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2016 AMERICAN COMMUNITY SURVEY RESEARCH AND EVALUATION REPORT
MEMORANDUM SERIES #ACS16-RER-16

MEMORANDUM FOR   ACS Research and Evaluation Advisory Group

From: Victoria Velkoff *(signed Victoria Velkoff)*
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Subject: 2016 American Community Survey Respondent Burden Testing

Attached is the final American Community Survey Research and Evaluation report "2016
American Community Survey Respondent Burden Testing." This report summarizes the
cognitive testing results for questions that have been determined to have high burden scores –
questions for likely sources of difficulty, sensitivity, and burden. The Census Bureau and a
broader set of federal data users, including the OMB Interagency Committee for the ACS,
developed potential question revisions that may reduce this burden. To evaluate these
modifications, the Census Bureau contracted with Westat to conduct cognitive testing from June
7 through June 28, 2016 on changes to the following topics.

> Year the respondent's house was first built;
> Computer and smartphone ownership;
> Type of Internet access;
> Telephone service;
> Year of naturalization and year of entry to the United States;
> Address for place of residence;
> Address for place of work;
> Number of weeks worked in the past 52 weeks.

If you have any questions about this report, please contact Agnes Kee at 301-763-1516 or Megan
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Attachment

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2016 American Community Survey Respondent Burden Testing

FINAL Briefing Report

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Westat

1. Overview

The American Community Survey (ACS) continuously collects demographic, economic, housing, and social data from households. These data are invaluable to Federal, state, and local governments, researchers, and businesses. Given the importance of the data and the need to ensure continuity with previous data collections, changes to the ACS generally require rigorous testing.

According to the Census Bureau, it takes an average of 40 minutes per household to respond to the 72 questions included on the ACS. The Census Bureau is aware that respondents find some of these questions sensitive, personal, or difficult to answer, and that it is unclear to ACS respondents why the Census Bureau needs to collect information on some topics. Response to the ACS is required by law, and the multiple contact attempts by mail, telephone and personal visit can be perceived by some respondents as harassment. To help address these concerns, the Census Bureau conducted a survey of 1,000 ACS interviewers to identify questions that were perceived as difficult or intrusive for respondents. Based on the results of that survey and after working closely with stakeholders from other Federal agencies to understand their needs, Census has developed a variety of strategies for reducing respondent burden related to certain ACS items. (See: http://www.census.gov/programs-surveys/acs/operations-and-administration/2015-16-survey-enhancements.html)

For each survey question determined to have high burden from the scoring done in the 2014 ACS Content Review[1], the Census Bureau examined the questions for likely sources of difficulty, sensitivity and burden. The Census Bureau then determined potential question revisions that may reduce this burden, and engaged a broader set of Federal data users, including the OMB Interagency Committee for the ACS, to develop recommendations for question modifications. To evaluate these modifications, the Census Bureau contracted with Westat to conduct cognitive testing of changes to ACS items that collect data on the following topics:

- Year the respondent's house was first built;

- Computer and smartphone ownership;

- Type of Internet access;

- Telephone service;

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[1] See "Final Report: American Community Survey (ACS) Fiscal Year 2014 Content Review Results" for a discussion of the burden scores, available at: http://www.census.gov/programs-surveys/acs/operations-and-administration/2014-content-review/methods-and-results.html

- Year of naturalization and year of entry to the United States;

- Address for place of residence;

- Address for place of work;

- Number of weeks worked in the past 52 weeks.

Westat's Instrument Design, Evaluation, and Analysis (IDEA) Services conducted 72 cognitive interviews for an initial round of testing between June 7 and June 28, 2016. This report summarizes the data collection methods and presents the findings and recommendations from the 72 cognitive interviews, all of which were conducted in English.

2. Methods

Westat's IDEA Services unit developed the cognitive interview protocols, conducted intensive recruiting to meet the complex requirements for respondent characteristics, and conducted and analyzed the 72 interviews.

2.1   Protocol Development

Protocol development consisted of crafting language for the introduction and informed consent; detailed interviewer instructions; selection criteria for Persons 2 and 3; the research questions for each tested item; and scripted probes for each tested item. The Census Bureau provided us with the relevant portions of the American Community Survey (ACS) instrument to be used in testing. These consisted of one or more versions of the tested items plus contextual items appearing before and after the tested items.

Based on item placement in the ACS and ease of administration, the Census Bureau created three groups for cognitive testing: Respondents in Group 1 received questions about the year in which their houses were first built; computer and smartphone ownership; means of accessing the Internet; and telephone service and usage. In addition, Group 1 respondents who completed the survey in CAI mode were presented with the Year of Naturalization and Year of Entry questions. Similarly, Group 2 CAI respondents were presented with the questions about the year in which their houses were built; computer and smartphone ownership; means of accessing the Internet; telephone service and usage; and the Year of Naturalization and Year of Entry questions. Group 2 respondents who completed the survey in the Internet mode, however, only answered the Year of Naturalization and Year of Entry questions. Group 3 topics included the address for place of residence; address for place of work; number of weeks worked in the past 52 weeks; and average number of hours worked per week. Group 3 topics were tested in both CAI and Paper modes because at the time of this cognitive assessment, testing and development for the 2020 Decennial Census was exploring a different method for the collection of address information via the Internet. The American Community Survey Office wanted to see those results before testing different methods for ACS Internet data collection. As depicted in Table 2-1, the team developed a total of 12 protocols, each one tailored to the Group (1, 2, or 3), question version (for those with alternate language being tested), and mode of administration. All Internet mode testing was conducted using paper screenshots rather than web-based images.

Table 2-1. Topic, mode, and item version appearing in each of 12 protocols

GROUP TOPIC	Group 1 Protocol CAI 1	Group 1 Protocol CAI 2	Group 1 Protocol Internet 1	Group 1 Protocol Internet 2	Group 2 Protocol CAI 1	Group 2 Protocol CAI 2	Group 2 Protocol Internet 1	Group 2 Protocol Internet 2	Group 3 Protocol CAI 1	Group 3 Protocol CAI 2	Group 3 Protocol Paper 1	Group 3 Protocol Paper 2
Housing Year Built – Short Intervals	●		●		●							
Housing Year Built – Wide Intervals		●		●		●						
Computer Devices and Internet Access	●	●	●	●	●	●						
Year of Naturalization & Year of Entry – 5-Year Intervals	●				●		●					
Year of Naturalization & Year of Entry – Wide Intervals		●				●		●				
Home Address									●	●	●	●
Work Address									●	●	●	●
Weeks Worked, then Hours Worked									●		●	
Hours Worked, then Weeks Worked										●		●

Probing was entirely retrospective, with probes asked only after all items had been administered for up to three individuals in the household. One limitation of this approach is that respondents may have difficulty recalling what they were thinking about when answering a particular survey item. However, because many of the topics had interrelated items (e.g., the series of questions regarding computers and Internet access, questions about weeks and hours worked), and because there were only a handful of tested items in each protocol, concurrent probing may have led to respondent reactivity and contamination of subsequent items. Retrospective probing was thus determined to be the most appropriate approach.

2.2   Recruitment

Over the period spanning from May 23, 2016 to June 24, 2016 Westat recruiters screened 246 English-speaking adults to determine their eligibility for participation. Potential respondents were first screened to ensure they did not live in group quarters and had not participated in any research focus group or interview in the past 12 months. A total of 114 callers were determined to be ineligible based on these criteria (46%). Eligible callers (n=132) were asked a series of additional screening questions to capture overall demographics and specific characteristics of interest for each tested topic. So as not to contaminate the cognitive interview results, we designed new questions (or borrowed questions from existing sources) to screen for the desired characteristics rather than screening with any of the tested ACS questions. A total of 102 individuals were selected to participate in the interviews; interviews were scheduled with 85 of them; and 72 interviews (70.6%) were ultimately completed. With the exception of a couple of target characteristics that required screening a few more potential respondents (e.g., individuals with free access to the Internet), overall the recruitment level of effort was standard for a project of this size.

The targeted demographic characteristics for the overall recruitment included a mix of categories for gender, age, education level, and Hispanic origin and race (see the appendix demographic characteristics of respondents from the completed interviews). In addition, topic-specific recruitment targets were set in order to ensure that the Census Bureau could hear how different types of people think about the questions of interest. Examples of such targeted characteristics included individuals who:

- Moved within the U.S. in the past one year (for reporting residential address one year ago);

- Worked at more than one location (for reporting work address);

- Had lived in the U.S. for different lengths of time (for reporting Year of Entry and Year of Naturalization); or

- Owned their home or rented (for reporting the year in which their house or apartment was first built).

Westat recruiters used the IDEA Services database to identify potential respondents, along with recruiting methods such as distribution of flyers at cafes, festivals, local colleges, apartment complex, and ad placement on message boards and other social media, including Facebook and Twitter. Westat monitored the recruiting results on a daily basis, reviewing all screened individuals to determine whether they met any of the criteria for any of the targeted characteristics. We assigned a

group and mode to those who were eligible and the Westat recruiter then contacted them to schedule an interview. When it appeared that we were falling short on any of the targeted characteristics, we instructed the recruiters to immediately increase their efforts or alter their methods to find respondents with those characteristics. We regularly communicated with the Census Bureau throughout the screening process to keep them up-to-date on our progress. Based on screening results, we met or exceeded the recruiting goal for all but one of the targeted characteristics, in which we interviewed two, rather than three renters in buildings constructed in 2010 or later.

2.3   Cognitive Interview Administration

On June 1, 2016 Westat held a one-day interviewer training with 10 interviewers. The training provided background information about the overall project; presented the items for testing and associated probes along with all other interview materials and procedures; allowed interviewers the opportunity to conduct at least one practice interview; and provided detailed instructions for using the interview summary template to write up the findings for each interview.

Between June 7 and June 28, 2016 the interviewing team conducted 72 in-person interviews in either Rockville or Frederick, Maryland. The number of completed interviews by group, mode, and version is shown in Table 2-2. Each interview lasted approximately 40 minutes and respondents were given $40 to offset any costs of participation, such as transportation or childcare expenses. All interview materials were reviewed and approved by the Office of Management and Budget and Westat's Institutional Review Board.

Table 2-2.   Number of completed interviews by group, mode, and version

Group	Group 1				Group 2				Group 3			
Mode	CAI		Internet		CAI		Internet		CAI		Paper	
Version	1	2	1	2	1	2	1	2	1	2	1	2
# Completes	6	6	6	6	6	6	6	7	6	6	7	4

2.4   Analytic Approach

Analysis of the interviews was based on interviewer summaries that included respondents' verbatim answers to the ACS questions and brief but accurate descriptions of responses to the cognitive

probes. These summaries were imported into NVivo, a text-based relational database for managing and analyzing large amounts of qualitative data. Westat team members then coded the summaries using a scheme that incorporated survey response process issues (e.g., comprehension, recall, burden) and the item-specific research questions that appeared in the protocols (e.g., did respondents prefer the original response options for a question or the alternate version they were then shown?). Once all summaries were coded, numerous queries were run in NVivo to review the data and conduct a comprehensive analysis of responses to each tested ACS item.

Analysis focused primarily on those respondents whose descriptions in the follow-up probes suggested they had incorrectly answered an ACS item. This approach allowed us to pinpoint the number of respondents who had problems with each item and determine if those respondents shared any salient characteristics (e.g., What did respondents who were unfamiliar with the Internet access mode "dial-up" share in common?) In a few cases respondents' answers to the screening questions, which formed the basis for assigning them to one of the three groups, were sometimes different from their answers to the ACS questions related to those same targeted characteristics. For example, screening indicated six individuals did not have a smartphone, but during testing we discovered that four respondents had answered the screening question incorrectly. The analysis that follows is based on responses to the ACS questions, rather than the screener responses. However, tables throughout the report show, for each of the topic groupings and by mode, the number of respondents with targeted characteristics based on how they answered screening questions. The tables are color coded by group (red for Group 1, yellow for Group 2, green for Group 3). Nearly all respondents fit more than one targeted characteristic in the group or groups to which they were assigned.

2.5   About This Report

The report presents key findings from the research questions and scripted probes as well as unanticipated issues that arose spontaneously during the interviews. Because not all respondents received all tested questions, nor did all respondents receive all the probes, denominators throughout the report shift. Three-digit numbers are provided next to all summary excerpts to identify the particular respondent associated with the remark, along with the administration mode for the respondent. Those portions of the excerpts that occur within quotation marks represent respondents' verbatim statements.

3. Executive Summary Tables

The Executive Summary Tables that follow show the wording of all tested items, with recommendations highlighted in yellow.

3.1　　Housing Year Built

CAI

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
Version 1 2a. About when was this <house/apartment/mobile home> first built? Was it first built in 2010 or later, between 2000 and 2009, between 1980 and 1999, between 1960 and 1979, between 1940 and 1959, or 1939 or earlier? 2b. (If 2010 or later) In what year was that? **Version 2** 2a. About when was this <house/apartment/mobile home > first built? Was it first built in 2010 or later, between 1980 and 2009, between 1940 and 1979, or 1939 or earlier 1939 or earlier, between 1940 and 1979, between 1980 and 2009, or 2010 or later? 2b. (If 2010 or later) In what year was that?	**Provide the longer intervals as response options.** ■ Fifteen of 27 respondents (11 CAI, 4 Internet), expressed some type of difficulty determining when their housing structure was built or providing a range response to the question. ■ If Census does not require analysis at the level of the shorter intervals, we believe the longer intervals will decrease burden and increase the likelihood that respondents can place themselves into a more accurate category. **Order the intervals from oldest to newest.** ■ Some CAI respondents expressed auditory processing difficulties with the presentation of the reverse-ordered ranges. They found the forward-backward reading of year ranges confusing and not intuitive. The combination of the shorter ranges (and hence more answer categories) with the reverse order ranges made it even more difficult for respondents to keep track of the answer options or place their year into an appropriate category. We believe revising the order to move from least recent to most recent would reduce the cognitive burden on respondents, particularly for those who complete the survey over the telephone.

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
Version 1 2. About when was this building first built? 2010 or later — *Specify year* _____ 2000 to 2009 1980 to 1999 1960 to 1979 1940 to 1959 1939 or earlier **Version 2** 2. About when was this building first built? 2010 or later — *Specify year* _____ 1980 to 2009 1940 to 1979 1939 or earlier 1939 or earlier 1940 to 1979 1980 to 2009 2010 or later — *Specify year* _____	See CAI recommendations.

3.2   Computers and Internet Access

CAI

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
8a. At this <house/apartment/mobile home/unit>, do you or any member of this household own or use a desktop, laptop, or a tablet? 8b. At this <house/apartment/mobile home/unit>, do you or any member of this household own or use a smartphone? [IF YES, GO TO 9. IF NO, GO TO 10a.] 9. Do any of the smartphones owned or used by you or any member of this household have a paid cellular data plan for accessing the Internet? [IF YES, GO TO 10b. IF NO, GO TO 10a.] 10a. Do you or any member of this household pay for access to the Internet using a cellular data plan for a mobile device? 10b. Do you or any member of this household pay for access to the Internet using a broadband or high speed Internet service such as cable, fiber optic, or DSL service installed in this <house/apartment/mobile home/unit >? IF YES TO 10b, GO TO INSTRUCTION B. IF NO TO 10b: 10c. Do you or any member of this household pay for access to the Internet using a satellite Internet service installed in this <house/apartment/mobile home/unit >? IF YES TO 10c, GO TO INSTRUCTION B. IF NO TO 10c: 10d. Do you or any member of this household pay for access to the Internet using a dial-up Internet service installed in this <house/apartment/mobile home/unit >? IF YES TO 10d, GO TO INSTRUCTION B. IF NO TO 10d: 10e. Do you or any member of this household pay for access to the Internet using some other service? [IF YES, GO TO 10f. IF NO, GO TO INSTRUCTION B.]	**No changes are recommended to items 8a, 8b, and 9.** ■ Respondents seemed to understand the smartphone items and all answered accurately. **Change the format of CAI questions 10b through 10e to allow only one response.** ■ Seven CAI respondents erroneously said yes to more than one type of Internet access, especially low-knowledge respondents who had difficulty discerning between the categories of Internet service. **No changes are recommended to items 8a, 8b, and 9.** ■ Respondents seemed to understand the smartphone items and all answered accurately. **Change the format of CAI questions 10b through 10e to allow only one response.** ■ Seven CAI respondents erroneously said yes to more than one type of Internet access, especially low-knowledge respondents who had difficulty discerning between the categories of Internet service. **Consider separating the concepts of paying for Internet access from type of Internet access.** ■ The two respondents for whom Internet was included in rent or condo fees provided different interpretations of "paid." One respondent answered "no" to items in question 10, explaining that the free Internet access in her apartment is part of her rent payment. The other respondent was confused about how to consider free Internet, ultimately deciding that he is paying for it, just not directly to the company.

CAI

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
10f. What is this other type of Internet service? **INSTRUCTION B: IF YES TO 9, SKIP TO INSTRUCTION C. OTHERWISE GO TO 11.** **11. Can you or any member of this household both make and receive phone calls when at this <house/apartment/mobile home/unit>? Include calls using cell phones, land lines, or other phone devices.**	■ According to the Census Bureau (http://www.census.gov/content/dam/Census/library/working-papers/2012/acs/2012_Shin_01.pdf), the Internet questions were recently added because "The Broadband Data Improvement Act requires that the Secretary of Commerce, in consultation with the Federal Communications Commission, expand the ACS to elicit information from residential households to determine whether they own or use computers at their address, whether they subscribe to an Internet service and, if so, whether they subscribe to dial-up or broadband Internet service at that address." If the Census Bureau is interested in understanding who pays for such access and who doesn't, the current line of questioning, which is double-barreled, will not provide such data. That is, those who answer "no" to items in question 10 could be doing so either because they lack the type of Internet service or because they have the type of Internet service but do not pay directly for it. We therefore suggest asking separately about whether the service is paid for, even if included in rent payments. One possible wording of such an item might be: **Do you or any member of this household pay an Internet service provider to access the Internet in this <house/apartment/mobile home/unit >?** *If you pay for Internet service as part of your rent or condo fees, please answer with "yes".* **No changes are recommended to item 11.**

INTERNET

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
8a. At this house, do you or any member of this household own or use a desktop, laptop, or a tablet? **Yes** **No** **8b. At this house, do you or any member of this household own or use a smartphone?** **Yes --** SKIP to question 9 **No --** SKIP to question 10a **9. Do any of the smartphones owned or used by you or any member of this household have a paid cellular data plan for accessing the Internet?** **Yes --** SKIP to question 10b **No --** SKIP to question 10a **10a. Do you or any member of this household pay for access to the Internet using a cellular data plan for a mobile device?** **Yes** **No** **10b. Which one of the following best describes how ~~Do~~ you or any member of this household pay for access to the Internet in this <house/apartment/mobile home/unit >?~~using -~~** ○ **Broadband (high speed) Internet services, such as cable, fiber optic, or DSL service installed in this house** ○ **Satellite Internet service installed in this house** ○ **Dial-up Internet service installed in this house** ○ **Some other service** *Specify service.* ○ **Do not pay for access to the Internet** **IF question 9 is NO, ASK question 11. OTHERWISE SKIP.** **11. Can you or any member of this household both make and receive phone calls when at this house?** *Include calls using cell phones, land lines, or other phone devices.* **Yes** **No**	**No changes are recommended to 8a, 8b, and 9.** ▪ Respondents seemed to understand the smartphone items and all answered accurately. **For the item 10 series, change the format of the self-administered question to allow only one response. With this format, allow a response option for respondents who do not have a paid subscription to the Internet.** ■ While none of the Internet respondents marked yes to more than one category, this change will make the self-administered modes consistent with CAI and will eliminate the possibility of marking multiple responses, which should be legitimately rare. ■ If the series is revised to ask separately about whether the Internet service is paid for, as recommended for the CAI mode, do not include the "do not pay for access" option. **No changes are recommended to item 11.**

3.3 Year of Naturalization/Year of Entry

CAI

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
Version 1 IF THIS PERSON WAS BORN BEFORE 1985, READ THIS: 8c. In what year did you become a naturalized citizen of the United States? Was it before 1985, between 1985 and 1989, between 1990 and 1994, between 1995 and 1999, between 2000 and 2004, or 2005 or later? IF THIS PERSON WAS BORN BETWEEN 1985 AND 1989, READ THIS: 8c. In what year did you become a naturalized citizen of the United States? Was it between 1985 and 1989, between 1990 and 1994, between 1995 and 1999, between 2000 and 2004, or 2005 or later? IF THIS PERSON WAS BORN BETWEEN 1990 AND 1994, READ THIS: 8c. In what year did you become a naturalized citizen of the United States? Was it between 1990 and 1994, between 1995 and 1999, between 2000 and 2004, or 2005 or later? IF THIS PERSON WAS BORN BETWEEN 1995 AND 1999, READ THIS: 8c. In what year did you become a naturalized citizen of the United States? Was it between 1995 and 1999, between 2000 and 2004, or 2005 or later? 8d. (If 2005 or later) In what year was that? 9b. (If 2005 or later) In what year was that?	Few problems were detected in providing one's own year of naturalization in ranges of categories. However, in answering this question for other household members, respondents evinced some difficulty with the terminology. We thus recommend providing respondents with a definition of "naturalization," such as: "Naturalization is when a person becomes a U.S. citizen." ■ Respondents who had been through the naturalization process themselves understood what the term meant. However, several respondents who were U.S. citizens responding on behalf of naturalized household members were not familiar with the term "naturalized." Adding a definition to the item should help increase the response accuracy for other household members. **For interviewer-administered modes, allow respondents to provide an exact year of their naturalization and year in which they entered the U.S., or if they prefer, provide them with an option to answer in the wider ranges. (For self-administered, only offer the wider ranges.)** ■ Nearly all cognitive testing respondents who received the CAI mode knew, and most preferred to provide, their exact year of naturalization and year of entry, rather than having to fit it into ranges. ■ Because Census has found through other testing that some ACS respondents consider it sensitive to provide an exact year, the CAI mode will provide an option to answer in ranges if the respondent expresses reluctance to provide an exact year or does not know it. This was not an issue in the cognitive testing, however, cognitive testing respondents tend to be more forthcoming than the general population.

CAI

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
~~IF THIS PERSON WAS BORN BEFORE 1985, READ THIS:~~ ~~9a. In what year did you come to live in the United States? Was it before 1985, between 1985 and 1989, between 1990 and 1994, between 1995 and 1999, between 2000 and 2004, or 2005 or later? If you came to live in the United States more than once, give the latest year.~~ ~~IF THIS PERSON WAS BORN BETWEEN 1985 AND 1989, READ THIS:~~ ~~9a. In what year did you come to live in the United States? Was it between 1985 and 1989, between 1990 and 1994, between 1995 and 1999, between 2000 and 2004, or 2005 or later? If you came to live in the United States more than once, give the latest year.~~ ~~IF THIS PERSON WAS BORN BETWEEN 1990 AND 1994, READ THIS:~~ ~~9a. In what year did you come to live in the United States? Was between 1990 and 1994, 1995 and 1999, between 2000 and 2004, or 2005 or later? If you came to live in the United States more than once, give the latest year.~~ ~~IF THIS PERSON WAS BORN BETWEEN 1995 AND 1999, READ THIS:~~ ~~9a. In what year did you come to live in the United States? Was between 1995 and 1999, between 2000 and 2004, or 2005 or later? If you came to live in the United States more than once, give the latest year.~~	■ Most respondents reported a preference for the five-year ranges, although many CAI respondents indicated that the five-year options required them to pay attention to a lot of different numbers. In addition, several respondents had difficulty providing an accurate proxy response using the 5-year ranges. The wider ranges should reduce respondent burden and give them enough latitude to be able to answer accurately.

Westat

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
Version 2 IF THIS PERSON WAS BORN BEFORE 1985, READ THIS: 8c. In what year did you become a naturalized citizen of the United States? *Naturalization is when a person becomes a U.S. citizen.* **[IF DON'T KNOW OR NO RESPONSE, ASK:]** Was it before 1985, between 1985 and 1996, between 1997 and 2004, or 2005 or later? IF THIS PERSON WAS BORN BETWEEN 1985 AND 1996, READ THIS: 8c. In what year did you become a naturalized citizen of the United States? *Naturalization is when a person becomes a U.S. citizen.* **[IF DON'T KNOW OR NO RESPONSE, ASK:]** Was between 1985 and 1996, between 1997 and 2004, or 2005 or later? IF THIS PERSON WAS BORN BETWEEN 1997 AND 2004, READ THIS: 8c. In what year did you become a naturalized citizen of the United States? *Naturalization is when a person becomes a U.S. citizen.* **[IF DON'T KNOW OR NO RESPONSE, ASK:]** Was it between 1997 and 2004, or 2005 or later? 8d. (If 2005 or later) In what year was that?	

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
IF THIS PERSON WAS BORN BEFORE 1985, READ THIS: 9a. In what year did you come to live in the United States? **If you came to live in the United States more than once, give the latest year.** _____ **[IF DON'T KNOW OR NO RESPONSE, ASK:]** Was it before 1985, between 1985 and 1996, between 1997 and 2004, or 2005 or later? ~~If you came to live in the United States more than once, give the latest year.~~ IF THIS PERSON WAS BORN BETWEEN 1985 AND 1996, READ THIS: 9a. In what year did you come to live in the United States? **If you came to live in the United States more than once, give the latest year.** _____ **[IF DON'T KNOW OR NO RESPONSE, ASK:]** Was it between 1985 and 1996, between 1997 and 2004, or 2005 or later? ~~If you came to live in the United States more than once, give the latest year.~~ IF THIS PERSON WAS BORN BETWEEN 1997 AND 2004, READ THIS: 9a. In what year did you come to live in the United States? **If you came to live in the United States more than once, give the latest year.** _____ **[IF DON'T KNOW OR NO RESPONSE, ASK:]** Was it between 1997 and 2004, or 2005 or later? ~~If you came to live in the United States more than once, give the latest year.~~ 9b. (If 2005 or later) In what year was that?	

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TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
Version 1 8. In what year did this person become a naturalized citizen of the United States? Before 1985 1985 to 1989 1990 to 1994 1995 to 1999 2000 to 2004 2005 or later — *specify year* _____ 9. In what year did this person come to live in the United States? If this person came to live in the United States more than once, give the latest year. Before 1985 1985 to 1989 1990 to 1994 1995 to 1999 2000 to 2004 2005 or later — *specify year* _____	**See CAI recommendations.** **For Internet mode, the web programming should allow the respondent to provide an exact year, or mark a box if they prefer to answer in a range, at which point the ranges will appear on the screen.** ■ We do not recommend including the option to answer with an exact year in the Paper mode because respondents could accidentally answer with an exact year *and* a range, but provide contradictory responses (e.g., provide a year that does not fit within the range selected).

INTERNET

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
Version 2 8. In what year did this person become a naturalized citizen of the United States? *Naturalization is when a person becomes a U.S. citizen.* _____ ____ Mark here if you would rather answer in a range of years. Before 1985 1985 to 1996 1997 to 2004 2005 or later – *specify year* _____ 9. In what year did this person come to live in the United States? If this person came to live in the United States more than once, give the latest year. _____ ____ Mark here if you would rather answer in a range of years. Before 1985 1985 to 1996 1997 to 2004 2005 or later – *specify year* _____	See CAI recommendations.

3.4 Place of Residence

CAI

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
15a. Did you live in this building 1 year ago? **15b. Did you live in the United States, Puerto Rico, or another country?** **15c. What was the foreign country?** **15d. What was the street address where you lived one year ago?** **15e. What was the city or town?** **15f. What was the state?** **15g. What was the ZIP code?** **15h. What was the county?** **15h. (If Puerto Rico) What was the *municipio*?**	**Leave zip and county placement as tested.** ■ Respondents generally showed a preference for the current order of the address questions as they reflect how they are used to reporting their address. Any difficulties in answering were a result of recall or prior knowledge and not question order. **In the CAI instrument, change 15d to say "What was the street address where you lived one year ago?" to clarify the residence being asked about.** ■ One person who moved from a foreign country several years prior was not sure which residence this question was asking about and had the interviewer re-read items 15a, 15b, and 15d before answering.

PAPER

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION

15.
 	
  a. **Did this person live in this house or apartment 1 year ago?**
      Person is under 1 year old → Skip to page 7
 	
      Yes, this house
 	
      No, outside the United States and Puerto Rico – *Print name of foreign country, or U.S. Virgin Islands, Guam, etc. below; then SKIP to next page.*
 	
      No, different house in the United States or Puerto Rico.
 	
  b. **Where did this person live 1 year ago?**
      Address (Number and street name)
      _____
      City
      _____
      State   **Zip**
      _____   _____
      County
      _____
	No recommended changes.

3.5 Place of Work

CAI

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
30a. The next few questions deal with where you worked LAST WEEK and how you got there. **LAST WEEK, at what location did you work?** **What is the address – number and street name?** **(If you worked at more than one address or location, give the address or location where you worked most LAST WEEK.** **If you do not know the exact street address, give a description of the location such as the building name or the nearest street or intersection.** **For example: Town Center Mall, 1st National Bank, Reno Airport, 2nd Ave. and 4th St.)** **30b. What was the city or town?** **30c. What was the state?** **30d. What was the ZIP code?** **30e. What was the county?** **30f. Is the work inside the limits of (<name of city>/that city or town)?**	**Leave zip and county placement as tested.** ■ Respondents generally showed a preference for the current order of the address questions as they reflect how they are used to reporting their address. Any difficulties in answering were a result of recall or prior knowledge and not question order. **Leave placement of city limits question as tested.** ■ Although many respondents could not answer reliably, asking about city limits after the zip code appeared to aid several people in determining an answer. This order also maintains the order of address that respondents are accustomed to using.

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TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION

30. At what location did this person work LAST WEEK? If this person worked at more than one location, print where he or she worked most last week.
   a. **Address (Number and street name)**
      If the exact address is not known, give a description of the location such as the building name or the nearest street or intersection.
   b. **City**
   c. **State or foreign county**
   d. **ZIP**
   e. **County**
   f. **Is the work location inside the limits of that city or town?**
      Yes
      No, outside the city/town limits
	No recommended changes.

3.6 Number of Weeks Worked

CAI

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
Version 1 ~~The next few questions ask about work in the past 52 weeks, that is from <Current date, year -1> to today.~~ ~~39a. Over the past 52 weeks, that is since one year ago today, did you work EVERY week? Count paid vacation, paid sick leave, and military service as work.~~ ~~39b. Over the past 52 weeks, that is since one year ago today, how many WEEKS did you work? Include paid time off and include weeks when (you/Name) only worked for a few hours. If you would rather give your answer in months, please say so.~~ ~~39c. How many months have you worked since one year ago today?~~ ~~INCLUDE PAID TIME OFF AND WEEKS WHEN YOU ONLY WORKED FOR A FEW HOURS.~~ ~~39d. Then you worked about (fill calculated number) weeks. Is that right?~~ ~~40. Over the past 52 weeks, that is since one year ago today, in the weeks you worked, how many hours did you usually work each week?~~	**Use the question order tested in Version 2, asking first about hours worked, then weeks worked.** ■ Respondents with multiple jobs or irregular schedules experienced more difficulty answering weeks worked when it came before hours worked. **Continue to include the extra statement in the CAI version about the last 52 weeks.** ■ Misinterpretation of the time frame was comparable in the CAI and Paper versions, regardless of whether weeks worked or hours worked was asked first. Removing the statement may lead to decreased accuracy in CAI as compared to Paper. **In CAI and Internet, explicitly give respondents the option of responding in months. Do not verbally confirm in CAI or display in the Internet mode the conversion of months to weeks because respondents do not think of more than 4 weeks per month and this will add confusion.** ■ Six of 13 respondents who provided a response to the number of weeks, when probed, explained that they were thinking in terms of months when they calculated their answer. All 6 reported using a 4 weeks per month timeframe. ■ Although many respondents stated a hypothetical preference for answering in months, none of the CAI respondents requested to answer in months, so we were unable to test this option. ■ One potential issue with this revision may be for respondents who work only 1 or 2 weeks in any given month and choose to provide their answer in months. Converting their months answer to weeks without confirming that calculation may overestimate the actual number of weeks they worked. Further testing would be needed to ascertain if these types of respondents would, indeed, choose to answer in months in the first place.

TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
Version 2 The next few questions ask about work in the past 52 weeks, that is from <Current date, year -1> to today. 39. Over the past 52 weeks, that is since one year ago today, in the weeks you worked, how many hours did you usually work each week? 40a. Over the past 52 weeks, that is since one year ago today, did you work EVERY week? Count paid vacation, paid sick leave, and military service as work. 40b. Over the past 52 weeks, that is since one year ago today, how many WEEKS did you work? Include paid time off and include weeks when (you/Name) only worked for a few hours. ==If you would rather give your answer in months, please say so.== 40c. How many months have you worked since one year ago today? INCLUDE PAID TIME OFF AND WEEKS WHEN YOU ONLY WORKED FOR A FEW HOURS. ==39d. Then you worked about (fill calculated number) weeks. Is that right?==	

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TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION
Version 1	See CAI recommendations.
39a. Over the past 52 weeks, that is since one year ago today, did this person work EVERY week? Count paid vacation, paid sick leave, and military service as work.	**Do not offer a months option in the Paper mode as respondents have more options at their disposal to refer to a calendar to count out weeks.**
Yes – SKIP to question 40	■ One respondent in the Paper mode pulled out a calendar to help her count up the weeks she'd worked. One other respondent said she would use a calendar if she were answering at home.
No	
39b. Over the past 52 weeks, that is, since one year ago today, how many WEEKS did this person work? Include paid time off and include weeks when this person only worked for a few hours.	
_____	
40. Over the past 52 weeks, that is since one year ago today, in the WEEKS WORKED, how many hours did this person usually work each WEEK?	
Usual hours worked each week	
_____	

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TESTED ITEM WORDING (PROPOSED REVISIONS HIGHLIGHTED)	RECOMMENDED REVISIONS AND JUSTIFICATION

Version 2
 	
39. Over the past 52 weeks, that is since one year ago today, in the WEEKS WORKED, how many hours did this person usually work each WEEK?
 	
Usual hours worked each week
_____
 	
40a. Over the past 52 weeks, that is since one year ago today, did this person work EVERY week? Count paid vacation, paid sick leave, and military service as work.
     Yes – SKIP to question 41
     No
 	
40b. Over the past 52 weeks, that is, since one year ago today, how many WEEKS did this person work? Include paid time off and include weeks when this person only worked for a few hours.
 	
_____	

4. Detailed Findings for Group 1 Topics

The Group 1 protocols and the Group 2 CAI protocols tested potential revisions to the year built question, as well as household level items regarding telephone, computer and Internet use.

4.1 Year Built

4.1.1 Background

Feedback from ACS interviewers indicates that it is difficult for respondents to know the specific year their housing structure was built. The Census Bureau is considering changing specific year collection to categories, and widening other categories to match data needs. In one version being tested, categories have been merged into larger ranges that align better with required uses, to see if this can reduce difficulty for respondents. Two versions are being proposed, one with six categories that end at the end of decades, and one with four categories that correspond to required and programmatic uses. A key question is whether either option is perceived as significantly easier than providing a specific year for all housing units built after 2000 and using 10 year categories until 1940 as is done currently, and to assess whether either of the two sets of categories performs better than the other.

4.1.2 Overall Item Performance

The item was tested with 36 respondents. Table 4-1 shows the number of respondents with the targeted characteristics sought for this question topic based on their responses to the ACS questions and corresponding probes. Most respondents were able to answer this question accurately. Nevertheless, the item proved cognitively burdensome for respondents, many of whom struggled with the numbers and the order of the categories.

Table 4-1.   Number of respondents with targeted characteristics for the Year Built question by mode and version

Owner/Renter	Age of building	Total	CAI		Internet	
			Version 1	Version 2	Version 1	Version 2
Owners	Buildings 1939 or older	3	1	1	1	0
	Buildings 1940-1979	4	1	2	1	0
	Buildings 1980-2009	8	4	2	0	2
	Buildings 2010 or newer	1	1	0	0	0
	Don't Know	2	1	1	0	0
Renters	Buildings 1939 or older	1	0	0	1	0
	Buildings 1940-1979	5	2	2	0	1
	Buildings 1980-2009	5	0	2	0	3
	Buildings 2010 or newer	2	0	1	1	0
	Don't Know	5	2	1	2	0

4.1.3   Key Findings

Regardless of Mode, Version, Age of Building, or Home Owner/Renter Status, Most Respondents Are Able to Provide an Accurate Range for When Their Home Was Built

Cognitive probing and cross referencing with Zillow.com revealed that three quarters of respondents, 27 out of 36, were able to provide an accurate answer for when the home they live in was built. Eighteen of the correct answers were CAI (ten Version 1, eight Version 2) and nine correct answers were Internet (three Version 1, six Version 2). Four respondents (three of whom were homeowners (out of 17), one of whom was a renter (out of 19)) gave incorrect answers and we were unable to ascertain accuracy for five respondents (one homeowner and four renters).

All four inaccurate responses were given in CAI (three Version 2, one Version 1), yet exploration of these responses did not suggest that survey mode was the source of the errors. Two of the four respondents who gave wrong answers (*336* and *340*) were non-native English speakers, though only respondent 340 said in other parts of the interview that she had difficulty with English. Three

respondents had previously seen information about when their homes were built, but incorrectly recalled this information:

- One respondent remembered seeing the year his house was built on the information the realtor gave his family about the house six years ago. He thought it was 1945, but was not fully confident because it could have been 1935. He remembered that the year had a five at the end and was in the lower 1900s. The respondent selected "1940-1979," but the actual year built was 1938. (257, CAI, Version 2)

- One respondent answered "I think that is 1980 – around that." She recalled this information because she had to report it when she applied for insurance. The actual year built was 1973. (340, CAI, Version 2)

- One respondent selected "2010 or later." When asked for the specific year his home was built, he said he misunderstood the question (although he was unable to specify how he had misinterpreted the item), and that the home was actually built "about 25 years ago." The interviewer asked how he came up with his answer, and the respondent said "I guessed." He said that he had read the year on the deed, but he couldn't remember. The actual year built was 1985. (336, CAI, Version 2)

The fourth respondent who answered incorrectly simply appeared to have little interest in the age of his home:

- This respondent was unsure which option to pick, but finally selected "2000-2009." When asked how he came up with his answer, he said, "I don't really know much about the house and I don't know when it was built." He said he remembered it had been "not too recently but not too distantly" and his family moved into the house in 2011. The house was built in 1991. (281, CAI, Version 1)

There were five cases (*205, CAI, Version 1*; *242, CAI, Version 2*; *353, Internet, Version 1*; *362, Internet, Version 1*; *379, Internet, Version 1*) where we were not able to obtain verification from Zillow.com as to the year these respondents' homes were built, and it was impossible to determine from probing if they were able to provide an accurate answer. Of these five respondents, two (*242, CAI* and *362, Internet*) were confident in their answers while the other three were not.

Despite the Majority of Respondents Providing Correct Responses, More Than Half of Them Indicated They Had Difficulty Answering the Question

Although the majority of respondents were able to give an accurate answer, during probing, 15 out of 27 respondents (11 CAI, 4 Internet) expressed difficulty coming up with their answers. The challenges were varied: Many respondents were not certain about the year the structure was built:

- One respondent said his was a "guesstimate" that his condo was built in 1999. "The reason I say I'm guessing is because I really don't know." He based his answer on the way the structure and the surrounding neighborhood look. He said it was not an older building or an older neighborhood (i.e., not built in the 1940's), but also it was not "brand new." We were unable to ascertain the age of his condo. (205, CAI, Version 1)

- Another respondent said he was "uncertain" about his answer. When asked how he came up with his answer, he said he remembered it had been built "not too recently, but not too distantly" and his family moved into the house in 2011. He selected "2000-2009," but the house was built in 1991. (281, CAI, Version 1)

- One respondent correctly selected "1980-2009" (the house was built in 1985), but said, "I'm not really sure, I'm assuming. It can't be that late." During probing he explained he did not know the date the house was built. "I know it's been there for a while. I just gave an approximate answer of what I assume the house would be." (341, CAI, Version 1)

Others said they had trouble handling all of the numbers in the item:

- One respondent who answered correctly ("1960-1979") said she didn't have a problem reading the categories but she did have to "think real hard" about where 1975 fell in the categories to make sure she checked the right box. She stated she was "not real bright with numbers'" (118, Internet, Version 1)

- One respondent who answered correctly noted that both versions were equally complicated and expressed trouble handling all of the numbers as they were read. (269, CAI, Version 2)

- When asked about the order of the categories, one respondent whose accuracy we could not verify stated it would be "perfect for a math person, [but] I'm not a math person." (284, CAI, Version 1)

- One older respondent who was a non-native English speaker (306, CAI, Version 1) correctly answered "1960-1979" (her house was built in 1970). However, she demonstrated a lot of difficulty when the interviewer was reading the categories. She put her hand to her head and grimaced, prompting the interviewer to read more slowly so that the respondent could follow along.

Fewer Than Half of the Respondents Were Able to Provide the Exact Year Their Homes Were Built

Despite the majority of respondents answering accurately, only 15 of 36 were able to give the exact year their building was constructed. Of the five individuals whose buildings were constructed in

2010 or later, two respondents were able to answer within one year of the date reported in Zillow (*116, CAI; 388, Internet)*, one was off by three years (255*, CAI)*, and we were unable to ascertain the accuracy of the other two respondents because of a lack of information in Zillow. However, the fact that one respondent answered "this year" (*284, CAI*) and the other answered 2015 (*379, Internet*) suggests that both may have been correct and Zillow simply had not been updated to reflect this new information.

Respondents Had No Difficulty Understanding What Was Meant by "First Built"

Respondents generally recognized that the phrase "first built" referred to when the home was initially constructed. Respondents whose homes or apartments had been renovated clearly indicated "first built" was *not* when the renovations occurred. There was some confusion expressed as to whether "first built" referred to when the ground was broken ("When they started digging the hole for the building" (*205, CAI, Version 1*)) or the unit was first inhabitable ("When it first opened for people to use" (*381, CAI, Version 1*)). But given that most multi-family buildings take about a year for construction[2], this did not affect respondent accuracy.

Respondents Were Evenly Split With Regard to Version Preference

Thirty-five respondents were shown an alternate range for answering when their building was first constructed. Six respondents expressed no preference, while the remaining 29 were evenly divided as to which version they preferred – 14 preferred the shorter intervals, and 15 preferred the wider intervals. Of the fourteen respondents who preferred the 19-year intervals, nine had seen this version initially and five individuals saw this as the alternate version. Respondents who preferred the 19-year intervals tended to note that the shorter intervals seemed more intuitive to them:

- One respondent said she found the alternate 19-year intervals much easier because it's a shorter range. She said of the longer range, "For some reason my brain has a harder time wrapping around it." (272, Internet, Version 2)

- One respondent thought the numbers made more sense in the alternate, 19-year interval version. He explained that he was very bad at math and hated numbers. When the

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[2] http://eyeonhousing.org/2015/08/how-long-does-it-take-to-build-an-apartment-building/ - accessed 7.27.16

interviewer read the first version, "the numbers were all bunched up together in my head." The second version, he said, "was clicking more." (341, CAI, Version 1)

■ One respondent stated the original, 19-year interval version "seemed easier to parse for me." She thought she might be more used to seeing these ranges, or because the ranges were narrower, but she was not able to definitively state why the original was easier. She stated there wasn't much difference in ease of answering the two versions, but preferred the original for its "readability." (346, Internet, Version 1)

Fifteen respondents preferred the wide interval categories: Nine individuals had seen the wide intervals originally, while six saw these intervals as the alternate version. Many of those who preferred the wider intervals liked that the intervals were broader (and therefore felt their answers were more likely to be accurate) and that there were fewer options from which to select:

■ One respondent commented that the alternate, wide interval version might be easier. "Hearing less of them might make it less overwhelming to pick from." (116, CAI, Version 1)

■ One respondent said alternate interval version was easier because "the intervals are wider." (281, CAI, Version 1)

■ One respondent preferred the original wide interval version, feeling it was easier because it gave him a better chance of getting the right answer. (241, CAI, Version 2)

■ One respondent preferred the alternate because there were fewer groups and "…mentally you can picture the years faster." (121, CAI, Version 1)

Some Respondents Were Confused by the Order of the Categories

Four respondents, all of whom completed the survey in CAI, indicated they were confused by the order in which the categories were read aloud, which moved from most recent to least recent.

■ One respondent said the categories seemed reversed to him, because they did not start with the oldest date range. He said putting the most recent years first "sort of throws you off." (141, Version, CAI, 2)

■ Another respondent said he liked the order because it made sense to start with the earlier years and move to present because it was easier for him to think from the past to now. The interviewer reread the question, but the respondent did not pick up that the question was worded the opposite from what he said, i.e., present to past in ranges. (241, CAI, Version 2)

■ Another respondent thought it would be better if the numbers started "lower," or earlier in time, instead of the other way around. (341, CAI, Version 1)

- The fourth respondent simply stated she was confused by the order of the ranges of years. (337, CAI, Version 2)

4.1.4 Recommendations

Provide the Longer Intervals as Response Options

- More than half of the 27 respondents expressed some type of difficulty determining when their housing structure was built or providing a range response to the question.

- If Census does not require analysis at the level of the shorter intervals, we believe the longer intervals will decrease burden and increase the likelihood that respondents can place themselves into a more accurate category.

Order the Intervals from Oldest to Newest

- Some CAI respondents expressed auditory processing difficulties with the presentation of the reverse-ordered ranges. They found the forward-backward reading of year ranges confusing and not intuitive. The combination of the shorter ranges (and hence more answer categories) with the reverse order ranges made it even more difficult for respondents to keep track of the answer options or place their year into an appropriate category. We believe revising the order to move from least recent to most recent would reduce the cognitive burden on respondents, particularly for those who complete the survey over the telephone.

4.2 Computer, Internet, and Telephone

4.2.1 Background

The current version of the ACS requires up to 11 back-and-forth exchanges between interviewer and respondent to assess telephone, computer and Internet usage, and seems to ask several times about their phone, smartphone, or cellular data plan. The updated version starts by asking about smartphones, and streamlines the series to seven exchanges. Given that roughly two-thirds of U.S. households have a smartphone, this will reduce burden for most respondents. Testing objectives are to validate that respondents find this streamlined series easy to use (for both households with and without a smartphone), and confirm that the respondents understand that the new question 10 relates to Internet access they pay for, since the previous question on paid/unpaid access is eliminated in this series.

4.2.2   Overall Item Performance

The item series was tested with 36 respondents. Table 4-2 shows the number of respondents with the targeted characteristics sought for this question topic, based on their responses to the ACS questions and corresponding probes.

Table 4-2.   Number of respondents with targeted characteristics for the Telephone, Computer and Internet questions by mode and version

Characteristics	Total	CAI		Internet	
		Version 1	Version 2	Version 1	Version 2
Smartphone with data plan and Internet	30	11	10	4	5
Smartphone-only Internet access	6	0	1	2	3
Does not pay for Internet	6	3	2	1	0
No smartphone	6	1	2	1	1
Low access/knowledge (Older or non-native English speaker)	14	4	7	1	2

4.2.3   Key Findings

Respondents Were Able to Answer Questions about Computers and Smartphones with Ease

Probing revealed that all 36 respondents were able to answer Question 8a (computers) correctly and 35 of 36 were able to answer Question 8b (smartphones) correctly. One respondent (*388, CAI, Version 2*) was not sure if the device she used for apps and texting was a smartphone; because she did not know its exact make and model and did not bring it with her to the interview, it was impossible to discern through probing if her answer of "yes" to Question 8b was accurate. When probed on what devices they were thinking about when answering Question 8a, several respondents said they thought of their smartphones as computers, in addition to laptops and tablets. However, all of these respondents correctly reported owning a smartphone in 8b. We believe this is an order effect, i.e., when answering 8a, respondents were unaware that they would next be asked a question about smartphone ownership. Thus, it did not appear to adversely affect respondents' accuracy for

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8b. Moreover, no respondent answered "yes" to 8a who had no other computer devices in the home and who was thinking only about his/her smartphone.

Respondents Understood the Term "Paid Data Plan" and Answered Correctly

The data show that all but one respondent with smartphones in the household appeared to pay for data plans and were able to answer Question 9 accurately. Probing revealed that respondent 227 *(Internet)* incorrectly selected "no" because she was only thinking about other members of her household; when thinking about herself, she realized she should have answered "yes" because she does have a smartphone with a paid plan to give her access to the Internet. We were not able to discern through probing if four respondents' answers to Question 9 were accurate or not. The one respondent (*227, Internet*) who received both Questions 9 and 10a thought they were asking the same thing.

Four Respondents Correctly Answered the Question about Being Able to Make Calls from Home

Four respondents were asked about their ability to make calls from their residences (Question 11), and all four correctly answered "yes." Two respondents (*306, CAI* and *311, Internet*) reported that they were able to make calls through the "landline." Another respondent (*188, Internet*) said she had "a basic phone" and a plan with AT&T for calls and texting only. The fourth respondent (*388, CAI*) appeared somewhat confused and said, "In the old days we used to be able to call people through the computer, but we don't do that anymore because of the smartphone." It appeared that she was thinking of her landline as a smartphone, although it was not clear to the interviewer if the respondent actually owned a smartphone or just a cell phone.

When asked about "other phone devices," respondent 188 mentioned both her tablet and her laptop because she could make calls via Skype or FaceTime. Respondent 388 reiterated, "Talking through the computer like we used to in the old days." The other two respondents did not offer any additional examples.

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Respondents Who Use Internet at Home Expressed Some Confusion With Regard to What Kind of Internet Service They Use

A total of 36 respondents were asked what kind of Internet service, if any, they used at home. Of those 36, 24 were able to answer accurately (14 CAI, 10 Internet), 11 answered incorrectly (9 CAI, 2 Internet), and we could not discern accuracy for one respondent (CAI).

Wrong answers to this question fall into two categories: respondents who incorrectly selected more than one type of Internet service and respondents who chose only one response option but incorrectly answered "yes" or "no" to that option.

Seven respondents (2 CAI, V1; 5 CAI, V2) incorrectly answered "yes" to more than one response option in Question 10, although probing revealed that all had only one form of Internet service, that being broadband. The problem appeared to stem from not understanding how the technology works and/or the terminology used in the question.

- Five respondents erroneously answered "yes" or "no" to two types of Internet service in addition to broadband. All five respondents expressed confusion with the terminology and three of them requested that the interviewer repeat the question. Notably, all five respondents were classified as having "low knowledge of computers and Internet terminology," i.e., they were over the age of 60, non-native English speakers, or both.

  - One 71-year old respondent (*306, CAI*) struggled with the terminology in most of the sub-items, but was completely stumped when the interviewer asked her about "dial-up." She said, "I don't get the question," which prompted the interviewer to re-read the item. The respondent thought about it briefly and then said, "I really don't know the answer to that."

  - During probing, another respondent (*336, CAI*) who was a 63-year old non-native English speaker said that he had broadband internet through Comcast. But he then answered "yes" to Q10c (Satellite) incorrectly thinking of his DirectTV (satellite television) and he answered "yes" to Q10e (Some other service) because he also paid for Netflix (although he did not access the Internet through Netflix). At times, this respondent described the sub-items as "confusing" or "complicated."

  - A third respondent (*341, CAI*), who was a non-native English speaker, answered "yes" to everything except dial-up because, "I don't know what that is." He explained that he said "yes" to Satellite because, "that's how you get your signals and everything, from satellites." He also said "yes" to 10f and explained, "I'm assuming Comcast. I was thinking of Comcast the whole time."

- Two other respondents erroneously answered "yes" to Satellite Internet in addition to broadband. One respondent (241, CAI), similar to 341 above, said he answered "yes" for satellite because he thought Comcast gets the original access from the satellite. The respondent added that the only term he uses is "WiFi." The second respondent (117, CAI), when asked what she was thinking when she endorsed Satellite, explained she thought the Satellite question was a continuation of the question about broadband and changed her answer to "no." Both of these respondents were native English speakers younger than 60.

The other four respondents who incorrectly answered the question regarding their home Internet access (2 CAI; 2 Internet) erroneously answered "yes" or "no" to one of the response options. All four respondents were native English speakers under the age of 60.

- Two respondents were skipped out of Question 10a, which asks about a data plan for a portable device, because they answered "yes" to Question 9 regarding a data plan. However, they both then answered "no" to the remaining four Internet access options in Question 10. During probing it became apparent that they both used broadband Internet at home and so should have answered "yes" to Question 10b. Both respondents reported being confused by the phrase "pay for." One respondent (205, CAI) explained that even though he did not get a bill, it is "fixed into the condo fee" so he was technically paying for access to the Internet. The other respondent (381, CAI) accessed "Xfinity WiFi" that was paid for by his sister, with whom he lived. This respondent did not give any indication as to why he did not mark "yes" for broadband, although it appeared he missed the instruction asking, "Do you or any member of this household pay for…"

- One respondent (227, Internet) who only accessed the Internet through her smartphone erroneously answered "no" to Questions 9 and 10a. During probing she realized she should have said "yes" to Question 9 (which would have skipped her out of Question 10a) because she did have a cellular data plan for her smartphone. She explained that she had "read the question too fast" and did not see the word "you", and so answered "no" because no one else in the household had a plan.

- The final respondent (367, Internet), who only accessed the Internet through her smartphone, answered Question 9 correctly and thus was skipped out of Question 10a. However, she answered 10e "yes" and wrote in "Yes, mobile data plan."

Many Respondents Had Difficulty with the Internet Terminology in Question 10

Overall, 11 respondents, including those who were able to answer Question 10 correctly, indicated a confusion or a lack of familiarity with one or more terms used in the question. Indeed, numerous respondents answered by giving the name of their service provider (i.e. Comcast, Verizon, Sprint) or type of connection (i.e. WiFi, high-speed, Fiber Optic). One respondent (*116, CAI*), for example,

who answered the question correctly, said she would describe her Internet service as "Fios wireless Internet through Verizon." But even those terms were too technical for some. One respondent (*117, CAI*) who felt that the questions about the Internet and smartphones may be difficult for many non-technical people said that she herself used "just 'Internet" and "cell phone" to describe these things. Her assessment was supported by another individual (*306, CAI*) who explained her confusion and her incorrect answers to Question 10 by saying, "We just have Internet," adding that when she goes on the computer she presses "e" for Internet Explorer, and that is the way she connects.

The term "Satellite," in particular, appeared to cause significant confusion that led to incorrect answers. Five out of six respondents who said they had Internet through a satellite connection, did not. Although it is a word with which most respondents said they were familiar, it was not clear that respondents understood the term in relation to Internet technology. For example, as noted previously, respondents 241 and 341 (both *CAI*) answered "yes" to Satellite because they believed that was how their Internet Service Providers obtain their signals.

Another potentially contributing issue is the ubiquity of "bundles" offered by telecommunications and cable companies. Many respondents got their Internet, TV, landlines, and even cellular data plans through "bundles" with service providers, and thus knew who their service provider was, but had very little knowledge about how each separate component works.

- One respondent said the terms "all sound the same because you can get a package through a cable company for phone, internet, and TV." (131, Internet)

- One respondent thought the categories were all basically the same way of getting to the Internet, they are just run by different companies. (149, CAI)

- One respondent said they sounded the same when she first heard the question. She said she thought the interviewer was asking her the same question over and over. (242, CAI)

While the bundling issue was apparent amongst the respondents who answered inaccurately, it was also mentioned during probing by respondents who were able to answer correctly.

Respondents Whose Internet Was Included in Their Rent or Condo Fees Had Different Views on Whether or Not They "Pay for" Internet Access

Two respondents reported that their Internet service was provided by their apartment complex or condominium unit. However, their understanding of whether or not they "pay for" the service was

different. One respondent (*188, Internet*) answered "no" to the items in Question 10, saying she had free Internet access in her apartment that is provided as part of her rent. She considered free Internet to be one of the "amenities" offered by the complex. The second respondent (*205, CAI*) initially answered "no" to all of the items in Question 10. Before the interviewer could ask any probes, however, the respondent revised his answer for 10b to "yes." He noted that the phrase "pay for" in the question was confusing to him: "When you say 'pay for' I'm thinking do you actually get a bill from Comcast Xfinity. We don't actually get a bill. It's included in the condo fee. So, is that different or the same?" Ultimately, the respondent decided that he does pay for Internet because even though he does not get a bill, it is "fixed into the condo fee" so he is technically paying for Internet access.

4.2.4   Recommendations

No Changes Are Recommended to Items 8a, 8b, 9 and 11

■   Respondents had no difficulty understanding these items and answered them correctly.

Change the Format of CAI Questions 10b through 10e to Allow Only One Response

■   Seven CAI respondents erroneously said yes to more than one type of Internet access, especially respondents with low knowledge (seniors, people with low English ability) who had difficulty discerning between the categories of Internet service.

■   While none of the Internet respondents marked yes to more than one category, make the self-administered modes consistent with CAI to eliminate the possibility of marking multiple responses, which should be legitimately rare. With a mark only one format, allow a response option for respondents who do not have a paid subscription to the Internet

Consider Separating Concepts of Paying for Internet Access from Type of Internet Access

■   The two respondents for whom Internet was included in rent or condo fees provided different interpretations of "paid." One respondent answered "no" to items in question 10, explaining that the free Internet access in her apartment is part of her rent payment.

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The other respondent was confused about how to consider free Internet, ultimately deciding that he is paying for it, just not directly to the company.

- According to the Census Bureau (http://www.census.gov/content/dam/Census/library/working-papers/2012/acs/2012_Shin_01.pdf), the Internet questions were recently because of the "Broadband Data Improvement Act [which] requires that the Secretary of Commerce, in consultation with the Federal Communications Commission, expand the ACS to elicit information from residential households to determine whether they own or use computers at their address, whether they subscribe to an Internet service and, if so, whether they subscribe to dial-up or broadband Internet service at that address." If the Census Bureau is interested in understanding who pays for such access and who doesn't, the current line of questioning, which is double-barreled, will not provide such data. That is, those who answer "no" to items in question 10 could be doing so because they lack the type of Internet service or because they have the type of Internet service but do not pay directly for it. We therefore suggest asking separately about whether the service is paid for, even if included in rent payments. One possible wording of such an item might be:

  Do you or any member of this household pay an Internet service provider to access the Internet in this <house/apartment/mobile home/unit >? *If you pay for Internet service as part of your rent or condo fees, please answer with "yes".*

- If the series is revised to ask separately about whether the Internet service is paid for, do not include the "do not pay for access" option in the "choose only one" format for the Internet mode.

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5. Detailed Findings for Group 2 Topics

The Group 1 CAI protocols and Group 2 protocols tested potential revisions to the items asking about respondents' and/or other household members' year in which they entered the United States and year in which they were naturalized.

5.1 Year of Naturalization/Year of Entry

5.1.1 Background

Similar to the Year Built question, ACS interviewers indicate that it can be difficult for respondents to know the specific year for Year of Naturalization and Year of Entry. Furthermore, Census is aware from others sources that sensitivity is a concern for this topic, especially when being asked to provide specific years. Respondents may be concerned that the government will use this to check on their immigration status. The Census Bureau is considering changing the question from asking about the specific year to asking for a categorical response. Key research questions are whether respondents will find this less difficult or sensitive. Two versions were tested, one with six categories that contain primarily 5 years each (Version 1), and one with four categories (Version 2) that correspond to required and programmatic uses, though the number of categories read or shown to the respondent was tailored based on the person's year of birth. One goal of the testing was to determine if either option is perceived as significantly easier than providing a specific year as is done currently, and to assess whether either of the two sets of categories performs better than the other. Detailed narratives were collected from each respondent (as well as reporting for another household member who had been naturalized) to help ascertain the veracity of responses to the versions being tested.

5.1.2 Overall Item Performance

The Year of Naturalization item was tested with 15 respondents, while Year of Entry was tested with 23 individuals (8 respondents were non-citizens). Table 5-1 shows the number of respondents with the targeted characteristics sought for this question topic based on their responses to the ACS questions and corresponding probes. In general, respondents were able to easily answer these questions for themselves, but had a difficult time providing answers for other household members.

Table 5-1. Number of respondents or other adults in the household with targeted characteristics for the Year of Naturalization/Year of Entry questions by mode and version

Characteristics	Total	CAI		Internet	
		Version 1	Version 2	Version 1	Version 2
R or HH adult Entered from Latin America	12	6	4	1	1
R or HH adult Entered from Asia	12	3	2	3	4
R or HH adult Entered from Europe	5	0	2	2	1
R or HH adult Entered from Other (e.g. Canada, Africa)	6	1	2	1	1
Non-citizens	4	1	2	1	0
R is naturalized, other HH adult is naturalized but not at same time	6	3	2	0	1
R is citizen, other HH adult is naturalized	9	2	3	2	2
R or other HH adult arrived before 1985	10	4	2	1	3
R or other HH adult arrived 1985-1996	11	1	4	4	2
R or other HH adult arrived 1997-2004	7	3	3	0	1
R or other HH adult arrived 2005 or later	6	3	0	2	1

5.1.3 Key Findings

Thirteen of 15 Respondents Were Able to Provide a Correct Answer for Their Year of Naturalization, with Most Reporting the Question Was Easy to Answer

Fifteen respondents were asked in what year they were naturalized and 13 were able to answer the question correctly and provided the exact year of the event. Of the two who answered incorrectly, one (*341, CAI, Version 1*) changed his answer to the correct category upon probing; the second respondent (*336, CAI, Version 2*) said he came to the United States in 1992, and chose "1997 to 2004" for his Year of Naturalization. However, in his narrative he said he was naturalized in 2010 and added that it took him 15 years to go through the process. In addition, all respondents' immigration narratives matched their survey answers, with the exception of respondent 336, and he was one of the two respondents who incorrectly answered the Year of Naturalization item (*336, CAI, Version 2*). Although he had answered "1997-2004" on the survey, when he was telling the story of how he became a U.S. citizen and the interviewer asked him when he was naturalized, the respondent indicated that he had forgotten the year and that he was "not good with dates."

Of the 13 respondents who were probed on how easy or difficult it was to select an answer, 11 said it was easy.

- One respondent said, "It was easy. I remember about 1993 so it was in between '85 and '96." (318, Internet, Version 2)

- A second respondent thought it was "very easy" to choose a category because she remembered the year in which she became a citizen. (322, Internet, Version 2)

- A third respondent thought it was pretty easy because he knew the exact date. He said he still had his naturalization certificate and the date was on it. (381, CAI, Version 1)

Two respondents found it difficult to select an answer for when they were naturalized. Probing revealed their difficulties stemmed from the fact that both had come to the United States as young children and they did not remember much of the process. One respondent (*341, CAI, Version 1*) initially provided an incorrect answer ("1997-2004") and corrected his response to "2005 or later" once probing began. He reported having difficulty selecting an answer because "My mom did all that." The second respondent (*281, CAI, Version 1*) arrived in the United States as a young boy in 2000. He correctly selected "2005 or later" for Year of Naturalization, but when asked how long after he arrived in the US he began the naturalization process, this respondent stated "more than five years after, I can't remember anything else." When asked how easy or difficult this question was to answer, he replied, "Not very, because I couldn't remember, so I just gave a ballpark."

All 23 Respondents Who Answered Year of Entry Provided a Correct Response, with All But One Reporting the Question Easy to Answer

Twenty-three respondents selected a correct response when answering the question about their year of entry into the United States, with 22 of them able to provide their exact year of entry into the United States. The one respondent (*337, CAI, Version 2)* who could not was off by only a year. She was a child when she entered and not sure if it the year was 1986 or 1987.

Twenty-one of these respondents were asked the follow-up probe about how easy or difficult it was for them to answer, and the majority said it was easy.

- "[It was a] big change for me to come to United States so I remember." (322, Internet, Version 2)

- "Easy because I know the day I came." (278, Internet, Version 1)

- The respondent said it was easy because "it's something you remember." (121, CAI, Version 1)

Only one respondent (*340, CAI, Version 2*) out of 21 found it difficult to answer this question. She reported that English was her second language and added, "I'm very bad with numbers and years."

Respondents Indicated a Preference for Answering These Questions with the 5-Year Rather Than the Wider Intervals

Ten respondents were asked whether they would prefer to answer the Year of Naturalization question with 5-year ranges or wider intervals. Six respondents (three Internet, Version 2; one Internet, Version 1; one CAI, Version 1; one CAI, Version 2) preferred the 5-year ranges. Most respondents who preferred the 5-year ranges did not elaborate on their preference but, in general, the groupings appeared to be more intuitive to them. One respondent (*322, Internet, Version 2*), for example, said he preferred the alternate because it is in 4- or 5-year increments. The interviewer noted that the respondent seemed to be confused by the original set of groupings.

Three respondents preferred the wider intervals for Year of Naturalization, noting that it offered fewer response options.

- One respondent said the alternate was easier because "it's not a lot of numbers." (284, CAI, Version 1)

- One respondent thought the wider interval version was easier because it did not have so many years. (337, CAI, Version 2)

- One respondent thought people "might prefer" the wider interval version because it had fewer options to choose from which would allow people to pick an answer more quickly. (279, Internet, Version 2)

The one respondent (*281, CAI, Version 1*) who had no preference explained that "The time I've lived here is only a little larger than ten years," so there was "not much difference to me" between the 5-year and wider intervals.

For the Year of Entry item, 16 respondents were probed on whether they would prefer to answer with 5-year ranges (Version 1) or wider increments (Version 2). Eight respondents (four of whom had initially received Version 1, four of whom had received Version 2) indicated a preference for the five-year range. Six respondents (five of whom had initially received Version 1, one of whom had received Version 2) indicated no preference. Two respondents (both CAI, Version 2) preferred the wider intervals.

Respondents who preferred the 5-year ranges offered one primary reason for the preference: The 5-year range was more intuitive:

- One respondent said, "I think our human mind is more focused on a five year period than ten" and added that the five year intervals are easier because they end in the same numbers, creating a pattern (85/89, 90/94, 95/99, 00/04). (301, Internet, Version 1)

- Another respondent said the 5-year intervals were easier to answer because that is a more common interval. The respondent said he would have answered 1997 to 2004 using the wider intervals, but commented that it sounded "weird" because it's an irregular interval of 7 years. (317, CAI, Version 1)

- One respondent said he preferred the five year groupings "because it's easy to remember." (141, CAI, Version 2)

- One respondent stated the 5-year version "gives you more options" and "seems more structured" because the groups were more "even." (384, Internet, Version 2)

The two respondents who preferred the wider intervals both said they preferred this version because it was less to have to listen to (both were assigned the CAI mode):

- "You get lost [in the alternative version] which option is the correct one. I think it [the 5-year version] is too long." (242, CAI, Version 2)

- The second respondent preferred the wider intervals since there were fewer numbers to listen to. She said she did not really like either, however. (340, CAI, Version 2)

Of the six respondents who had no version preference, five had entered the country at the end of the scales (either before 1985 or after 2005) and mentioned that because their answers wouldn't change, the version didn't matter to them.

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Respondents Generally Expressed a Preference for Answering With an Exact Year Rather Than a Range for Both Year of Naturalization and Year of Entry

Four respondents received the probe asking if they would prefer to answer with a year or range for their year of naturalization, and they were evenly divided as to their preferences. One respondent (*141, CAI, Version 2*) said he preferred to give the exact year since he easily remembered it. A second who preferred to give the exact year (*381, CAI, Version 1*) said that "it might save time to ask straight out the exact year."

Both respondents who preferred to give the answer in a range explained that individuals like themselves, both of whom had been naturalized more than 20 years ago, might find it easier to answer using a range of dates rather than try to recall the exact year:

- One respondent was naturalized in 1993 and explained "…if it was in the last 2-3 years I would remember the exact year, but since you gave me a range, it was much easier for me to choose, since it was way back." (318, Internet, Version 2)

- The other respondent thought the ranges would be easiest and preferable for individuals who did not have at-hand documentation to reference in order to confirm the exact date. He thought people in his situation (he was naturalized in 1977) typically would not be able to recall an exact year over 20 years after the fact. (269, CAI, Version 2)

Eleven respondents were asked whether they would prefer to answer their year of entry by giving an exact year or by selecting a range. Seven respondents said they would prefer providing the exact year, in part because they remembered the date they came to the United States:

- One respondent said he didn't mind giving the exact year because he knew it so well. (381, CAI, Version 1)

- Another respondent preferred to answer with the specific year. Her year of entry seemed salient to her. (340, CAI, Version 2)

They also noted that because they know the exact year of entry, it is "easier" for them to report that date than to select the range in which the Year of Entry response belongs:

- One respondent said she would prefer to give her answer as an exact year. She explained that most people remember right off the bat the exact year they came, and just giving the year would be easier than picking a category. (306, CAI, Version 1)

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■ Another respondent preferred providing an exact year because "you don't have to think much." (242, CAI, Version 2)

Notably, five of the seven who preferred the exact year option completed the instrument in CAI.

■ One respondent (141, CAI, Version 2) preferred to answer using a range, noting that someone who came into the United States as a child might not remember his or her exact year of entry, but could accurately select a range.

■ The remaining three respondents (274, Internet, Version 1; 317, CAI, Version 1; 318, Internet, Version 2) expressed no preference.

Terminology in Year of Naturalization and Year of Entry Questions Was Comprehended by Most Respondents, Even Non-Native English Speakers, but Not by Proxy Respondents

All respondents who were themselves naturalized citizens understood the term "naturalized." Fifteen respondents were asked to say what they thought the term "naturalized" meant in the context of the question about their year of naturalization. Although there was some variation with regard to how nuanced their understandings were, all fifteen respondents could articulate that being a naturalized citizen involves a citizenship process for people who were not born in the United States or born to American parents abroad. Some respondents provided descriptions of the process such as this respondent (*141, CAI, Version 2*) who explained the term naturalized means "when you go from green card status to citizen, and you get the right to vote" adding that you get "all the benefits of being a citizen," such as social security and other state and Federal benefits, as well as "obligations" such as signing up for selective service. Other respondents used more poetic language to describe the naturalization process, such as this respondent (*341, CAI, Version 1*), who now helps immigrants through the process, but in his own words thinks "You are in a marriage with the United States now."

Respondents who were not naturalized and were answering for someone else had more difficulty understanding the term "naturalized." Respondents who themselves were not naturalized citizens and who were answering for another household member demonstrated a superficial understanding (at best) of the term *naturalized*, which increased their response burden for this item. For example, one respondent (*263, Internet, Version 1*) said that naturalization means that the person "was sworn in, went through that whole process" but could not give any details of what "that whole process" entails. Yet several respondents did not appear to understand the term. One

respondent (*249, Internet, Version 2*) who was reporting for his father was unclear about the definition. He said, "Meaning he went through a green card and then got his citizenship? Is that naturalization?" He then debated with himself as to whether or not his father was naturalized.

Another respondent (*241, CAI, Version 2*) who was reporting for his mother thought naturalization means that you were born in the United States and so you are automatically ("naturally") a US citizen. A third respondent (*274, Internet, Version 1*), answering for his uncle, thought being naturalized means having a green card and still being a Vietnamese citizen, and not an American citizen. The person may live in the United States, he said, but is not a citizen of this country.

The phrase "came to live" was readily understood by most respondents. Twenty respondents were probed on what the phrase "came to live" used in the Year of Entry question meant to them. The majority (16), regardless of mode, version, or English language familiarity, were able to correctly articulate what the phrase means in the context of the question. Many respondents used the term "immigrate" or emphasized that "coming to live" implies permanence, not just "visiting." One respondent (*336, CAI, Version 2*) characterized the distinction between visitor and immigrant, saying "…when I came to live here, I'm not a tourist anymore, so everything changed, even the landscape. When I came [as a tourist, I thought] 'Oh, look at the landscape!' but when you come and live, you say 'Wow, we need to cut the grass!'"

Only two respondents indicated that they did not fully comprehend the phrase as intended. One respondent (*255, CAI, Version 1*) came to the United States in 2013, but returned to Honduras after five months and then returned to stay later in 2013. To him, the phrase meant the "…first time I use my visa to come and visit." The second respondent (*284, CAI, Version 1*) interpreted "came to live" as "what year did you think to come, it's not exactly what year did you enter the United States." Though the interviewer confirmed that his answer (2014) is when he arrived in the United States, the respondent indicated that he first *thought* about coming to the United States at the end of 2012. If the question asked what year you "entered the United States," he stated it would mean "when exactly did you enter the States."

For the remaining two respondents, interviewer probes were unable to elicit their understanding of the phrase.

Most respondents noticed "give the latest year" and understood its meaning. Thirteen respondents were probed on whether or not they noticed the instruction to report their "latest year" if they had come to live in the U.S. more than once. Eleven of the thirteen did notice. The two

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respondents who didn't notice (*269, CAI, Version 2; 341, CAI, Version 1*) had never left the United States after immigrating here, however, so their answers would not have been affected by the missed instruction. Indeed, all thirteen respondents answered the Year of Entry question accurately.

Fourteen respondents were asked to articulate what "latest year" means in the context of the question about their year of entry. Thirteen of these respondents gave similar explanations that described "coming and going" from the US to other countries:

- "If we have shuttled back and forth between here and our home country, you want to know that." (281, CAI, Version 1)

- "If you came to the US… and then decided to go back to live in another country… and then a second time or a third time decided to come back to the US to live, provide the latest time." (318, Internet, Version 2)

Only one respondent (*284, CAI, Version 1*) expressed confusion about what this phrase meant and he had also expressed confusion with the phrase "came to live."

We reviewed all the first person narratives to ascertain if any respondents had entered the country more than once, and to see if their understanding of the Year of Entry instructions differed from those who had only come here one time. Only two respondents had lived abroad and entered the US more than once (other than holidays). One (*255, CAI, Version 1*) said very clearly that he "came to *visit* in 2013 [emphasis added]." He was in the United States for 5 months, went back to Honduras for 3-4 months and then decided to came back to live in the US. The second respondent (*384, Internet, Version 2*) became a citizen in 2005 and then worked for the CDC in Vietnam for 5 years starting in 2008. When asked why he did not report the date when he returned from Vietnam, he offered this explanation: "The time that I went to Vietnam, I was still a US citizen who was assigned to work in Vietnam."

Respondents Had Difficulty Answering Year of Naturalization for Other Household Members, but Were More Accurate and Had Little Trouble Answering Year of Entry As Proxies

Of the 23 proxy respondents, 12 provided accurate responses for the Year of Naturalization of other household members[3], while four clearly provided incorrect answers. We were unable to ascertain the accuracy for seven other respondents, although five of these reported the question to be difficult. Among the four respondents whose answers were inaccurate, the meaning of "naturalization" appeared to cause difficulties for three of them:

- Respondent 223 (*Internet, Version 1*) knew that his adopted sister had come to the United States from Croatia in 1996 and believed the naturalization process for her began "as soon as they got to the U.S." He believed she was sworn in in 1999 and selected "1995-1999" for his answer. After the interview, the respondent phoned his sister and found out the actual year was 2000.

- One respondent (*241, CAI, Version 2*) selected "Before 1985" for his answer for his father, but changed his response to "1985-1996" upon probing. He said not only was he unsure what "naturalization" meant, but said he did not know the history of when his parents came to the United States from Ethiopia. He said he changed his answer during probing because he was born in the United States in 1996 and figured they must have been naturalized before he was born.

- Another respondent (*274, Internet, Version 1*) selected "2000-2004" for his uncle, but changed his answer during probing to "1995-1999." He was not sure what "naturalization" meant, saying he thought it might be when someone has a green card, but is not yet a citizen. He reported the question to be difficult and said he was not confident in his answer.

- The last respondent (*263, Internet, Version 1*) reported his unmarried partner was naturalized between "1990-1994". He indicated that she came to live in the United States in 1993 and believed she began the naturalization process within a year (hence his answer). He said that naturalization means the person "was sworn in, went through that whole process." However, he did not know many details about the naturalization process beyond that there is a test and an oath.

Of note, 18 respondents were probed as to the relative ease or difficulty of answering this question for other household members. Half (9) reported the question to be difficult and they were evenly divided between Version 1 (5) and Version 2 (4). Frequently they said they did not know the full

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[3] For purposes of the testing, we only asked respondents about P2.

history of how this person had become a United States citizen and thus were unsure about the exact year in which their naturalization took place:

- One respondent did not know the exact answer for her father, but she knew it was after 2005. She chose not to fill in the exact year because she didn't know it. (*278, Internet, Version 1*)

- Another respondent said it was difficult to answer because he did not know the history of when his father came to the US and became citizens. *(241, CAI, Version 2)*

- One respondent said that answering was "difficult" because she could not remember the exact year. She recalled that her parents had a party when her mother became naturalized, but it was around the time when she was too young to remember concrete dates. (*292, Internet, Version 2*)

Proxy respondents had an easier time coming up with a correct Year of Entry answer for other household members, with 26 out of 29 able to answer this question accurately. We were unable to ascertain the accuracy for three other respondents. Of the 25 respondents who were asked about the relative ease or difficulty of reporting Year of Entry for other household members, 19 indicated that the task was easy. Of the six who reported the question to be difficult, one (*241, CAI, Version 2*) had not been born at the time his father came to the United States and a second (*317, CAI, Version 1*) was a toddler at the time. A third respondent (*242, CAI, Version 2*) said it was difficult because "it was not her own situation" and so was not as clear on the details. The other three (*255, CAI, Version 1*; *314, CAI, Version 2*; *341, CAI, Version 1)* did not elaborate.

5.1.4   Recommendations

Few problems were detected in providing one's own year of naturalization in ranges of categories. However, respondents who themselves had not been naturalized and were asked to provide the year of naturalization for another household member evinced a superficial understanding, at best, of the meaning of "naturalization" and several did not understand the term at all. In order to reduce response burden, we recommend providing respondents with a definition of "naturalization," such as: "Naturalization is when a person becomes a U.S. citizen."

- Respondents who had been through the naturalization process themselves understood what the term meant. However, several respondents who were U.S. citizens responding on behalf of naturalized household members were not familiar with the term

"naturalized." Adding a definition should help reduce respondent burden and increase the response accuracy, particularly for other household members.

For interviewer-administered modes, allow respondents to provide an exact year of their naturalization and year in which they entered the U.S., or if they prefer, provide them with an option to answer in the wider ranges. (For self-administered, only offer the wider ranges.)

■   Nearly all CAI respondents knew, and most preferred to provide, their exact year of naturalization and year of entry, rather than having to fit it into ranges.

■   Because Census has found through other testing that some ACS respondents consider it sensitive to provide an exact year, the CAI mode will provide an option to answer in ranges if the respondent expresses reluctance to provide an exact year or does not know it. This was not an issue in the cognitive testing, however, cognitive testing respondents tend to be more forthcoming than the general population.

■   Most respondents reported a preference for the five-year ranges, although many CAI respondents indicated that the five-year options required them to pay attention to a lot of different numbers. In addition, several respondents had difficulty providing an accurate proxy response using the 5-year ranges. The wider ranges should reduce respondent burden and give them enough latitude to be able to answer accurately.

For Internet mode, the web programming should allow the respondent to provide an exact year, or mark a box if they prefer to answer in a range, at which point the ranges will appear on the screen.

■   We do not recommend including the option to answer with an exact year in the Paper mode because respondents could accidentally answer with an exact year and a range, but provide contradictory responses (e.g., provide a year that does not fit within the range selected).

6. Detailed Findings for Group 3 Topics

The Group 3 protocols tested potential revisions to Addresses Residence One Year Ago and Place of Work and Weeks Worked.

6.1   Addresses for Residence One Year Ago and Place of Work

6.1.1   Background

According to the Census Bureau, the ACS questions about place of work address and residential address one year ago can be challenging, especially for other household members and those living or working at rural addresses. Many respondents do not know whether their place of work is within the city limits, and others do not know the county name for their residence or place of work. The current ACS has text for "Name of …", which may be unnecessary and interrupts the regular flow of address, city, state, zip that people are used to seeing. A key research question is whether re-sequencing and simplifying labels make these items easier to answer. Additionally, the Census Bureau is interested in respondent reactions to re-sequencing the county and city limits (only for Place of Work) to come after ZIP so as not to interrupt the flow of collecting the address.

6.1.2   Overall Item Performance

The item asking about residence one year ago was tested with 15 respondents. Place of work address was tested with 20 respondents. Table 6-1 shows the number of respondents with the targeted characteristics sought for this question topic based on their responses to the ACS questions and corresponding probes. Overall, respondents were able to provide residential addresses for themselves and household members one year ago with little difficulty. Many respondents were not able to give a complete work address either for themselves or a household member, but were aided by the prompt to provide a description of the location. Several who had trouble remembering a complete address suggested that during a real interview they would be able to look up the missing information, either by calling someone or using Google. Respondents claimed they could answer confidently about city limits, but then could not verify their statements. All respondents but one answered that their work address was within the city limits, though most said that they did not actually know what the city limits were.

Table 6-1.   Number of respondents with targeted characteristics for Addresses for Residence One Year Ago and Place of Work by mode and version

Characteristics	Total	CAI		Paper	
		Version 1	Version 2	Version 1	Version 2
Recent (past 12 months) movers within US	10	2	2	4	2
Work at multiple locations, such as agriculture, contractors	13	4	3	4	2
Work or live at rural address (now or in past year) (PAPER ONLY)	7	–	–	5	2

6.1.3   Key Findings

Respondents Generally Had Little Difficulty Answering About Home Address One Year Ago

Of the 15 respondents who answered this question, all said it was easy to provide an answer for their own address. One explained, "We write it on envelopes, we write it on surveys, we say it verbally to people throughout our lifetime, so I know my own address" (*128, CAI*). Respondents who had not moved within the last year (4 Paper) explained it was easy because they had lived in their house for multiple years and so could easily recall the address. Among the nine respondents who answered during the interview that they had moved within the past year (3 CAI, 6 Paper), most explained that they were unlikely to have forgotten their previous address within the past year. One stated, "It wasn't that long ago" (*147, CAI*). Among the three respondents who lived in rural areas one year ago, none reported having any difficulty. One said it was easy to answer because she had lived at the same address for seven years (*307, Paper*), while another commented that because her husband had moved from their rural address just recently, it was still easy to recall (*245, Paper*).

Overall, three respondents were confused by the instruction to provide their home address from one year ago (1 CAI, 2 Paper). When hearing the question read aloud one respondent had to ask, "Of this home or the one before this?" (*147, CAI).* She later explained her confusion was because the item asked about the country directly before the street address. Two people who received the Paper instrument were confused by the instruction, "Where did this person live 1 year ago?" Both were not sure if they were supposed to answer if they lived at the same address one year ago or only if they had moved in the past year.

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Residents Generally Did Not Have Difficulty Reporting County, Except for Residents of the District of Columbia

Four respondents (3 Paper, 1 CAI) had difficulty reporting their county name. One respondent confused "county" with "country", writing in "United States" for the county (230, Paper). The other three who demonstrated difficulty (1 CAI, 2 Paper) resided in the District of Columbia

■ One woman who moved recently to the city explained that she was not sure if there is a county in DC. She decided to report her ward in this field, reasoning that it was the closest thing to a county in DC (*124, Paper*).

■ Another DC resident wrote in "Wash" for city, "DC" for state, and "District of Columbia" for county (*290, Paper*).

■ An additional CAI respondent mentioned that she was confused about what to report for DC's county. She explained that DC had "quadrants" like North East or South East, but she was not sure about county and so left it blank (*147, CAI*).

Respondents Generally Preferred Providing Address Information in the Order It Was Presented to Them by the Questionnaire

Twelve respondents were asked if they preferred providing their addresses in the order presented by the questionnaire or in some other order. Eleven respondents (5 CAI, 6 Paper) stated that they preferred the placement of county after the zip code, as presented in the item. An additional respondent said she did not have a preference but noted that she was used to seeing the order as presented. Most respondents explained they preferred this order because this is how they usually see it.

■ One commented, "That's the way you're going to write an address anyway, and then you can just put the county behind it" (*147, CAI*).

■ Another said, "Most of the time you fill out your address, it's in this order" (*224, Paper*).

Respondents Demonstrated Difficulty Providing Their Own Full Work Address

Out of 19 respondents who were asked to provide the address for their place of work, 11 respondents reported that it was easy and eight reported some difficulty. Three of the eight were not able to give the zip code. Four of the eight did not know the address number, but did know the

street name. An additional respondent who works at multiple jobs left all fields blank, and commented, "nobody knows the address of where they work" (*307, Paper).* She explained that she babysits for a friend and did not fill in any information on the Paper form, but was able to give the city, state, and zip code when asked during probing. All, except this one respondent, were able to follow the instructions to give partial information about the address. Among the respondents who did not know the complete information, five said – without prompting from the interviewer – that they would look up the information (e.g., on Google or by looking at a spouse's business card) if they were completing the survey at home.

Four out of eight respondents who worked at multiple addresses reported difficulty.

- One respondent was a canvasser and worked at multiple locations. He did not know the street address of the company's headquarters, so provided the metro stop it is near, the city, state, and zip (203, CAI).

- One respondent was a babysitter and commented "nobody knows the address of where they work." (307, Paper).

- One respondent said she did not know for which job to answer, although she was able to provide the full address for the job she ultimately selected. She did not comment on how she decided which job to answer about, but later on in the interview, she reported working 25 hours a week at this job and having different side jobs. (370, CAI).

- An additional respondent who was "a transplant from DC" to a nearby suburb in one of the surrounding states was not sure of the zip code (244, Paper).

While eight respondents screened in as having a rural home or work address, none of the respondents ended up reporting a work address in a rural area, so we are unable to comment on any difficulties that might arise due to reporting rural places of work.

Respondents Generally Preferred Answering About County, ZIP Code, and City Limits in the Order Presented by the Questionnaire

Eighteen respondents commented on the order of collecting address information for place of work. Ten respondents stated they preferred the placement of the zip code, county, and city limits as presented, two preferred another way, and six had no preference. As with the placement of county, several respondents said they liked this order because it reflected how they are used to writing an address. One Paper respondent explained that it "made sense" because, "when you write an address you put the zip right after state" (*244, Paper).* Three others explained that knowing the zip code

would make it easier to answer whether the address is within the city limits. One explained, "It's easier to figure out where the county and city limits will be based on the zip code" (*203, CAI*). Others said the order was "fine" (*multiple respondents*) and that it "makes sense" (*308, CAI*).

Both people who preferred some other placement thought the zip code should be placed earlier in the address, but did not specify in what order it should go.

Respondents Could Not Answer Reliably About Their Place of Work Being Inside the City Limits

Overall, respondents thought it was easy to answer the question about whether their place of work was within city limits (15 easy, 3 difficult) and were confident in their response (18 confident, 0 not confident). When answering for their own work address, 17 people answered yes, the work address was within the city limits, and one respondent said no. However when asked if they actually knew the city limits of their workplace, the majority said no (13 no, 5 yes). The respondent who answered no worked was a canvasser and so did not have a regular work address. He explained that the headquarters of the company he worked for was within the city limits but he traveled to other places (*203, CAI*).

Three people reasoned that their work address must be within the city limits if the name of the city was part of the mailing address. For example, one explained "If the address has that city in it, then it's located in that city" (*300, Paper*). Another respondent used similar reasoning explaining that she knew her address was in the city where she works because, "It uses [that city's] address" (*374, CAI*).

Others explained that they could confidently answer yes because they were familiar with the area or because they knew the address was well within the city itself and not close to the boundaries.

- Among the five who said they knew where the city limits were, one was in the volunteer fire department for her town so she knew the boundaries. Another explained that if a street sign is blue it is within the city, and if it is green it is not.

- Two additional respondents who did not know about the boundaries, but were confident about their answer of Yes, said they knew because their GPS or an app on their phone told them the address was within a particular city. Notably, however, the address being in a particular city actually may not align with being "inside the city limits."

- Two people who answered this question thought it was asking if the work address was inside the city limits of their home address. This may be an artifact of testing since in the test version the item asking for home address (ACS question 15) immediately precedes the item asking for work address (ACS question 30).

Respondents Generally Had no Difficulty Providing the Place of Residence Address on Behalf of Other Household Members

All 11 respondents (5 CAI, 6 Paper) who gave a residential address for another household member one year ago said this was easy to answer, although one had demonstrated difficulty in answering despite claiming that it was easy. Almost all explained this was because the address was the same as their own. As one respondent explained, "It's easy because we live together and I know I live with him and it's the same address" (*127, Paper*). All were similarly confident that the address they provided was correct.

One respondent whose spouse did not live at the same address one year ago demonstrated difficulty. The respondent explained that her spouse was in jail one year ago and she only wrote the name of the jail in the address field. She did not realize until probing that she should also have included the number and street name, which she knew from memory. She did not recall the zip code or the county, but said she could look them up if needed (*124, Paper*).

Respondents Had Difficulty Providing a Place of Work Address on Behalf of Other Household Members

Respondents had considerably more difficulty providing the work address for a household member. Only two respondents (1 CAI, 1 Paper) out of the 17 for whom this was applicable were able to give the complete address.

- One explained she was able to answer because they worked together at the same location (230, Paper).

- The other said her spouse worked at the same address for over 20 years (304, CAI).

Fourteen respondents were able to give partial information. Eleven knew the city, and 11 knew the state (10 of these overlapped), six knew the county, six were able to list a landmark or cross-street. However, only two knew the street name, and only one knew the street number.

- One respondent commented that this was "harder" because he has not asked his wife the location of where she works, "So I don't know the exact address, the physical address. I just know in general where it is." He was able to give a street name because he knew which exit she took off the highway to get there (315, CAI).

- One respondent explained that this question was of "medium" difficulty because she often picked her husband up from his workplace. She commented, "I see the address at the entrance of the building, that's how I recollect it," but she did not know the zip code (308, CAI).

- An additional respondent who drives his wife to work was able to give the street address, but not the zip code (308, CAI).

- One respondent was not able to recall any information about her husband's work address, but noted he occasionally worked from home (307, Paper).

- Two people also said that if they were taking the survey at home they would be able to get the proper address information by checking a business card or calling the other household member for whom they were answering (139, Paper; 244 Paper).

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6.1.4　Recommendations

Leave zip and county placement as tested.

- Respondents generally showed a preference for the current order of the address questions as they reflect how they are used to reporting their address. Any difficulties in answering were a result of recall or prior knowledge and not question order.

In the CAI instrument, change 15d to say "What was the street address where you lived one year ago?" to clarify the residence being asked about.

- One person who moved from a foreign country several years prior was not sure which residence this question was asking about and had the interviewer re-read items 15a, 15b, and 15d before answering.

6.2　Weeks Worked

6.2.1　Background

Previous testing found that respondents had challenges with calculating the specific number of weeks worked and understanding the reference period. One change since the prior rounds of testing was to clarify the specific reference period with a date fill in automated modes. The current round of testing the CAI instrument seeks to determine whether this helps respondents to better understand the reference period. Furthermore, the Census Bureau is interested in whether providing an option in interviewer-administered modes for first calculating months worked (and then validating number of weeks worked) would help some respondents. Finally, another key research question is whether asking for hours worked first provides a helpful framework for asking weeks. As such, two versions of these items were tested in order to evaluate whether asking Hours Worked before or after Weeks Worked provides helpful context in framing the work done in the past year.

6.2.2　Overall Performance

The items were tested with 21 respondents. Table 6-2 shows the number of respondents with the targeted characteristics sought for this question topic based on their responses to the ACS questions and corresponding probes.

Table 6-2.   Number of respondents with targeted characteristics for the Weeks and Hours
            Worked questions by mode and version

Characteristics	Total	CAI		Paper	
		Version 1	Version 2	Version 1	Version 2
Regular job with regular schedule	10	3	3	2	2
Irregular worker: partial year worker or irregular schedule	17	5	3	6	3
Combination of paid and unpaid work (college students with unpaid internships or semi-retired workers)	9	2	2	4	1

6.2.3   Key Findings

Most Respondents Correctly Answered Weeks Worked; Those Who Answered Incorrectly Did So for a Variety of Reasons

Fifteen of the 21 respondents who answered weeks worked for themselves answered this question correctly. Six respondents provided an incorrect answer based on our analysis of their responses to probing questions. This included one respondent who answered both parts of the question incorrectly, three who erred in answering the first part (asking if they worked every week), and two who answered the follow-up question wrong (asking how many weeks the person worked). Errors were evenly split between versions, with three answering incorrectly when weeks worked was asked first, and three answering incorrectly when hours worked was asked first.

- The respondent who answered both parts incorrectly actually worked two days per week for the entire past 52 weeks. When first asked if he had worked every week in the past year, the respondent answered "no", explaining that since he did not work full weeks, it would not add up to 52 weeks. He was then asked the follow-up question about how many weeks out of the 52 he *had* worked. The respondent "tried to estimate, working part time, what that might add up to out of 52 weeks. 20 sounded about right" (156, CAI, Version 1).

- Two respondents failed to exclude unpaid time off from their answer to item a, thus erroneously answering yes when the answer should have been no (304, CAI, Version 1; 374, CAI, Version 2)

- One respondent who works as a babysitter forgot that she did not work in the summertime, so should have actually answered "no" to item a (307, Paper, Version 1).

- One respondent was thinking about an incorrect timeframe (October 2014 – August 2015), so the calculation of weeks worked in item b overestimated how many weeks he had worked (203, CAI, Version 2).

- Finally, one respondent erroneously skipped item b, but in probing, replied that she had actually worked 16 weeks. In fact, earlier in the interview, the respondent had mentioned an additional part-time job earlier in the year that she did not include in the 16-week estimate. The 16-week estimate was likely an underestimate because of the additional part-time job. (244, Paper, Version 2).

Respondents who worked a combination of paid and unpaid work generally answered this question correctly. Only one such respondent answered incorrectly and this was because she included her unpaid vacation time in her total weeks worked, not because she included any unpaid work time.

Most Respondents Had No Difficulty Providing an Accurate Count of the Number of Hours They Work per Week

Sixteen of 21 respondents answered the question about hours worked correctly, two answered incorrectly, and analysts were not able to determine if the answer was correct or incorrect for three others. Overall, 17 respondents said it was easy to answer about their hours worked and four said it was difficult. Those who said this question was easy explained this was because they either worked full time or had a set schedule.

Respondents With Multiple Jobs or Irregular Schedules Were More Likely to Report That These Were Difficult Questions to Answer

Five out of the 21 respondents said it was difficult to answer about weeks worked. All five respondents received Version 1 (weeks worked, then hours worked) and all five were partial year workers (3 CAI, 2 Paper).

- One respondent found the question to be difficult because she was off for bereavement leave, knows she did not work every week. *(370, CAI, Version 1)*

- One respondent thought it was "a lot to absorb in one question" because "it's asking them to think back to 52 weeks [and] it's asking them to remember how much time they had off" and "if I'm correct in assimilating this, it's asking them to remember whether it was sick pay or to not include those time frames where you were paid with sick leave". *(128, CAI, Version 1)*

■   One respondent stated "there was a little bit of a challenge" in answering this question because her work schedule is "a little bit less the norm." (*224, Paper, Version 1*)

Other part-time workers, three of whom received Version 1 and five of whom received Version 2, did not report any difficulties with this question.

Respondents Generally Preferred to Be Asked Weeks Worked First, Although More Difficulty Was Encountered When Weeks Worked Was Asked Before Hours Worked

Sixteen of 17 respondents were asked whether they preferred to answer the questions with hours worked or weeks worked being asked first. Seven preferred to be asked about weeks worked first, six of whom had originally been asked about weeks worked and then hours worked; three respondents preferred to be asked about hours worked first (two of whom had been asked about hours worked first originally); and six said they had no preference.

■   One respondent who preferred to be asked hours worked first thought the reversed order would have been more difficult because hours worked is easy for her to answer and asking about the weeks worked gets her confused. (128, CAI, Version 1)

■   Another respondent who also preferred hours worked first said he had answered the weeks worked question by adding up his total hours, noting that with a part-time job it would have been easier for him to make this calculation if he thought about the hours first and then total the weeks based on those hours. (156, CAI, Version 1)

■   In contrast, one respondent who preferred weeks worked to be asked first explained that asking the weeks worked first helped to focus and frame the time she actually spent working. "I wouldn't know how to take into account the time that I didn't work and take into account the fact that I just started working […] Putting the hours after only made me take into account these 14 weeks that I was working." (300, Paper, Version 1)

Notably, all five of the respondents who had difficulty answering the specific number of weeks they worked (referenced earlier) had received version 1, asking first about weeks worked, then hours worked.

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While None of the CAI Respondents Actually Requested to Answer in Months, a Slight Majority of Respondents Said it Would be Easier to Answer in Months Instead of Weeks

Of the 12 CAI respondents who were eligible to receive the question about weeks worked, none spontaneously indicated a preference to answer in months so the follow-up question (ACS item 39C (Version 1)/40C (Version 2)) was not administered. This option was only available to CAI respondents who did not work the full year.

Seven of the 12 CAI respondents were asked if they would prefer to answer in months or weeks. Four said they would prefer to answer in months, two preferred to answer in weeks, and one had no preference. All four respondents who preferred to answer in months had irregular employment over the previous year, and explained that it would be easier to calculate the total in months.

- One person who worked multiple jobs over the course of the year explained, "It would have been easier to add up (months) rather than weeks. I had to think about the time period for each job" (181, CAI, Version 1).

- Another commented, "For people who don't know math it might be easier than counting out all the weeks" (370, CAI, Version 1).

One of the respondents who said it would be easier to answer in months based this on the rationale that there are four weeks to a month and it would be easy to calculate the total weeks by multiplying *(308, CAI, Version 2).* Many respondents shared this misconception which is discussed in more detail below.

Paper Respondents Were Split in Their Preference for Answering in Weeks or Months

Among Paper respondents (who were not given the option was to report in months) three out of seven said they would prefer to answer in months when probed.

- One respondent who preferred to answer in terms of months explained that she had originally been thinking in terms of months and then converted her answer to weeks (224, Paper, Version 1).

- Another respondent explained that being able to round to the nearest month would make it easier to give an answer for those like herself who started mid-month (244, Paper, Version 2).

- A third respondent preferred to answer in a combination of weeks and months, for example 11 months and two weeks (290, Paper, Version 1).

Two Paper respondents said they preferred to answer in weeks, and explained that weeks were a more precise measure which would make it easier to answer.

- One said that it would be more complicated to answer in months because if someone only worked a fraction of a month, "that could get kind of hard to do the math" (300, Paper, Version 1).

- Another stated that weeks were more "specific" and if answering in months you "could be off" because they are "more big picture" (305, Paper, Version 2).

Regardless of Mode, Respondents Calculated Weeks Worked on the Basis of Four Weeks per Month

In both the CAI and Paper instruments six respondents who worked something other than a standard workweek answered the question by thinking first in terms of months and then converting to weeks. All thought of the month they started working, then assigned four weeks to a month to calculate their total weeks worked.

- One explained, "I associate four weeks to the month" and answered 32 weeks since he had worked for eight months (181, CAI, Version 1).

- One person who answered "9 weeks" on Paper explained her answer by saying, "Within these 52 weeks I only worked two-and-a-half months." While filling out the questionnaire she counted to herself, "Four, eight, nine…nine weeks," indicating that she was thinking first in month-long intervals of four weeks in order to calculate the total weeks. She also provided the exact dates of her employment as September 3 through November 18, which would actually add up to 11 weeks (124, Paper, Version 1).

- A third respondent answered 14 weeks by calculating 12 weeks for April, May, and June and an additional two weeks for starting work mid-March. The interview was conducted on June 22 so she over-counted by counting four weeks for June and undercounted by calculating four weeks per month. Ultimately, and by accident, her final answer was correct (300, Paper, Version 1).

Many Respondents Misinterpreted the Timeframe, Regardless of the Inclusion of the Extra Statement in CAI

In order to help improve respondent processing of the timeframe for weeks worked and hours worked, the CAI version tested the inclusion of a statement that provided the exact timeframe for the questions (*The next few questions ask about work in the past 52 weeks, that is from <current date, year -1> to today*). A similar statement did not appear in the Paper version. Regardless of whether the statement was included, when reporting on both weeks and hours, a comparable number of respondents misinterpreted the timeframe within each mode. Four out of ten CAI and six out of 10 Paper respondents thought of a timeframe other than the past 52 weeks. These other timeframes tended to refer to when respondents were working, and included the last six months (*147, CAI, Version 2*), the past three years (*374, CAI, Version 2*), October 2014 to August 2015 (*203, CAI, Version 2*), "before February of 2016" (*244, Paper, Version 2*) and "the entire year" of 2016, or January to June (*127, Paper, Version 2*). In CAI, the same four respondents answered incorrectly about the time frame for both hours and weeks. In Paper, only one respondent of the six respondents answered incorrectly for both hours and weeks. The other five answered incorrectly for one or the other.

Three respondents said that they were thinking of the time they were in their current job which did not result in an incorrect answer since they had been unemployed the rest of the past 52 weeks. For example, the person who answered "before February of 2016" started work in February and therefore anything before that, "doesn't count for the 52 weeks" (*127, Paper, Version 2*).

Most Respondents Were Able to Answer about Other Household Members

Fourteen respondents answered for other household members and were asked about the burden of the question. Twelve said it was easy to answer and were confident that they gave the correct answer for weeks worked for another household member.

Two said it was difficult to answer and were not confident that their answer was correct.

- One respondent, answering about his unmarried partner, said he would have to guess the answer (139, Paper, Version 2).

- The other explained that her husband retired and was also living in a different state for part of the year, which made it difficult to answer for the past 52 weeks. She

commented, "If he wasn't retired it would be easy […] It was a complicated year" (245, Paper, Version 1).

6.2.4   Recommendations

Use the question order tested in Version 2, asking first about hours worked, then weeks worked.

- Respondents with multiple jobs or irregular schedules experienced more difficulty answering weeks worked when it came before hours worked.

Continue to include the extra statement in the CAI version about the last 52 weeks.

- Misinterpretation of the time frame was comparable in the CAI and Paper versions, regardless of whether weeks worked or hours worked was asked first. Removing the statement may lead to decreased accuracy in CAI as compared to Paper.

In CAI and Internet, explicitly give respondents the option of responding in months, and do not verbally confirm conversion of months to weeks. Respondents do not think of more than 4 weeks per month and this will add confusion.

- Six of 13 respondents who provided a response to the number of weeks, when probed, explained that they were thinking in terms of months when they calculated their answer. All 6 reported using a 4 weeks per month timeframe.

- Although many respondents stated a hypothetical preference for answering in months, none of the CAI respondents requested to answer in months, so we were unable to test this option.

- One potential issue with this revision may be for respondents who work only 1 or 2 weeks in any given month and choose to provide their answer in months. Converting their months answer to weeks without confirming that calculation may overestimate the actual number of weeks they worked. Further testing would be needed to ascertain if these types of respondents would, indeed, choose to answer in months in the first place.

Do not offer a months option in the Paper mode because respondents have more options at their disposal to refer to a calendar to count out weeks.

> One respondent in the Paper mode pulled out a calendar to help her count up the weeks she'd worked. One other respondent said she would use a calendar if she were answering at home.

Appendix A

Respondent Demographics

Demographics	Totals	Group 1 CAI	Group 1 Internet	Group 2 CAI	Group 2 Internet	Group 3 CAI	Group 3 Paper
Gender		-	-	-	-	-	-
Male	32	4	1	10	8	5	4
Female	40	8	11	2	4	7	8
Other	0						
Education							
Less than High School	1		1				
High school or GED	16	5	3	3	2	1	2
Some college	21	1	4	3	4	6	3
College	21	3	2	6	2	2	6
Graduate/Professional Degree	13	3	2		4	3	1
Age							
18-29	25	2	3	6	7	4	3
30-39	16	4	3	3		2	4
40-49	9	2	1	1	2	2	1
50-64	17	3	5	1	2	4	2
65+	5	1		1	1		2
Race/Ethnicity							
Hispanic no other race	0						
Hispanic Black (Afro-Latinos)	2	1					1
Hispanic White	12	4	1	5	1	1	
Hispanic Other	1		1				
White	17	2	3	3	4	3	2
Black	15	2	3	2	2	3	3
Asian	20	2	2	2	5	4	5
Other	1		1				
Multiracial	4	1	1			1	1
TOTAL	**72**	**12**	**12**	**12**	**12**	**12**	**12**