories when other response strategies would be more optimal. Their use also may have affected respondents' perceptions of the burden of the survey and the balance edit process; attempting to conduct our balance edit with the full complement of detailed, disaggregated CEQ questions likely would have been far more difficult for respondents.

5.3 Recommendations

Despite evidence that our balance edit lead to some improvements in our data quality measures, we cannot on the basis of this study recommend its use for the current CEQ without substantial additional testing. As we suggest elsewhere in this report, the efficacy and appeal of a balance edit will depend largely on the overall survey design (e.g., its mode, use of detailed vs. global items, length, etc.) and its analytic purposes. Under the existing CEQ protocols, there are a number of feasibility concerns with a balance edit implementation. First, there is the additional time required to administer the edit. In our study, the balance edit process accounted for nearly a third of the total survey duration (about 8 – 10 minutes out of 25 – 30 total minutes, on average). The relative administration time of the edit would be reduced in the CEQ compared to our study since the production survey uses significantly more detailed questions than our study did. However, the complexity of applying this type of edit to such a large number of items likely also would significantly increase respondent burden and overall survey length, as well. Second, we discovered that our respondents did not always understand what we wanted them to do in the balance edit. This made it difficult to stick to a standardized administration protocol, and we would have concerns about this lack of standardization in a production environment. Finally, it is not a trivial matter to identify all of the potential range edits that would serve as inputs into a balance edit. To be optimally effective, we would ideally want to tailor these edits in some way (e.g., by household size, income, reporting patterns), and this requires fairly sophisticated use of both previously reported data and information provided within the interview itself.

Were a redesigned CEQ to incorporate significant numbers of global expenditure questions (which we expect are subject to significant reporting errors) and still be conducted primarily in-person, then some form of a balance edit might worth considering. If, on the other hand, the CEQ continues to be a long survey consisting of hundreds of detailed expenditure questions, and/or a significant portion of the interviews each month are administered by telephone, then we believe that this measure is less attractive given implementation issues and the potential negative impact on respondent and interviewer burden. Additionally, we used a 1-month, not a 3-month, reference period for this study, and we suspect that the longer time frame would reduce the quality of respondents' estimates of change in assets and liabilities, in particular. Depending on design changes under consideration for the CEQ, further research should be done on whether a balance edit is feasible over the phone, with a larger set of detailed reports, and with a longer reference period. Finally, our study was designed to examine only relative changes in respondent reporting; we had no direct measures of the actual quality of the data collected. If CE is interested in pursuing the possibility of including a balance edit measure, we recommend that subsequent studies attempt to examine measurement error more directly, for example through the use of record validation, or studies of within-household reporting consistency/reliability (e.g., comparing reports between spouses). In addition, Statistics Canada conducted some analysis on SHS 2008 data and the results suggested that expenses from the unbalanced questionnaires were not much different from expenses from balanced questionnaires (personal communication, May 2011). It would be worth exploring the specifics of this finding, and Statistics Canada's decision to again drop the SHS balance edit starting in 2010, in more detail.

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APPENDIX I

CE Balance Edit Study Survey Instrument Items: PHASE 1

INSTRUCTIONS/Transition: Let's get started. Today, we'll be going through a Consumer Expenditure survey. This survey collects information about your household's expenses and income, but we'll start briefly by asking you a few questions about your household. Are you ready to begin?

HH Characteristics

Which state do you live in?

How many people live in your household (including yourself)?

How many of the people in your household are over the age of 18?

Do you currently have a job?

INSTRUCTIONS/Transition: Next, I will ask you about expenses your household had or bills that you've received. As we start, please understand that we ask the same questions of everybody we talk to; I realize some of these questions may not apply to your household.
Most questions that I will be asking refer to a specific time period. During this interview, the time period, unless I state otherwise is for last month - that is, from the 1st day of [REFERNCE MONTH] to the [LAST DAY, REFERENCE MONTH]. Please remember to include expenses for every member of your household in your answers.

Expenditures

1. Last month, did you or any member of your household purchase a car or truck? (If so, what was the cost?)
2. … a refrigerator? [Cost?]
3. … a washing machine and/or dryer? [Cost?]
4. … a dishwasher? [Cost?]
5. … a television? [Cost?]
6. … a computer? [Cost?]
7. … pay a mortgage for any property or real estate? [Cost?]
8. … pay property tax? [Cost?]
9. … pay rent? [Cost?]
10. … renters or homeowner's insurance? [Cost?]
11. … electricity? [Cost?]
12. … water? [Cost?]
13. … heating fuel? [Cost?]
14. … telephone, cable, or internet? [Cost?]
15. … furniture? [Cost?]
16. … housekeeping or yard supplies? [Cost?]
17. … home repairs and maintenance? [Cost?]

18. … gasoline? [Cost?]

19. … vehicle maintenance? [Cost?]

20. … vehicle payments? [Cost?]

21. …vehicle insurance? [Cost?]

22. … food and beverages (excluding dining out)? [Cost?]

23. … dining or drinking out? [Cost?]

24. … clothing and apparel? [Cost?]

25. … health insurance? [Cost?]

26. … prescription or non-prescription medicine? [Cost?]

27. …health care services (out-of pocket cost of hospital care, doctor services, lab tests, eye, dental, and nursing home care)? [Cost?]

28. … medical supplies? [Cost?]

29. … trips and vacations? [Cost?]

30. … tickets to movies, sporting events, and performing arts? [Cost?]

31. … hobbies (including exercise, bicycles, trailers, camping, photography, reading materials, etc.)? [Cost?]

32. … education (including student loan payments, tuition, room and board, books, and supplies)? [Cost?]

33. … contributions to religious, educational, charitable, or political organizations? [Cost?]

34. … cash or gifts to family and friends outside your household (including alimony and child support payments)? [Cost?]

INSTRUCTIONS/Transition: The next few questions are about income. We know people aren't used to discussing their income, but please be assured that, like all other information you have provided, these answers will be kept strictly confidential.
You can report weekly, bi-weekly, monthly, or yearly amounts. You can also report these amounts with or without taxes. You will be asked to specify which of these amounts you chose to report.

INCOME

1. Last month, did you or any members of your household earn any income from wages, salary, commissions, bonuses, or tips (do not include income from self-employment)?
   - 1a. How much did you earn from these income sources in all jobs?
   - 1b. Is this amount paid weekly, bi-weekly, monthly, or yearly?
   - 1c. Is this net (after-tax) or gross (before-tax) income?

2. Last month, did you earn any income from self-employment?
   - 2a. How much did you earn?
   - 2b. Is this amount paid weekly, bi-weekly, monthly, or yearly?
   - 2c. Is this net (after-tax) or gross (before-tax) income?

3. Last month, did you earn any income from interest, dividends, net rental income, or income from trusts or estates?

        3a. How much did you earn?
        3b. Is this amount paid weekly, bi-weekly, monthly, or yearly?
        3c. Is this net (after-tax) or gross (before-tax) income?

4. Last month, did you earn any income from Social Security?

        4a. How much did you earn?
        4b. Is this amount paid weekly, bi-weekly, monthly, or yearly?
        4c. Is this net (after-tax) or gross (before-tax) income?

5. Last month, did you earn any income from Supplemental Security (SSI)?

        5a. How much did you earn?
        5b. Is this amount paid weekly, bi-weekly, monthly, or yearly?
        5c. Is this net (after-tax) or gross (before-tax) income?

6. Last month, did you receive any public assistance or welfare?

        6a. What is the cash value of that assistance?
        6b. Is this amount paid weekly, bi-weekly, monthly, or yearly?
        6c. Is this net (after-tax) or gross (before-tax) income?

7. Last month, did you earn any income from retirement, survivor, or disability pensions?

        7a. How much did you earn?
        7b. Is this amount paid weekly, bi-weekly, monthly, or yearly?
        7c. Is this net (after-tax) or gross (before-tax) income?

8. Last month, did you earn any income from veteran's payments, unemployment compensation, child support, or alimony?

        8a. How much did you earn?
        8b. Is this amount paid weekly, bi-weekly, monthly, or yearly?
        8c. Is this net (after-tax) or gross (before-tax) income?

9. Last month, did you earn any income from any other regular source?

        9a. How much did you earn?
        9b. Is this amount paid weekly, bi-weekly, monthly, or yearly?
        9c. Is this net (after-tax) or gross (before-tax) income?

INSTRUCTIONS/Transition: Next, we will collect information on changes in your household finances last month. We'll ask you to estimate whether your household assets (such as savings or checking accounts) and liabilities (such as credit card balances and other loans you owe) increased or decreased last month and by what amount.

ASSETS/LIABILITIES
  1. Do you or any member(s) of your household have a checking account?
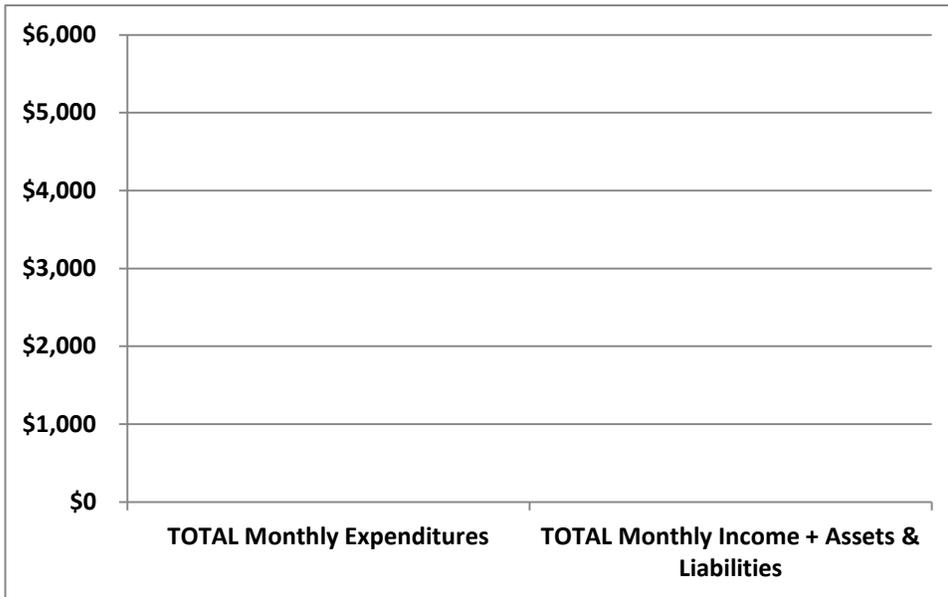   1a. How many checking accounts do you have?

1b. Did the balance of checking account (1,2,3,4) increase, decrease, or stay about the same in (MONTH)?
1c. How much did checking account (1,2,3,4) (increase/decrease) in (MONTH)?

2. Do you/members of your HH have a savings account?
   2a. How many savings accounts do you have?
   2b. Did the balance of savings account (1,2,3,4) increase, decrease, or stay about the same in (MONTH)?
   2c. How much did savings account (1,2,3,4) (increase/decrease) in (MONTH)?

3. Do you have a personal retirement account?
   3a. How many personal retirement accounts do you have?
   3b. Did the balance of retirement account (1,2,3,4) increase, decrease, or stay about the same in (MONTH)?
   3c. How much did retirement account (1,2,3,4) (increase/decrease) in (MONTH)?

INSTRUCTIONS/Transition: Okay, now we'll talk about credit card balances and other loans that your household may have.

---

4. Do you/any members of your HH have a credit card?
   4a. How many credit cards do you have?
   4b. Did the balance of credit card (1,2,3,4) increase, decrease, or stay about the same in (MONTH)?
   4c. How much did credit card (1,2,3,4) (increase/decrease) in (MONTH)?

5. Do you have any personal loans (including friend and family loans)?
   5a. How many of these loans do you have?
   5b. Did the balance of personal loan (1,2,3,4) increase, decrease, or stay about the same in (MONTH)?
   5c. How much did personal loan (1,2,3,4) (increase/decrease) in (MONTH)?

APPENDIX II
CE Balance Edit Study Instrument Items: PHASE 2 & 3

INSTRUCTIONS/Transition: Thank you very much for your time so far. I'd like to take a look now at the overall picture of your household finances last month based on the information we've collected from you. This simple chart plots your reported household expenditures and your income plus any assets/liabilities. Ideally, we'd expect to see that these two figures match up pretty closely. [IF THEY DO NOT, READ: However, sometimes when there is a big difference between these two amounts in a given month, it's because we (missed some of your HH's expenditures/income) or need to make other changes to bring these in line.

$6,000

$5,000

$4,000

$3,000

$2,000

$1,000

$0

TOTAL Monthly Expenditures   **TOTAL Monthly Income + Assets & Liabilities**

INSTRUCTIONS/Transition: Here is a summary of your answers. Please take a moment to review the entries, using the scroll bar on the right to move up and down through the entire list. If you find an item that you would like to change, enter the revised number in the yellow cell next to the item you wish to update.

Expenditures			
Category	Reported Cost		Updated Cost
Large Expenses			
Car	$0		$0
Refrigerator	$0		$0
Washer/Dryer	$0		$0
Dishwasher	$0		$0
Television	$0		$0
Computer	$0		$0
Home and Utilities			
Mortgage	$0		$0
Property Tax	$0		$0
Rent	$0		$0
Renter/Homeowner's Insurance	$0		$0
Electricity	$0		$0
Water	$0		$0
Heating Fuel	$0		$0
Telephone, Cable, Internet	$0		$0
Other Household			
Furniture	$0		$0
Housekeeping and Yard Supplies	$0		$0
Home Repairs and Maintenance	$0		$0
Vehicle			
Gasoline	$0		$0
Vehicle Maintenance	$0		$0
Vehicle Finance	$0		$0
Vehicle Insurance	$0		$0
Food			
Food and Beverages	$0		$0
Dining/Drinking Out	$0		$0
Clothing			
Clothing and Apparel	$0		$0
Health Related			
Health Insurance	$0		$0
Medications	$0		$0
Health Care Services	$0		$0
Medical Supplies	$0		$0
Entertainment			
Trips and Vacations	$0		$0
Tickets	$0		$0
Hobbies	$0		$0
Education			
Education	$0		$0
Miscellaneous			
Contributions	$0		$0
Cash or Gifts	$0		$0
TOTAL EXPENDITURES	$0	$0	$0

Income			
Category	Reported Income		Updated Income
Wages	$0		$0
Self-Employment	$0		$0
Interest/Dividends	$0		$0
Social Security	$0		$0
Supplemental Security	$0		$0
Public Assistance	$0		$0
Pensions	$0		$0
Veteran's Payments/ Alimony/ Child Support	$0		$0
Other	$0		$0
TOTAL INCOME	$0	$0	$0

Assets			
Category	Reported Asset		Updated Asset
Checking Account(s)	$0		$0
Savings Account(s)	$0		$0
Retirement Account(s)	$0		$0
TOTAL ASSETS	$0	$0	$0

Liabilities			
Category	Reported Liability		Updated Liability
Credit Card(s)	$0		$0
Personal Loan(s)	$0		$0
TOTAL LIABILITIES	$0	$0	$0

PROBES FOR ADDITIONAL EXPENDITURES AND INCOME

Expenses
1. Last month, did you have any expenses for personal services (including cost of care for elderly and/or children)?
2. … other child-related expenses not already mentioned (including toys, gear, and equipment)?
3. … pay income tax as part of filing your tax return?
4. … purchase any vehicles other than a car or truck?
5. … purchase any appliances other than a refrigerator, washer/dryer, or dishwasher?
6. … any home electronics other than a television or computer?
7. … make any other purchases greater than $50 that I have not asked you about?

Income
1. Last month, did you receive a tax refund?
2. … receive a pay advance?
3. … receive an inheritance?
4. … earn income from the winnings from lotteries, bingos, or casinos?
5. … earn income from the sale of a house, condo, or piece of land?
6. … earn income from the sale of a car or any other vehicle?
7. … earn income from the sale of any furniture or appliances?

8. … earn income from the sale stocks, bonds, or mutual funds?
9. … earn income from gifts?
10. … have any other source of income we haven't already asked about?

APPENDIX III
CE Balance Edit Study Debriefing Protocol

INTERVIEWER SCRIPT AND OUTLINE

1. Introductions (5 minutes)

- **Hi! Thank you for coming in today.**
- **I am …...**
- **[This is my colleague (   ) who will be taking notes for us today]**
- **Consent form**
- **Permission to audiotape**
- **Explanation:**

  - **We are going to be working with some possible new questions for the Consumer Expenditure Survey, an ongoing survey that provides a continuous flow of information about the buying habits of American consumers. The survey furnishes data to the Consumer Price Index or CPI, which is a basic measure of inflation.**
  - **What we are going to do today is go through a series of questions just as if you are participating in the actual survey. Once we have completed all of the questions in the survey, I will get your feedback to them as well as your thoughts on the overall experience participating in the survey. The purpose of today's session is to help us find out more about how people, like you, respond to these questions. We are not here to evaluate you, we are looking to improve the questions, so there are no right or wrong answers. We are primarily interested in how effective the questions are; how easy they are to understand and answer and how well they can capture the information that we are interested in collecting more than the information about your expenses. All the information you give us will be kept completely confidential, and will be used to improve the survey questions.**
  - **Any questions?**
  - **What I'm going to do is read you a question and ask for your answer. Once I have asked all of the questions I will ask you**
  - **Let me know at any point if you have a question or comment, or if you need to take a break.**

INTRODUCTION TO DEBRIEFING QUESTIONS

Thank you for completing the survey. We're going to shift gears now and ask you a few questions about your experience in today's session. We realize that some of the items you were asked to answer may be challenging for some people, so we're hoping to get a better understanding of how you answered the questions, and to get any reactions you had to the survey. Your responses will be confidential and will be used to improve the quality of the Consumer Expenditure Survey.

PARTICIPANT DEBRIEFING QUESTIONNAIRE

1. How comfortable or uncomfortable were you giving information about your expenditures, income, assets, and liabilities? *Please circle one answer per row.*

	Very Uncomfortable	Somewhat Uncomfortable	Neither Comfortable nor Uncomfortable	Somewhat Comfortable	Very Comfortable
Expenditures	1	2	3	4	5
Income	1	2	3	4	5
Assets (e.g., checking or savings accounts)	1	2	3	4	5
Liabilities (e.g., credit cards or loans)	1	2	3	4	5

1a. If less than five, what could we have done to make you more comfortable answering those questions?

2. How accurate or inaccurate do you think you were able to report your expenditures, income, assets, and liabilities? *Please circle one answer per row.*

	Very Inaccurate	Somewhat Inaccurate	Neither Accurate nor Inaccurate	Somewhat Accurate	Very Accurate
Expenditures	1	2	3	4	5
Income	1	2	3	4	5
Assets (e.g., checking or savings accounts)	1	2	3	4	5
Liabilities (e.g., credit cards or loans)	1	2	3	4	5

2a. If less than five, what could we have done to help you report the information more accurately?

3. Were there any items that you felt were particularly easy to report accurately?

4. Were there any items that you felt were particularly difficult to report accurately?

5. If you had to describe how burdensome the interview was, what would you say?
   5a. Could you tell me what the term burden means to you?

6. What do you think about the length of the survey?

6a. How long do you think the survey lasted?
6b. How long did you expect it to be?

DEBRIEFING QUESTIONS

1. General Reactions: Thank you. I've got a few additional questions that I'd like to discuss with you now. Let's start by getting your general reactions to the survey. What was it like for you to complete the survey?
   a. [Additional probes if necessary: *were there questions that you found particularly difficult or confusing? Did the questionnaire seem to flow smoothly or not? Were there any items that you felt were too sensitive or personal?]*

2. Comfort: review responses to question 1 and 1a on self-administered questionnaire
   a. Probe about any items that the respondent rated low and get the respondent to expand on their answers.
   b. If answers varied among the sections, what made specific sections more or less comfortable?

3. Accuracy: review responses to question 2 and 2a on self-administered questionnaire
   a. Probe about any items that the respondent rated low and get the respondent to expand on their answers.
   b. If answers varied among the sections, what made specific sections more or less accurate?
   c. How exact did you feel your answers needed to be?
   a. Do you think you estimated for any of your answers?
      i. Which?
      ii. Why?
   b. Felt answers needed to be exact – based on what?
   c. How accurate did you feel your answers were overall?

4. Information Booklet: Did you think it was helpful to have the information booklet?

5. Reference Period: You were asked to tell us about your household income and expenses for a 1 month period.
   a. If you were asked to report your household expenses for a 3 month period instead, do you think it would be easier, the same, or more difficult?
      i. Can you tell us more about that? How would you go about coming up with your total household expenses for 3 months? [Additional probes, as necessary: *For example, would you think about the average monthly amount and multiply by 3, or would you think about each month separately and report based on each specific month?)*
   b. How about household income - if you were asked to report your household income for a 3 month period instead, do you think it would be easier, the same, or more difficult?
      i. Can you tell us more about that? What would make it [fill]?

    c. And how about household assets and liabilities (such as bank accounts, credit card balances, and loans) - if you were asked to report your household assets and liabilities for a 3 month period instead, do you think it would be easier, the same, or more difficult?

        i. Can you tell us more about that? What would make it [fill]?

[Additional probe, as necessary: Over a 3 month period people clearly purchase more things than they do in just a single month. But are there specific types of purchases or expenses that you can think of that we might be missing by asking about just one month?

6. Proxy Issues Reporting Expenditures [for Multi-person CUs]: At the start of the interview, we asked you a set of expenditure questions that began "Last month, did you or anyone in your household purchase…." – for example, a car, a refrigerator, etc. – and we went through about 30 expenditure categories. You indicated earlier [in the self-administered questionnaire, or in response to a previous verbal debriefing question] that you felt that your answer to these question were [very/somewhat/not very/not at all] accurate

    a. Do you feel that you have a good sense of what people in your household buy and how much they spend?

        i. If not/so, why not/tell me more about that – why/why not?

    b. Are there particular types of expenditures that you'd be likely to be unaware of, or are there particular household members whose expenditures you may not know as much about?

    c. Do you think the answers to any of the questions would have been different if someone else in your household answered the interview questions?

7. Proxy Issues Reporting Income [for Multi-person CUs]: In the survey, we asked you a series of income-related questions, such as "Last month, did you or any members of your household earn any income from wages, salary, commissions, bonuses, or tips (do not include income from self-employment)?" And then we asked you how much your HH earned from these sources. You indicated earlier [in the self-administered questionnaire, or in response to a previous verbal debriefing question] that you felt that your answer to these question were [very/somewhat/not very/not at all] accurate

    d. Do you feel that you have a good sense of the earnings of other people in your household?

        i. If not/so, why not/tell me more about that.

    e. Do you think the answers to any of the questions would have been different if someone else in your household answered the interview questions?

    f. Did you think it would need to consult with other people in your household about their income before responding to this survey in order to give a reasonably accurate answer to the income questions?

        i. Why or why not?

8. Proxy Issues Reporting Assets and Liabilities [for multi-person CUs]: Okay, we also asked you to report your HH's assets (such as savings and retirement accounts) and liabilities (such as credit card debt and other loan balances).
   a. Do you feel that you have a good sense of the earnings of other people in your household?
      ii. If not/so, why not/tell me more about that.
   g. Do you think the answers to any of the questions would have been different if someone else in your household answered the interview questions?
   h. Did you think it would need to consult with other people in your household about their assets and/or liablities before responding to this survey in order to give a reasonably accurate answer to the assets and liabilities questions?
      i. Why or why not?

9. Reconciliation
   a. At one point in the interview, we generated that chart that showed you your/your HH's expenses for last month and your income and assets/liabilities next to each other [show chart from tab 5 again].
      i. What was your initial reaction to this graph?
      ii. Did it make sense to you? Was it easy or difficult to understand? (How so/why?)
      iii. Could we have done anything else to make it clearer/better?
   b. [For Rs who were out of balance] When I showed you that graph, I read the following statement, and I'd like to get your reaction to it. I said, "*Ideally, we expect to see the two figures (expenditures and income/assets) match up pretty closely. However, sometimes when there is a big difference between these two amounts in a given month, it's because we (missed some of your HH's expenditures/income) or need to make other changes to bring these in line.*"
      i. Could you tell me in your own words what you think we are trying to say here?
      ii. What is your reaction to this statement?
      iii. Did it make sense to you? Was it easy or difficult to understand? (How so/why?)
      iv. Could we have done anything else to make it clearer?
   c. [For R who were out of balance] After we showed you the graph, we presented this summary screen [show tab 6] and asked you to review your answers and make any changes you felt were appropriate.
      i. Did you have any reactions when we showed you this summary table?
      ii. In your own words, could you tell me what you think we were asking you to do on this screen?
      iii. [For R who had range edits flagged] One/some of the values listed in the table was/were highlighted and I told you that *the instrument had flagged that/those amount(s) as being potentially too high or too low – and then I asked you to please verify that it/they was/were correct?*
         1. What were any reactions to this part of the interview?

2. [For any changes that were made] Can you tell me a bit more about how you decided what to change and what not to change, and how you arrived at the revised amount(s)?
   a. Was this easy or difficult for you, and why?
d. [For R who were out of balance and made changes on tab 6] What about the remainder of the survey? After you made the changes to these items [on tab 6], we showed you an updated graph [show tab 8].
   i. Again, what were your reactions to this graph? (e.g., was it what you expected to see or not? Was it helpful to see this revised graph or not?)
e. [For R who were asked additional expenditure/income/assets/liability questions] We then tried to get your income and expenditures reports a bit closer by asking you a few follow questions. For example, we asked you [Insert example from R's survey].
   i. What did you think of these questions?
      1. Were they easy or difficult? Why?
      2. Any other reactions to these follow-up questions?

10. Do you or anyone in your household keep a budget or records of household income and/or expenses?

   Yes   Go to 10a
   No   Go to 11

   10a. How well do you think that budget matches your overall finances?

   10b. Are there items (of expenditures or income) we asked about today that you do not include in your regular budget? What are those items?

   10c. Are there items (of expenditures or income) we *did not* ask about today that you *do* include in your regular budget? What are those items?

11. Use of records
    a. On a scale from 1-5 with1 being very unlikely and 5 being very likely, how likely is it that you'd use records to help answer the questions in this survey?
       i. If not „very likely,' why not?
    b. [For those who indicated some likely use of records:] If we had conducted this interview in your home AND you had wanted to use the records you had available
    c. How much more effort would it take for you to gather and use the records (5 pt scale)?
    d. How would your use of records affect the accuracy of your responses (5-pt scale)? (What types of items might it affect most? – i.e., getting at intersection of their perceptions of accuracy for various items and their knowledge of specific records ?)

12. If you had been given the choice to complete the survey over the phone or in person, which would you choose? Why?

13. Do you have any other comments or feedback about the interview?