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2014 AMERICAN COMMUNITY SURVEY RESEARCH AND EVALUATION REPORT
MEMORANDUM SERIES ACS14-RER- 07

MEMORANDUM FOR	ACS Research and Evaluation Advisory Group
From:	James B. Treat **(signed 04/02/2014)** Chief, American Community Survey Office
Prepared by:	Deborah H. Griffin American Community Survey Office
Subject:	Reducing Respondent Burden in the American Community Survey's Computer Assisted Personal Visit Interviewing Operation – Phase 2 Results

Attached is the final American Community Survey Research and Evaluation report on reducing burden on respondents in the Computer Assisted Personal Visit Interviewing (CAPI) data collection mode. This project includes three phases. Phase 1 summarizes the current workloads, costs, burden, and quality associated with CAPI. Phase 2, this report, identifies a set of stopping rules that we will simulate in Phase 3.

If you have any questions about this report, please contact Deborah Griffin at (301) 763-2855.

Attachment

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MARCH 25, 2014

Reducing Respondent Burden in the American Community Survey's Computer Assisted Personal Visit Interviewing Operation – Phase 2 Results

FINAL REPORT

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BACKGROUND

The motivation for this project is twofold. Of primary importance is addressing criticism from external stakeholders and survey respondents about the burden associated with repeated contact attempts in the American Community Survey (ACS). However, rising costs associated with field data collection suggest the need to understand the value of multiple Computer Assisted Personal Visit Interviewing (CAPI) contact attempts in reducing survey error. The goal of this research is to quantify the costs, burden, and quality associated with CAPI contact attempts and identify possible interventions that might reduce respondent burden without a significant cost increase or loss in data quality.

This research is an extension of work recently completed for the Computer Assisted Telephone Interviewing (CATI) operation (Griffin & Hughes 2013). Based on a review of alternative CATI stopping rules, the Census Bureau made changes to the specific call parameters used in the ACS. These changes reduced costs and respondent burden in CATI.

This project includes three phases:

- The initial phase summarizes the current state of CAPI in the ACS using 2011 and 2012 CAPI results. Zelenak (2014-draft) includes documentation of average monthly CAPI workloads, CAPI outcomes, and contact attempt distributions. Nelson & Griffin (2014-draft) supplements that information with detail on reluctance reasons, patterns of contacts, respondent burden estimates, cost estimates, and quality metrics. This initial phase used case history information from the CAPI Contact History Instrument (CHI) and from other case history files for CATI and cost information from the Cost and Response Management Network (CARMN). Phase 1 documentation baselines current operational performance and quality for this research as well as future adaptive design projects.

- In Phase 2 we referred to the Phase 1 summaries to identify potential changes to CAPI data collection rules that might reduce respondent burden. Because the current CAPI control systems limit the ability for us to implement certain types of changes, we eliminated ideas for potential changes that required the most extensive system or instrument changes. Phase 2 documents the stopping rules that this project will simulate in Phase 3.

- In the third phase, we will use 2012 production data to estimate the effects of the proposed alternative rules on respondent burden, costs, and quality. Refer to Griffin (2013) for details on the proposed measures of burden, cost, and quality. Our research will compare the relative costs and benefits across stopping rules to identify one or more possible changes to CAPI data collection rules. Upon completion of this research, we plan to work with Field Division (FLD) to determine the comparative ease of implementation of the best options and address feasibility issues. Based on the combination of the cost/benefit analysis and the feasibility of implementation, we will recommend specific changes to existing CAPI methods and procedures. We plan to limit the initial Phase 3 analysis to national-level results. Future research will look at lower levels of geography.

INTRODUCTION

This evaluation report summarizes the methodology that we used in Phase 2 and identifies a set of stopping rules proposed for analysis in Phase 3. It serves as the specification of Phase 3 interventions. We chose to summarize Phase 2 in the form of an evaluation report to provide background on how we arrived at the set of stopping rules that this CAPI respondent burden project will analyze. Unlike other research and evaluation reports, these results are only an intermediate step in our evaluation. Note that this report does not propose field implementation of any of these stopping rules. Rather, they are ideas that we plan to continue to research to assess the potential for reductions in costs and burden and the associated effects on survey quality. We also expect that the Phase 3 results may suggest additional variations on these stopping rules that are worthy of additional analysis.

METHODOLOGY

Staff from the American Community Survey Office (ACSO), the Decennial Statistical Studies Division (DSSD), the Center for Survey Measurement (CSM), the Center for Statistical Research and Methods (CSRM), and FLD reviewed the Phase 1 summaries to identify potential CAPI inefficiencies and opportunities to reduce respondent burden. The team studied contact attempt distributions and CAPI outcomes. Attachment A includes one of the reports that we reviewed to develop ideas for interventions. Regional office and field representative-level results allowed the team to consider if outliers drove some potential problems or if the results suggested that a majority of regional offices and field representatives (FRs) were involved.

To identify possible interventions, the team brainstormed ideas of possible ways to stop data collection based on rules that use existing paradata. We created a list of possible interventions. Staff in FLD assessed some of the interventions in terms of its ability to reduce burden and costs and its ease of implementation (Appendix B includes this information for some of the ideas). They also identified associated issues to consider and possible implications. We reviewed each intervention with a focus on the complexity of its implementation, the potential for the intervention to reduce costs and burden on respondents, and the likely effect on quality. We also supplemented the list with new ideas. From the original list of alternatives, the team eliminated any ideas that we concluded would be either (1) infeasible to implement in the short-term or (2) unlikely to have an impact on reducing respondent burden.

The team did not agree on the potential value of some of these interventions and identified legitimate concerns about some implementation issues. Nonetheless, we chose to continue to include some controversial ideas in the final stage of this research to have information that might make a case for attempting to address those implementation challenges. Although the focus of Phase 2 was to identify possible interventions that appeared to be most feasible for an early implementation, it is clear that many of these proposed interventions would require the development of some systems changes for FRs and managers to be able to implement the intervention effectively. It will be easier to introduce some proposed interventions in an automated manner once the ACS is using the Multi-Mode Operational Control System (Maestro).

In addition, the team acknowledged that any intervention that reduces the number of completed interviews in a way that affects FR response rates also requires research into modifying ACS FR

performance standards prior to implementation in order to manage performance under these new procedures.

Table 1 includes the initial set of proposed interventions and the team's assessment of whether the idea meets the criteria for Phase 3 research. For some interventions, we list possible variations in bullets under the general idea. We identified several interventions as important to pursue but infeasible in the short-term and recommend that the ACS consider them in the future. We also questioned if some of these ideas would have a positive effect on reducing respondent burden, our major objective. We chose not to include ideas without an expected reduction in respondent burden (i.e., those with a "no" under "Burden-reducing" in Table 1) in our Phase 3 analysis although they too may warrant attention as ways to improve cost-efficiency. We chose not to include option #10 despite its potential to meet both criteria because we could not simulate the impact in our Phase 3 research.

Each of these ideas involves some form of truncation of CAPI data collection, allowing us to estimate the possible effects in Phase 3 using our existing full CAPI data collection dataset. The team acknowledged that our Phase 3 estimates would be an imperfect approximation of what might happen if we implemented these revised rules in production. In production, we know we cannot "truncate" data collection. We expect that FR and survey manager behavior during CAPI would change. Therefore, additional testing, experiments, or evaluations may be necessary to identify and refine the most effective strategies prior to full implementation.

We reviewed the four interventions (and their bulleted variations) that we determined should move into Phase 3. We chose to organize them by the type of stopping rule. We added an intervention that we had not listed in Table 1 – one that involved propensity scores. In many ways a propensity score reflects the paradata used in other stopping rules. We converted the general idea behind each stopping rule into a set of specific rules. We based our choice of thresholds in these rules on Phase 1 data, when available. For some rules we plan to adjust the rules once we see the distribution of results.

RESULTS

Overview

Phase 1 identified a set of FRs with a high proportion of their workload requiring multiple contact attempts. After reviewing these summaries, FLD wanted to try to implement a method to address high contact attempt cases immediately by reminding field supervisors to monitor the number of contacts that each FR attempts. FLD wanted to try to address these outlier instances by improving regional office oversight of FR-level behavior and sent a memorandum to the regional offices requesting that they use Unified Tracking System (UTS) reports to monitor the distribution of cases by number of required contact attempts (Monaghan 2013). They hope that highlighting the extreme cases to field supervisors can reduce the number of cases with the highest numbers of contact attempts. Existing UTS reports do not provide the ideal tools for field supervisors and FLD and ACSO continue to work with UTS to develop a better set of reports.

Table 1. Brainstorming Results - Interventions

Description of Intervention	Feasible in short-term	Burden-reducing	Move into Phase 3
1. Change procedures to clarify that the ACS now includes a maximum number of total CAPI contact attempts. Develop new stopping rules using CHI data. • All contact attempts are equal • Distinguish contact attempts resulting in an actual contact from those that are unsuccessful attempts (noncontacts) • Distinguish between certain types of contact attempt outcomes (e.g., those with reluctance)	YES	YES	**YES**
2. Impose a maximum number of CAPI contact attempts that varies. • Vary based on CATI status and outcome • Vary based on a cumulative burden score that takes all previous modes and outcomes into account • Vary based on location of sample unit (i.e., certain geographies allowed additional effort)	YES	YES	**YES**
3. Stop CAPI follow up contacts after certain types of reluctance outcomes (i.e., convert refusal outcomes to a final outcome of refusal without further contacts).	YES	YES	**YES**
4. Improve training and FR tools on optimal times to contact a household. Two basic options: • Use CHI data on timing of successful contact attempts to develop tips for FRs to use when they plan their visits. • Produce detailed data on characteristics of neighborhood as background for FRs when they are trying to determine when to attempt a contact	YES	NO	NO
5. Do not send to CAPI if they were CATI refusals with a reason other than reluctance to participate by phone.	YES	YES	**YES**
6. Impose maximum number of contact attempts for cases believed to be vacant (i.e., reduce efforts to gain verification of vacancy status)	YES	NO	NO
7. Extend "no phone call" rule or require initial personal visit for all sample cases	YES	NO	NO
8. Eliminate distinct interview periods and allow cases that we determine we cannot mail or that the USPS returns as undeliverable to go straight to CAPI; allow cases without phone numbers to go straight to CAPI after unsuccessful mail contacts.	NO	NO	NO
9. Implement dynamic CAPI subsampling based on actual interviewing results in pre-CAPI modes versus using static rates based on expected levels of response.	NO	NO	NO
10. Encourage respondents to respond by Internet or paper during CAPI period (through additional mail contacts or FR instruction)	YES	YES	NO
11. Develop a streamlined version of the CAPI instrument and use it in the hardest-to-count areas to collect data for critical questions only.	NO	YES	NO
12. Set an expiration date on CAPI cases and reassign (e.g., allow 2 weeks for a FR to complete a case, otherwise reassign it to another FR or a supervisor).	NO	NO	NO

This results section organizes the Table 1 ideas that we determined to be eligible for Phase 3, into the following major categories of interventions. Each involves a set of specific stopping rules based on available paradata and/or frame data.

- Stop CAPI after a maximum number of total CAPI contact attempts
- Stop CAPI after certain types and outcomes of CAPI contact attempts
- Stop CAPI after a maximum number of CAPI contact attempts based on CATI status
- Stop CAPI when reach maximum cumulative burden estimate
- Stop CAPI after a maximum number of CAPI contact attempts based on where the address is located
- Stop CAPI based on propensity scores

Stopping Rules

We had to convert these proposed types of interventions into specific stopping rules or scenarios in order to simulate them in Phase 3. When available, we used Phase 1 data to define specific thresholds (e.g., total contact attempts or total contacts with a household member). Because we needed to define the Phase 2 rules before the completion of all Phase 1 analyses, we expect to continue to refine some of the specific thresholds.

This section defines the 27 specific stopping rules (organized by major intervention category) that we plan to research in Phase 3.

Stop CAPI after a maximum number of total CAPI contact attempts

This set of interventions would equate to changing the CAPI procedures to clarify that we are now enforcing a maximum number of total contact attempts, as measured by CHI. The procedures would instruct the FRs to exceed this maximum number of contact attempts only after obtaining supervisory approval. In our analysis, we will look at various maximum contact attempt values (6, 7, 8, 9, and 10). Under this intervention, we would treat all contact attempts equally (e.g., a contact resulting in a refusal is equal to a drive by with no contact made). System enhancements to FR laptop Case Management may be necessary to easily display the total number of attempts made thus far to make it clearer to the FR how many allowed attempts remain. We would develop supervisory reports with key summary statistics for each FR on the number of contact attempts for each case. FR training would emphasize this change in methods.

The five specific stopping rules include:

1. Stop CAPI data collection when a case reaches 6 contact attempts (contact attempts includes all attempts, regardless of outcome).
2. Stop CAPI data collection when a case reaches 7 contact attempts (contact attempts includes all attempts, regardless of outcome).
3. Stop CAPI data collection when a case reaches 8 contact attempts (contact attempts includes all attempts, regardless of outcome).

4. Stop CAPI data collection when a case reaches 9 contact attempts (contact attempts includes all attempts, regardless of outcome).
5. Stop CAPI data collection when a case reaches 10 contact attempts (contact attempts includes all attempts, regardless of outcome).

Stop CAPI after certain types and outcomes of CAPI contact attempts

Similar to the first set of options, these interventions would involve more complex stopping rules that consider the type of contact attempt and its outcome. For example, we might not count an initial contact attempt that was an unsuccessful phone call against the maximum or the stopping rules could allow a maximum number of noncontacts that differ from the maximum number of actual contacts. Another option might be to develop rules that only allow a maximum number of certain types of outcomes (e.g., the total number of unsuccessful phone attempts or the total number of "no one home" outcomes). Implementation of these options becomes more complicated, and more significant systems enhancements would be necessary. A propensity score is another way to summarize these factors.

A specific stopping rule might also stop CAPI contacts after certain CAPI outcomes. FRs currently identify the reason for respondent reluctance in CHI. We could use this coded result to implement a stopping rule that acknowledges certain patterns of reluctance. Cases meeting these patterns would not be eligible for additional follow up attempts. The potentially complex nature of these rules makes it likely that significant systems enhancements would need to be in place in order to make these interventions. We would need to improve FR training and modify case assignment procedures if we pursue this option.

The six specific stopping rules include:

6. Stop CAPI data collection after 2 contact attempts with any form of reluctance[1]
7. Stop CAPI data collection after 3 contact attempts with any form of reluctance
8. Stop CAPI data collection after 1 contact attempt with a firm reluctance
9. Stop CAPI data collection after 2 contact attempt with a firm reluctance
10. Stop CAPI data collection after 2 contacts (with a household member) regardless of reluctance status
11. Stop CAPI data collection after 3 contacts (with a household member) regardless of reluctance status

Stop CAPI after a maximum number of CAPI contact attempts based on CATI status

These interventions are a variation on the previous interventions with maximum values based on the CATI call history. For example, cases with two CATI refusals might have a lower maximum number of allowed CAPI contact attempts. We would allow cases with no mail or CATI contacts (e.g., unmailable addresses) the greatest number of possible CAPI contact attempts. Like the previous option, this option would require changes to FR laptop case management and related systems and procedures.

The five specific stopping rules listed below treat all contact attempts equally:

[1] We continue to review Phase 1 data on reluctance to determine the optimal cut-offs for rules 6 and 7.

12. Stop CAPI data collection when a case reaches a total of 3 contact attempts if the case was a CATI refusal, 4 if the case was another type of CATI noninterview, and 6 for all other cases
13. Stop CAPI data collection when a case reaches a total of 4 contact attempts if the case was a CATI refusal, 5 if the case was another type of CATI noninterview, and 7 for all other cases
14. Stop CAPI data collection when a case reaches a total of 5 contact attempts if the case was a CATI refusal, 6 if the case was another type of CATI noninterview, and 8 for all other cases
15. Stop CAPI data collection when a case reaches a total of 6 contact attempts if the case was a CATI refusal, 7 if the case was another type of CATI noninterview, and 9 for all other cases
16. Stop CAPI data collection when a case reaches a total of 7 contact attempts if the case was a CATI refusal, 8 if the case was another type of CATI noninterview, and 10 for all other cases

Stop CAPI when reach maximum cumulative burden estimate

These options are also a variation on the basic option using a "respondent burden" score based on prior contact history and the types of contact attempts. For example, a CAPI drive-by may have a burden of 1 while a CAPI or CATI refusal would have a burden of 4. We would need to introduce systems enhancements and procedural changes. Under this option, no case could exceed some specified burden value. To develop these scores we propose a method similar to the method used in the CATI work (Griffin & Hughes 2013). In that research we tallied each contact attempt in CATI and assigned a score based on our assessment of its relative burden to the respondent. For this research we consider the mail and CATI status along with the CAPI outcomes. We would calculate an incoming burden score and update it after each CAPI contact attempt. See Appendix C for details on the methodology we propose to assign burden based on type of contact attempt and outcome.

We defined the following two stopping rules:

17. Stop CAPI data collection when case reaches a cumulative burden score of 30 or more[2]
18. Stop CAPI data collection when case reaches a cumulative burden score of 40 or more

Stop CAPI after a maximum number of CAPI contact attempts based on address location

Under this set of options, we would vary the maximum number of contact attempts based on several alternative stratifications. One option uses the three field performance strata (FPS) defined in Erdman at al. 2013-draft. This stratification partitions all addresses in a block group into one of three strata based on the expected ease of data collection in CAPI of that block group. In this document I refer to these three strata as FPS1, FPS2, and FPS3. FPS1 includes the addresses that we expect to be the easiest to interview. FPS2 includes addresses in block groups that we expect to be harder, but not the hardest to interview. We expect that addresses in FPS3 to be the most challenging to contact and interview.

A second stratification uses the CAPI subsampling strata, again allowing more contact attempts in the areas with the largest subsamples. The ACS currently employs five different CAPI subsampling rates. We sample addresses in selected American Indian and Alaska Native areas at 100 percent. We sample addresses that we determined were unmailable, and therefore ineligible for previous data collection modes, at a rate of 2-in-3. We sample mailable addresses at 1-in-2, 2-in-5, and 1-in-3 based on the

[2] We may refine these specific thresholds after looking at distributions of cumulative burden scores.

expected level of response in the self-response and CATI modes of their tract. In the rules below, we label these five strata as CSS1 (1-in-3), CSS2 (2-in-5), CSS3 (1-in-2), CSS4 (2-in-3), and CSS5 (take all).

A third stratification defines areas with historically high survey response rates and restricts the maximum contacts in these areas. In the rules below, we identify areas with historical survey response rates that exceed 98 percent as high response areas (HRA).

We defined the following six stopping rules:

19. Stop CAPI data collection based on total contact attempts, vary based on FLD performance strata (Max of 6 if FPS1, Max of 8 if FPS2, Max of 10 if FPS3)
20. Stop CAPI data collection based on total contact attempts, vary based on FLD performance strata (Max of 4 if FPS1, Max of 6 if FPS2, Max of 8 if FPS3)
21. Stop CAPI data collection based on total contact attempts, vary based on CAPI sampling strata (Max of 6 if CSS1, Max of 7 if CSS2, Max of 8 if CSS3, Max of 10 if CSS4 or CSS5)
22. Stop CAPI data collection based on total contact attempts, vary based on CAPI sampling strata (Max of 4 if CSS1, Max of 5 if CSS2, Max of 6 if CSS3, Max of 8 if CSS4 or CSS5)
23. Stop CAPI data collection based on total contact attempts, vary based on historical survey response rates (Max of 6 if HRA, Max of 8 if not)
24. Stop CAPI data collection based on total contact attempts, vary based on historical survey response rates (Max of 4 if HRA, Max of 6 if not)

Stop CAPI based on propensity scores

These interventions involve a daily calculation of a propensity score – the likelihood of obtaining an interview on the next contact attempt. The model behind these scores considers previous outcomes and attempts and the geographic location of the address. This option depends not only on the modeling strategy used to fit the propensity model, but also on the allowed data horizon used to fit the model.

Phase 3 will simulate the following three stopping rules:

25. Stop CAPI data collection if the propensity score is less than 15%
26. Stop CAPI data collection if the propensity score is less than 20%
27. Stop CAPI data collection if the propensity score is less than 25%

CONCLUSION

This report identifies 27 specific stopping rules that we plan to simulate in our Phase 3 analyses. We summarize them in Table 2. We will use existing survey paradata and propensity models to operationalize each scenario. Based on the Phase 3 results, we hope to identify one or more options that hold promise to address respondent burden in a significant way without serious effects on data quality. We plan to assess burden by estimating reductions in total contacts and reductions in mean cumulative burden scores. We plan to measure loss in quality as estimates of the likely number of lost interviews and the potential increases in nonresponse bias. Refer to Griffin (2013) for detail on Phase 3 metrics.

Table 2. Summary of Proposed Stopping Rules

#	Rule – Stop CAPI data collection…
1	when a case reaches 6 contact attempts (contact attempts includes all attempts, regardless of outcome)
2	when a case reaches 7 contact attempts (contact attempts includes all attempts, regardless of outcome)
3	when a case reaches 8 contact attempts (contact attempts includes all attempts, regardless of outcome)
4	when a case reaches 9 contact attempts (contact attempts includes all attempts, regardless of outcome)
5	when a case reaches 10 contact attempts (contact attempts includes all attempts, regardless of outcome)
6	after 2 contact attempts with any form of reluctance
7	after 3 contact attempts with any form of reluctance
8	after 1 contact attempt with a firm reluctance
9	after 2 contact attempts with a firm reluctance
10	after 2 contacts (with a household member) regardless of reluctance status
11	after 3 contacts (with a household member) regardless of reluctance status
12	when a case reaches a total of 3 contact attempts if the case was a CATI refusal, 4 if the case was another type of CATI noninterview, and 6 for all other cases
13	when a case reaches a total of 4 contact attempts if the case was a CATI refusal, 5 if the case was another type of CATI noninterview, and 7 for all other cases
14	when a case reaches a total of 5 contact attempts if the case was a CATI refusal, 6 if the case was another type of CATI noninterview, and 8 for all other cases
15	when a case reaches a total of 6 contact attempts if the case was a CATI refusal, 7 if the case was another type of CATI noninterview, and 9 for all other cases
16	when a case reaches a total of 7 contact attempts if the case was a CATI refusal, 8 if the case was another type of CATI noninterview, and 10 for all other cases
17	when case reaches a cumulative burden score of 30 or more
18	when case reaches a cumulative burden score of 40 or more
19	based on total contact attempts, vary based on FLD performance strata (Max of 6 if FPS1, Max of 8 if FPS2, Max of 10 if FPS3)
20	based on total contact attempts, vary based on FLD performance strata (Max of 4 if FPS1, Max of 6 if FPS2, Max of 8 if FPS3)
21	based on total contact attempts, vary based on CAPI sampling strata (Max of 6 if CSS1, Max of 7 if CSS2, Max of 8 if CSS3, Max of 10 if CSS4 or CSS5)
22	based on total contact attempts, vary based on CAPI sampling strata (Max of 4 if CSS1, Max of 5 if CSS2, Max of 6 if CSS3, Max of 8 if CSS4 or CSS5)
23	based on total contact attempts, vary based on historical survey response rates (Max of 6 if HRA, Max of 8 if not)
24	based on total contact attempts, vary based on historical survey response rates (Max of 4 if HRA, Max of 6 if not)
25	if the propensity score is less than 15%
26	if the propensity score is less than 20%
27	if the propensity score is less than 25%

After Phase 3 data are analyzed, the team will need to determine the relative operational challenges of the "best" options and if we want to consider any additional research in the form of methods panel testing. Only after those discussions will we entertain changes to data collection procedures and training and possibly, changes to data collection instruments.

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Table 1. Distribution of CAPI Contact Attempts – 2012 ACS

All CAPI Cases			
Total CAPI Contact Attempts	**Average Cases Each Month**	**Percent of Total CAPI Workload**	**Cumulative Percent**
1	21,086	36.7	36.7
2	14,528	25.3	62.0
3	7,680	13.4	75.4
4	4,583	8.0	83.4
5	2,929	5.1	88.5
6	1,924	3.4	91.8
7	1,318	2.3	94.1
8	936	1.6	95.7
9	657	1.1	96.9
10	472	0.8	97.7
11	336	0.6	98.3
12	250	0.4	98.7
13	183	0.3	99.1
14	136	0.2	99.3
15	93	0.2	99.4
16	77	0.1	99.6
17	57	0.1	99.7
18	35	0.1	99.7
19	34	0.1	99.8
20 or more	114	0.2	100.0
TOTAL	**57,425**	**100.0**	**100.0**

Source: January – December 2012 CAPI

Table 2. Distribution of CAPI Final Outcomes – 2012 ACS

CAPI Final Outcome	Average Cases Each Month	Percent of Total Workload	Percent of Eligible Workload
Completed Interview (occupied)	33,037	57.5	61.6
Completed Interview (vacant)	15,065	26.2	28.1
Completed Interview (temporarily occupied)	419	0.7	0.8
Sufficient Partial Interview (occupied)	589	1.0	1.1
Late mail return	1,977	3.4	3.7
INTERVIEW SUBTOTAL	**51,087**	**89.0**	**95.2**
Type A noninterview – language problem	28	0.0	0.0
Type A noninterview – unable to locate	43	0.1	0.1
Type A noninterview – no one home	651	1.1	1.2
Type A noninterview – residents temporarily absent	100	0.2	0.2
Type A noninterview – respondent refusal	1,256	2.2	2.3
Type A noninterview – all other reasons	481	0.8	0.9
Type B noninterview – unable to access	3	0.0	0.0
NONINTERVIEW SUBTOTAL	**2,560**	**4.5**	**4.8**
ELIGIBLE SUBTOTAL	**53,647**	**93.4**	**100.0**
Type C noninterview – under construction	90	0.2	--
Type C noninterview – demolished	515	0.9	--
Type C noninterview – house or trailer moved, empty mobile home site	652	1.1	--
Type C noninterview – permanent business or storage	488	0.8	--
Type C noninterview – merged with another unit	75	0.1	--
Type C noninterview –condemned	80	0.1	--
Type C noninterview – unit nonexistent (basic street address found) or address nonexistent	684	1.2	--
Type C noninterview –Group Quarters	156	0.3	--
Type C noninterview – all other reasons	1039	1.8	--
INELIGIBLE SUBTOTAL	**3,778**	**6.6**	**--**
TOTAL CAPI workload	**57,425**	**100.0**	**--**

Source: January – December 2012 CAPI

APPENDIX B

Comments on Proposed Interventions

Intervention	Reduce Burden?	Reduce Costs?	Ease of Implementation	Issues	Implications
1.Enforce a new max contact stopping rule	Yes, on some cases	Nominal savings, could require more supervisory time	Can this be enforced manually or does it need to be automated?	Concern about using total contact attempts – better to distinguish between types of attempts	May lead to decreased use of CHI; response rates could be affected and how does this affect FR performance measurement
2. Enforce a new stopping rule based on max total contacts and case history	Yes	Like #1	Like #1, requires method to provide case history to FRs	Assumes that CATI and CAPI attempts are equal in value/burden	Implications for CATI; perhaps change CATI versus CAPI rules?
3. Devise stopping rules based on a cumulative burden score that considers all previous contacts and outcomes	Yes, seems more flexible than #1 and #2	Maybe	Complicated from an IT perspective; also requires greater attention given to CHI completion being accurate.	Response challenges and FR performance measurement	Concerns about FR behavior and likelihood of greater pressure to get an interview earlier that might increase burden
4. Enforce max contact attempts as stopping rules for cases suspected to be vacant units	Nominal, doesn't really involve household members	Maybe, need to understand scope	Modest effort, enforcement might be difficult	Could reduce quality of vacant classifications	
5. Change CAPI subsampling to take CATI outcome into account; exclude certain cases from CAPI workload	Yes	Maybe	Invisible to FLD		Would this really affect workloads?
6. Change procedures on use of telephone in CAPI – extend "no phone call" rules to all CATI noninterviews. Eliminate discretionary efforts to obtain phone numbers.	Concern that left notes are equally or more "intrusive" than phone calls	No – likely to increase costs	Hard to control	Could introduce significant complexity	Numerous concerns about implication
7. Require PV for every case	Like #6	Will definitely increase costs			
8. Clarify stopping rules (when to accept a type A). Make certain outcomes a last attempt.					
9. Create training that focuses more on time between attempts and need to cover the 3 major windows of interviewing (weekday day and night, weekend)					
10.Variation on #9 that involves providing neighborhood information to FRs with training on how this may suggest optimal timing for contacts					

Cumulative burden scoring

The basic idea behind this method is to tally each contact attempt (in any mode) as a separate increment of burden. We assign a score based on the relative burden of the various contact attempts. The stopping rule would involve a threshold of cumulative burden and when a case reaches or passes that threshold, we stop CAPI contact attempts. This option starts by establishing a set of "incoming burden scores" based on the CATI/mail status. We acknowledge that cases that were mailable had four or five mail contact attempts. Cases that entered CATI with a good telephone number have additional contact attempts and possibly, additional contact outcomes that suggest levels of burden. For example, we could assign the following scores based on the incoming status of a case.

- If unmailable (no contact made to date) = 0
- If mailable, nonresponse to Internet and mail modes AND either no phone number or "bad" phone number so no CATI contact attempts (case had mail contacts only) = 8
- If mailable, nonresponse to Internet and mail modes AND nonresponse in CATI (case had mail and phone contacts) = 12 if call max or another noninterview reason in CATI; = 20 if refusal or hang-up max in CATI[3]

The rule then increments the burden for every CAPI contact attempt. These are possible options:

- A CAPI contact attempt by phone or in-person that makes no contact and is likely invisible to the respondent (e.g., a drive-by or a ring-no-answer) has an added score of 1.
- A CAPI contact attempt that makes no contact and is visible to the respondent (e.g., a message left on a machine, a letter sent, a note left on a door) has an added score of 2 if by phone or 3 if in-person.
- A CAPI contact attempt that makes contact with no reluctance expressed has an incremental score of 4 if by phone or 6 if in-person.
- A CAPI contact attempt that expresses reluctance (but not strong) has an added score of 8 if contacted by phone or 10 if contacted in-person.
- A CAPI contact attempt that expresses STRONG reluctance has an added score of 12 if the attempt was by phone or 15 if it was in-person.

We could establish a stopping rule based on several different cumulative burden values. We should look at the data to assess current distributions and define these cutoffs after that. For example, if our stopping rule was set at 30 we could have the following outcomes. A case that was unmailable with two unsuccessful drive-by attempts has a score of 2; if the next contact attempt was a strong refusal (PV), the new score is 17 and we would continue. If the case entered with a CATI history of being a noninterview due to a refusal and then had two unsuccessful drive-by attempts, it has a score of 22 and if the next contact were a strong refusal (PV), the score would reach 37, we would stop.

[3] This group could include a small number of cases that were unmailable with a phone number that went to CATI.

We could develop many variations on these burden rules, including some that acknowledge combinations of attempts/outcomes. For example, a CAPI contact attempt that is the second reluctance (not strong) might have a score of 12, rather than 10. We could also establish varying thresholds depending on the area where the sample address is located (e.g., we might allow areas with historically low response rates to have higher cumulative burden values to increase their levels of response.