Update on Initiatives and Field tests to Improve Response Rates in Household Surveys

François Laflamme, Sylvie Bonhomme and Dominique Chabot-Hallé, Statistics Canada

1. Introduction

Statistics Canada, like many statistical organizations throughout the world, has observed a downward trend in response rates in household surveys. To address this broad question, the agency is currently investigating options to improve response rate and data collection strategies. Recently, some surveys have provided us with a better understanding of new factors that currently impact response rates e.g. type of devices (land versus cellular phone), interviewer staffing approaches and non-response follow-up strategies, in particular, with respect to refusal conversion. Other surveys, research projects and field tests have also identified several opportunities to improve the current data collection strategies, processes and practices. As well, a new tool was developed to evaluate where we are losing our respondents during the collection process. This tool was particularly useful to identify where to focus our data collection research effort. This short paper presents the results and lessons learned from these recent survey analyses and tests. It also describes the tool developed to assess the proportion of respondents we are losing at each survey step in collection.

2. Declining response rates

In order to monitor and analyze the historical response rate trend over time, a Composite Response Rate Index (CRRI) that consolidates response rates of all active surveys into a single index was developed. CRRI can be computed for social CATI and CAPI surveys, agricultural or business surveys and for different reference periods (month, quarter or year). Finally, the CRRI can be unweigthed or weighted either by total system time (includes the time spent for all successful and unsuccessful calls or visits).or by sample size. The unweighted CCRI gives less importance to large surveys with high response rate such as the Labor Force Survey.

Monthly Composite Response Rate Index (CRRI)

y = *Year identifier*
m = *Month identifier, m= 1,..12*
i = *Active survey identifier, i= 1, …n*
RR_{ymi} = *Response rate (final response rate) of* i^{th} *survey on a given year*
W_{ymi} = *Monthly weight of* i^{th} *survey on a given year*

- $CCRI_{ym} = \sum_i RR_{ymi} * W_{ymi}$ is CRRI for a given year and month

Table 1

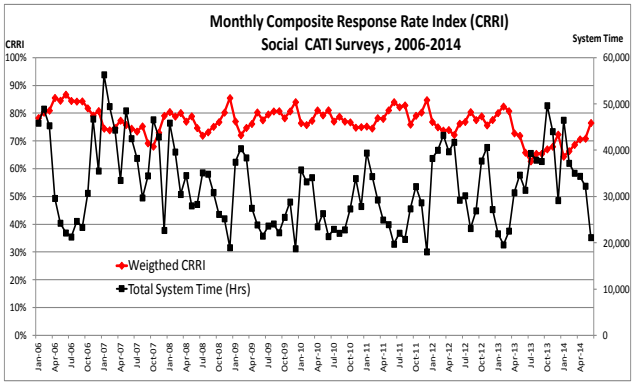

Table 2

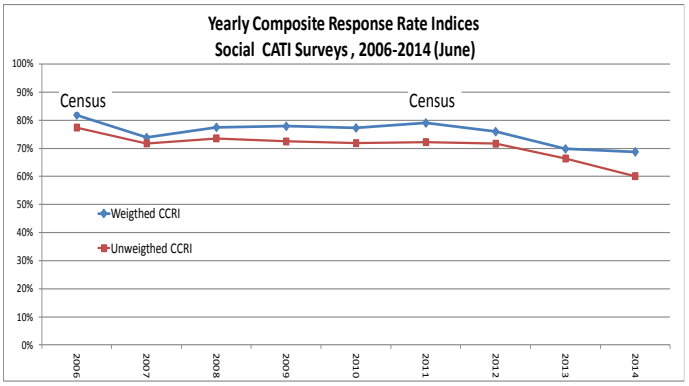

Table 1 provides the monthly weighted (by system time) CRRI for the 2006-2014 collection periods. The drop in response rate in 2013 coincides with the introduction of two large surveys that used the new common household

survey frame (that includes cellular phone to improve coverage). It is interesting to note that the CCRI is inversely correlated with the effort (total system time). The total system time peaks often refers to a decrease in the CCRI. Table 2 shows the annual CCRI. The decrease in terms of response rates begins just after the 2011 census which introduced the voluntary nature of the long form census. Finally, it should be noted that both tables summarize about 1,200 survey/cycle (i.e. monthly survey has 12 cycles per year) and 57 million calls during the 2006-2014 period.

3. Overview of recent surveys and tests

Survey analyses and tests conducted in late 2013 and early 2014 have increased our knowledge of the collection process (especially for electronic Questionnaire (EQ) and multi-mode surveys) and identified many operationally viable options to be implemented, or further investigated to improve response rates. During that period, the agency has also conducted an Internet field test to assess alternative ways of reaching EQ survey respondents. Findings and lessons learned from these recent survey analyses and tests were described at last year's Nonresponse Workshop (see Laflamme (2014) - Experiences in Improving Response Rates for Household Surveys).

4. Where are we losing our respondents?

In taking advantage of the audit trail information (i.e. interviewer key strokes), a new tool was developed to assess at what survey step we are losing our survey respondents. In practice, we are aiming to improve our understanding of the factors that influence where we lose our respondents, to evaluate and compare the relative loss for different types of surveys and to identify opportunities for future data collection research and initiatives (e.g. where to focus our data collection research effort). Among the main factors that influence where we lose respondents (and for which we have some control), we can identify the name of the survey, target population, type of device used (e.g. Land line versus cellular phone), presence or not of initial pre-contact (e.g. introduction letter versus cold call), survey introduction, modes of contact and collection, type and quality of the frame, sample design (e.g. stratification, roster and random selection of respondent, oversampling of more difficult to reach population), number and length of modules before questionnaire content and length of the questionnaire content (including the presence of sensitive questions).

Table 3 and 4 show various types of surveys and the relative loss in terms of response. In practice, for each in-scope case, we are able to identify with the audit trail information the last question answered i.e. the further each in-scope case went through each module during the interview using all calls. Except for the line "at least one question of the content", each line represents the relative loss at each step. For example, the cumulative loss for the Canadian Community Health Survey (CCHS 201403) is 4.5% (1.2% + 3.3%) after "Hello I'm calling from Statistics Canada.".

Table 3

				LFS rotate out frame		CCHS Respondents
	CCHS 201403	CCHS 201405	CCHS 201407	CFCS 201405	EICS 201401	HES 201310
No contact at all	1.2%	1.3%	1.1%	2.2%	5.8%	0.8%
Lost after the 1st question " *Hello, I'm calling from STC.. ."*	3.3%	2.3%	2.4%	4.2%	6.7%	2.7%
Lost after the 2nd question "*May I speak to an adult…* "	5.5%	6.5%	5.1%	5.2%	N/A	5.6%
Lost after the 3rd question *"Language preference* '"	2.3%	2.3%	2.2%	6.4%	0.3%	4.3%
Lost after the survey introduction "*I'm calling regarding. ."*	8.8%	8.7%	11.2%	12.8%	1.0%	9.3%
Lost during phone evaluation	3.7%	3.5%	4.5%	N/A	N/A	N/A
Lost during household module	1.6%	1.4%	1.6%	3.7%	N/A	1.0%
Lost after roster completion	6.7%	6.4%	6.2%	6.8%	N/A	0.0%
At least one question of the content	66.9%	67.7%	65.6%	58.6%	86.1%	76.3%
Lost during the content	3.7%	4.5%	4.3%	0.7%	0.6%	0.8%
Response rate	**63.2%**	**63.2%**	**61.3%**	**57.9%**	**85.5%**	**75.5%**

At that point, we are not sure if we have talked to somebody because the interviewer could have left a message. Loss after 'May I speak to an adult", the survey introduction ("I'm calling regarding...") and after the roster selection[1] are the most important ones but this can vary by type of survey. However, the maximum loss during content module is only in the 3%-5% range. Trying to minimize the number of modules before the questionnaire content helps because for each question or module before the questionnaire content, we "open the door" for nonresponse.

It is interesting to note that the relative loss for a given survey is relatively stable between cycles which provide an additional opportunity to assess the impact of new initiatives (e.g. changes in survey introduction). For example, the survey introduction (purpose of the survey) was greatly improved and shortened for General Social Survey-cycle27 (GSS27) between GSS27- 201405 and GSS27-201407 with positive results (fewer respondents lost after the survey introduction (10.9% versus 8.7%)). Cumulatively, we lose between 25%-30% of our respondents after the survey introduction for GSS and SEPR (Survey of Emergency, Preparedness and Resilience). Cumulatively, for SEPR 201404 we lost between 28% (land line) versus 42% (cell phone) of our respondents after the survey introduction for an average of 29% for SEPR. The maximum expected response rate after the survey intro is 57% for cell phone respondents.

Table 4

	Common Household Frame							
	GSS27 201308	GSS27 201310	GSS28 201401	GSS28 201404	GSS28-201404 Cell	GSS28-201404 Land	SEPR-201404 Cell	SEPR-201404 Land
No contact at all	5.5%	5.2%	0.9%	2.4%	2.9%	2.3%	4.0%	2.0%
Lost after the 1st question " *Hello, I'm calling from STC.. .*"	4.9%	5.7%	3.4%	2.0%	3.8%	1.7%	9.9%	5.1%
Lost after the 2nd question "*May I speak to an adult…* "	7.3%	6.6%	8.0%	7.9%	13.5%	6.9%	9.7%	6.2%
Lost after the 3rd question *"Language preference* '"	3.5%	3.2%	3.8%	3.6%	4.5%	3.4%	4.5%	3.1%
Lost after the survey introduction "*I'm calling regarding.* ."	10.9%	8.7%	8.4%	8.2%	12.6%	7.4%	14.1%	11.1%
Lost during phone evaluation	5.9%	6.0%	5.9%	5.7%	7.1%	5.4%	6.0%	5.0%
Lost during household module	2.2%	2.4%	2.5%	2.2%	3.3%	2.0%	2.3%	1.8%
Lost after roster completion	13.7%	13.2%	9.7%	10.3%	10.3%	10.2%	8.7%	9.6%
At least one question of the content	46.0%	49.1%	57.2%	57.8%	42.1%	60.6%	40.7%	56.1%
Lost during the content	3.9%	3.5%	3.6%	3.4%	3.3%	3.4%	3.4%	2.8%
Response rate	**42.1%**	**45.6%**	**53.6%**	**54.4%**	**38.8%**	**57.2%**	**37.3%**	**53.3%**

5. Survey introduction and advanced letter for CCHS

As for GSS27, this project was put forward to try to minimize the loss just before or during the survey introduction. To that extent new invitation letters and survey introduction statements were produced and tested for the Canadian Community Health Survey (CCHS). CCHS is a large cross-sectional household survey that uses both CATI and CAPI collection modes. One selected member is interviewed by household[2].

Test 1 - CCHS 201407 ((July-August) and Test 2 CCHS 201409 (September-October) for CATI and CAPI

- *Test 1 and Test 2 follow the same experimental design*
  - *Test new template letter with more engaging content and shorter survey introduction*
- *Only group effect (combination of the letter and the introduction) can be tested, the design does not allow for letter effect or introduction effect to be measured or tested individually.*

Test 3 - CCHS 201501 (January-March 2015) for CATI and CAPI - New CCHS survey design

- Test shorter and more engaging survey introduction only (same advance letter)

Test 4 - CCHS 201504 (April-June2015) for CATI and CAPI - New CCHS survey design

- Test the omission of the voluntary statement

[1] Especially when the selected respondent is not the same as household respondent

[2] Starting January 2015, CCHS was completely redesigned.

Summary of the tests

Test 1 and Test2

		Invitation Letter	Survey Introduction
Group 1	Short	New template letter with more engaging content Mention of volontary	Shorter and more engaging survey introduction No mention of voluntary
Group 2	Long	Traditional long version No mention of voluntary	Traditional long version Mention of volontary
Group 3	No addresses	No letter	Traditional long version Mention of volontary

Test 3

	Invitation Letter	Survey Introduction
Group 1 Short intro	New template letter with more engaging content No mention of voluntary	Shorter and more engaging survey introduction Mention of volontary
Group 2 Long intro	New template letter with more engaging content No mention of voluntary	Traditional long version Mention of volontary
Group 3 No addresses	No letter	Traditional long version Mention of volontary

Test 4

		Invitation Letter	Survey Introduction
Group 1	Voluntary in letter	New template letter with more engaging content **Mention of voluntary**	Shorter and more engaging survey introduction No Mention of volontary
Group 2	No Volontary in the letter	New template letter with more engaging content **No mention of voluntary**	Shorter and more engaging survey introduction No Mention of volontary
Group 3	No addresses	No letter	Shorter and more engaging survey introduction No Mention of volontary*

Summary of the key findings and lessons learned

- Test 1 and Test 2 were combined (the July and September cycles) to gain statistical power
  - For the CAPI portion of the survey, there was no statistical difference
- Compared to the previous cycle, it is clear that the Test 1 had an impact since 11.2% were lost at the survey introduction in 201407 cycle compared to 8.5% for 201405. In other words we were able to bring them further along but we still lose them.
- How can we explain these results? Possible reasons
  - The fact that the 2 intros were generated randomly may have added confusion/hesitation, interviewers did not know which intro they will get – what was their reaction?
  - CATI / CAPI difference - The pace of work (amount of times a given interviewer has to read the intro and convince the respondent) is much lower for CATI, less time to convince individual, smaller window of opportunity
  - It should be noted that in Test 1 and Test 2, new invitation letters and survey introduction statements are two confounding factors - Not possible to isolate individual effect
  - Finally, it should be noted that changes to the invitation letters and survey introduction statements were not as important for CCHS compared to GSS27 where both were greatly improved. CCHS already had a very good introduction compared to GSS27.
- The idea of Test 3 was to have a more simple experimental design to test the impact of the shorter introduction statement (only one factor) on response rate.
  - There was no significant difference in the response rate between the group with the shorter and more engaging survey introduction and the group with the traditional longer introduction.
- For Test 4 we also wanted a simple experimental design to test the impact of the omission of the voluntary statement on response rates. We also decided to have the same survey introduction for all groups to avoid any possible confusion/hesitation that could come from the interviewer reading (or perhaps not) the correct introduction.
  - The group with no voluntary statement in the letter did slightly better in response rate (1%) than the group with the voluntary statement. However, the difference was not significant. The test will be re-conducted in order to increase its statistical power.

6. Collection research agenda and projects

A wide range of projects and experiments are also part of the research agenda for the near future. The data collection research team will be responsible for these short-term projects, which will focus on sound, operationally viable opportunities.

List of projects

- Test different roster options
- Test if some questions/modules (e.g. phone evaluation module) in the entry part can be moved at the end of the questionnaire
- Test voluntary versus mandatory surveys
- Review the guidelines and strategies when multiple phone numbers are available for a single case/household
- Review the guidelines for the maximum number of calls per case
- Investigate new collection strategies (e.g., minimum number of calls, different rules for cell phones and land lines, refusal-conversion strategy).
- Improve responsive design strategy and tools (e.g., investigate stopping rules for certain types of cases, integrate standard NRFU phase, investigate the possibility of beginning RCD Phase 1 earlier, improve our current survey monitoring dashboard)
- Develop guidelines for interviewer staffing to improve coordination between workload and staffing during the collection period.
- Determine the criteria necessary to identify surveys at-risk and develop a contingency plan for these surveys.

7. Conclusion

One of the goals of this short paper was to provide an update on Statistics Canada's experiences to improve response rates for household surveys. More specifically, the intent was to share noteworthy results and lessons learned from the most recent tests and initiatives (including the newly developed tool on the stage at which we are losing our survey respondents). However as it is the tradition of the Nonresponse Workshop, the main objective is to ***promote discussions*** about potential initiatives and measures that statistical agencies could be implementing to improve response rates.

8. List of potential questions and issues for discussion

- To what extent does Statistics Canada's approach to non-response differ from those of other organizations?
- Are there other strategies that could be used to improve response rates?
- What are the main criteria used to identify 'surveys at risk'?
- If we had to prioritize projects or tests, which would be the most important?
- With the move towards multi-mode collection how do we measure/monitor the impact of multi-mode collection on response rates and what strategies do we implement to manage this emerging risk?
- Is it possible to think about international cooperation, even though certain environmental factors affecting non response may vary between countries?