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MEMORANDUM FOR	ACS Research and Evaluation Steering Committee
From:	Anthony G.Tersine /Signed/ ADC for Decennial Statistical Studies Division
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Subject:	2011 American Community Survey Internet Tests: Results from Second Test in November 2011- Revision

Attached is the final American Community Survey Research and Evaluation report "2011 American Community Survey Internet Tests: Results from Second Test in November 2011." The Internet tests focused on evaluating the feasibility of providing an Internet response mode to addresses sampled for the American Community Survey. The main objective of the tests was to determine the best way to present the Internet mode in the ACS mailings to maximize self-response. This report summarizes the results of the second ACS Internet Test conducted in November 2011.

In June 2012, this report was revised to modify the text regarding a comparison to Internet and mail respondent demographics in the April 2011 Internet Test. This revision was required due to a change in May 2012 to the April 2011 test report to indicate a significant finding that was mistakenly overlooked in the previous version. See section 4.4 for the revision.

If you have any questions about this report, please contact Brenna Matthews at 301-763-2621 or Jennifer Tancreto at 301-763-4250.

Attachment

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2011 American Community Survey Internet Tests: Results from Second Test in November 2011

FINAL REPORT



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EXECUTIVE SUMMARY

Test Objective

Since its inception, the American Community Survey (ACS) has collected data using three modes: mailout/mailback of a paper questionnaire, Computer-Assisted Telephone Interview and Computer-Assisted Personal Interview. In general, sampled addresses receive the mail questionnaire first and are later eligible to be contacted by Computer-Assisted Telephone Interview and then as part of Computer-Assisted Personal Interview nonresponse follow-up operations. The U.S. Census Bureau conducted two ACS Internet tests in 2011—one in April and one in November— to evaluate the feasibility of providing an Internet mode as fourth response mode to addresses selected for the ACS. The main objective of the tests was to determine the best way to present the Internet mode in the ACS mailings to maximize selfadministered response. This report focuses on results from the November test.

Methodology

The April Internet Test studied "Choice" and "Push" strategies for notifying sampled addresses about the Internet mode. The goals of the November Internet Follow-Up Test were to retest the top performing strategies from the April Test and to explore other variations of these strategies. The first strategy that was replicated from the April test was the Prominent Choice strategy (called Choice for the November test); the web option was noticeably advertised in all mailings as an alternative to the paper questionnaire. Two additional strategies were created to potentially enhance this April Choice strategy: Choice with Icons (with computer and pencil icons displayed next to the Internet and paper options, respectively, on the front of the questionnaire to draw more attention to the choice of modes) and Choice with Icons on Accelerated Mailing schedule (same as Choice with Icons, but the nonresponse follow-up mailing for nonrespondents was mailed about two weeks after the initial mailing, instead of three weeks as in ACS production).

The second strategy from the April test that was replicated was Push Accelerated, which directed households to use the Internet before later providing the paper questionnaire in a nonresponse follow-up mailing two weeks after the initial mailing. An additional strategy was based off of this April strategy—Push Accelerated with New Postcard (same as Push Accelerated but those who received the nonresponse follow-up mailing also received a new reminder postcard three days later).

The Control group was the November 2011 ACS production sample. These cases only received a paper questionnaire and did not have the opportunity to respond online.

We stratified the sample for this test so we could compare the effectiveness of the notification strategies among households within each of the two strata. As in the April test, we stratified tracts into two strata—Targeted and Not Targeted. The Targeted group consisted of tracts containing households that we expected to use the Internet at a higher rate. The remaining tracts were in the Not Targeted group.

Research Questions and Results

Which notification treatment produces the highest total self-administered response rate (including mail and Internet) and the highest Internet response rate?

At the end of the first month of data collection (when we normally identify the Computer Assisted Telephone Interview nonresponse follow-up workload):

- In the Targeted stratum, the self-administered response rate for the Push Accelerated with New Postcard treatment was significantly higher than the rate for the best Choice treatment (Choice with Icons Accelerated), the Push Accelerated treatment, and the Control.
- In the Not Targeted stratum, the self-administered response rate for the Push Accelerated with New Postcard treatment was significantly higher than the rate for the Push Accelerated treatment, but was not significantly different from the rates for any other treatments or the Control.
- Internet response rates in the Push treatments were more than double the rates in the Choice treatments. The percent that responded via Internet was not significantly different across the Push treatments or across the Choice treatments.

At the end of the second month of data collection:

• The response rates for almost all treatments were not significantly different. The only significant finding was with the effect of adding the new postcard. The Push Accelerated with New Postcard treatment had a higher self-administered response rate than the Push Accelerated treatment in both strata. No comparison was made to the Control group using the second month of data due to operational differences.

How do item nonresponse rates differ between Internet and mail responses as well as notification strategies?

At the end of the first month of data collection (when we normally identify the Computer Assisted Telephone Interview nonresponse follow-up workload):

- Internet break-offs negatively impacted item nonresponse measures for Internet returns, particularly among the questions in the later part of the survey (the detailed person questions). However, there was significantly lower item nonresponse for Internet responses for questions early in the survey when compared to mail responses.
- The Push Accelerated with New Postcard treatment had significantly higher item nonresponse for all detailed person questions tested but lower item nonresponse for most questions early in the survey, compared to the Control.

Are there differences in the demographics of Internet respondents and mail respondents? Across notification strategies?

- If we limit our analysis to the first month of response, Internet respondents (Person 1 only) were more likely than mail respondents (Person 1, excluding Control) to be younger, more educated, and to be living in larger households in both strata. Internet respondents were also more likely to be Asian, non-Black, "other" race, multiple race, Hispanic, and speak a language other than English at home than mail respondents. These trends generally hold over the second month of data collection.
- After one month of data collection household demographics at the treatment level reflect the differences between mail and Internet demographics (i.e. treatments that consist mostly of Internet responses reflect Month 1 Internet demographics and vice versa). However, after two months of data collection any differences between treatments subsided (even without nonresponse follow-up intervention).

1. BACKGROUND

The November 2011 American Community Survey (ACS) Internet Test was a follow-up study to the ACS Internet Test conducted in April 2011 (see Tancreto *et. al.*, 2012 for study motivation, test design and results from the April Internet test). This follow-up study was designed to test some changes to the two mailing strategies that proved most successful in the first test in hopes of improving overall self-administered response and/or increasing Internet response, as well as validate the findings of the April test.

Results from the April test indicate that providing a concurrent response mode choice (Prominent Choice) was successful in not only driving response to the Internet, but in keeping overall response very close to current ACS production (which uses mail only). These results were very encouraging in light of findings from the first ACS Internet test in 2000 where response decreased by over 5 percentage points when respondents were offered a choice between modes (Griffin *et al.*, 2001). The second successful strategy from the April Internet Test was the Push Accelerated strategy, which pushed respondents to the Internet by removing the paper option at the first mailing coupled with an accelerated mailing of a paper questionnaire to nonrespondents. While offering the choice between Internet and mail produced response rates that tracked closely to offering mail only, the response rate for Push on the Accelerated schedule was 2.6 percentage points higher than using mail only among areas with households that we expected to be more likely to use the Internet, at the end of the first month of data collection (Tancreto *et al.*, 2012).

2. METHODOLOGY

Since its inception, the ACS has used three modes to collect data across a three-month period: mailout/mailback of a paper questionnaire, Computer-Assisted Telephone Interview (CATI), and Computer-Assisted Personal Interview (CAPI). Sampled addresses receive the mail questionnaire first (month 1) and are later eligible to be contacted via CATI¹ (month 2) and then CAPI² (month 3) as part of nonresponse follow-up. The November 2011 ACS Follow-Up Internet Test was the second of two tests that were designed to evaluate the feasibility of providing Internet as a fourth response mode to addresses sampled for the ACS. The main objective of these two tests was to determine the best way to present the Internet response mode in the ACS mailing pieces to maximize self-administered response with minimal negative impact to data quality. The methodology for the November Test is based on the results of the April test, and the results of this follow-up test will determine the Internet notification strategy to be used in ACS production starting in January 2013. For more information about the design of the online survey, see Tancreto *et al.*, 2012.

The November 2011 ACS Internet test took place in November and December 2011, and was designed to test introducing a web response option during what is currently considered the mail month of data collection in the November ACS production sample.³ Thus, the main focus for

¹ Mail nonrespondents can only be contacted via CATI if we have a phone number for the household. Otherwise, an additional reminder postcard is sent so the cases have some contact before the CAPI month.

² Mail and CATI nonrespondents and cases ineligible for the mail and CATI modes are subsampled prior to inclusion in the CAPI operation.

³ There were no CATI or CAPI nonresponse follow-up operations for the test.

most metrics presented in this report is on responses received by the end of November, which is the time we normally transition to nonresponse follow-up by telephone. Results are also presented for the end of December, where appropriate.

2.1 Experimental Treatments

We tested five different strategies for notifying sampled households about the Internet response mode using combinations of the five ACS production mailing pieces (pre-notice letter, initial questionnaire mailing, reminder postcard and, for nonrespondents only, replacement questionnaire mailing, and a postcard for households that cannot be contacted via telephone during the CATI month), as well as an additional reminder postcard new for this test. Three of the notification strategies involved providing a concurrent choice between a paper questionnaire and Internet survey. Two additional strategies pushed households to use the Internet by removing the paper questionnaire in the first mailing. We describe each notification strategy in detail below, and Table 1 shows the timing and content of the mailings. Mail materials new to the November test can be found in Appendix A; for all other mail materials refer to the April 2011 Internet Test report (Tancreto *et al.*, 2012).

Choice – This treatment is identical to the Prominent Choice treatment from the April Internet Test. Households were given a choice of completing the ACS using a paper questionnaire or the Internet. The Internet option was prominently displayed in the letter and on the questionnaire of the initial mailing package, as well as in the reminder postcard and in the replacement questionnaire mailing. This treatment also included an Internet instruction card sent in both questionnaire mailing packages that provided the choice of response modes and instructions for responding online.

Choice with Icons – This treatment is the same as Choice above, but with computer and pencil icons displayed next to the Internet and paper options, respectively, on the front of the questionnaire to draw more attention to the choice of modes. We wanted to determine if adding icons would draw more attention to the Internet option, given the evidence from cognitive testing that respondents tend to pay attention to the questionnaire and disregard the other mailing materials.

Choice with Icons on Accelerated Mailing Schedule – This treatment is the same as Choice with Icons above, but the replacement questionnaire was mailed about two weeks after the first questionnaire—one week sooner than the replacement questionnaire is mailed in ACS production. This is the first Choice treatment to use an accelerated mailing schedule, providing the replacement questionnaire sooner and giving respondents more time to return the second questionnaire (we previously tested the accelerated mail schedule for the Push treatments in the April Internet Test.)

Push Internet on Accelerated Mailing Schedule – This treatment is identical to the Push Accelerated treatment from the April Internet Test. In this treatment, sample addresses received only a letter and Internet instruction card in their initial mailing, in lieu of a paper questionnaire. Nonrespondents received a paper questionnaire about two weeks later—one week sooner than the replacement questionnaire is mailed in ACS production. The paper questionnaire in the replacement mailing included the same prominent display of the Internet option on the form and in the cover letter that was used in the Choice treatment. The mail

materials accompanying the Internet request included language about the benefits of responding online.

Push Internet on Accelerated Mailing Schedule with New Reminder Postcard – This treatment is the same as Push Internet on Accelerated Mailing schedule, except a new reminder postcard was sent three days after the paper questionnaire mailing (to the same nonrespondents that received the paper questionnaire). Through the use of bold font, this new postcard stressed the importance of completing the survey quickly ("Now is the time to complete the survey if you have not already done so.") and that a response is required ("Your response to this survey is required by U.S. law."). See Appendix A for a copy of the postcard.

The new reminder postcard was added to increase mail response for those who could not or would not respond by Internet. It was designed to serve the same purpose as the reminder postcard that is sent immediately after the initial mailing. However, it also reminded respondents who started on the Internet to complete their Internet response or respond by mail instead. The postcard was a different color (green instead of white) and slightly larger (1/4" taller) than the first reminder postcard to better ensure recipients notice it. This new postcard was mailed a few weeks before the postcard for nonrespondents without phone numbers who are unable to be contacted in the CATI nonresponse follow-up operation.

Control (Mail only) – The Control was the November 2011 ACS production sample panel. There was no Internet option for the Control cases.

Table 1. Timing	Pre-Notice,			No	nrespondents only													
Treatment	same across treatments (Mailed 10/20/11)	Initial mailing (Mailed 10/24/11)	Reminder Postcard (Mailed 10/27/11)	Replacement mailing	New Reminder Postcard (Mailed 11/14/11)	Additional Reminder Postcard ⁵ (Mailed 12/1/11)												
Choice	No mode mentioned		Reminder	Paper and Internet offer														
Choice with Icons	No mode mentioned	Paper and Internet offer	for paper and	(Mailed 11/17/11)														
Choice with Icons Accelerated	No mode mentioned	internet oner	Internet	Paper and	Not mailed	Reminder for paper and												
Push Accelerated	No mode mentioned		Pomindor	Internet offer (Mailed		Internet												
Push Accelerated with New Postcard	No mode mentioned	Internet only	Reminder for Internet													11/10/11)	Reminder for paper and Internet	
Control (Mail Only)	No mode mentioned	Paper only	Reminder for paper	Paper only (Mailed 11/17/11)	Not mailed	Reminder for paper												

Table 1. Timing and Content of ACS Internet Test Mailings ⁴	able 1.	Timing and	Content of AC	S Internet Tes	t Mailings ⁴
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⁴ The dates shown in this table reflect when the mailing piece was actually mailed. The list of which households would receive the mailing was determined three days before the mailing date.

⁵ This postcard is only sent to nonrespondents for whom we do not have a phone number and thus, cannot be contacted in CATI follow-up.

2.2 Stratification

Similar to the April test, we stratified the sample for this test into two strata, called Targeted and Not Targeted. The Targeted stratum contained tracts with large proportions of households that we suspected were more likely to use the Internet (young, mobile people and advantaged homeowners) and the Not Targeted stratum contained the balance. For more information on stratification, refer to the April 2011 Internet Test report (Tancreto et al., 2012).

We crossed the five experimental notification strategies with the two strata to create ten experimental treatment panels as shown in Table 2. We also applied the strata definition to the Control (Mail only) group, the November 2011 ACS production sample panel, for a total of ten treatments and two control panels. Each of the five experimental treatment groups had a total sample of 20,000 addresses (10,000 in each stratum) resulting in a total of 100,000 sample addresses selected specifically for the experiment and roughly 286,000 sample addresses from ACS production where in the Control. The experimental treatment samples were equally allocated to the two strata, resulting in an oversample of addresses for the Targeted stratum, which accounts for only one-third of the sample universe. The Control (Mail only) contained a higher number of households in the Not Targeted stratum than the Targeted stratum, as it is fully representative of the sample universe.

Table 2. Sample Sizes (mailable addresses) for the ACS F	ollow-Up Internet Not	ification Strategies Test
Notification Strategy	Targeted	Not Targeted
Control (Mail only)	87,897	197,841
Experimental Treatments		
Choice		
Choice	10,000	10,000
Choice with Icons	10,000	10,000
Choice with Icons Accelerated	10,000	10,000
Push Internet		
Push Accelerated	10,000	10,000
Push Accelerated with New Postcard	10,000	10,000
Total of Experimental Treatments	50,000	50,000

Table 2 Se) for the ACC Follow Up Into

2.3 Research Questions

In advance of the test, we identified a series of research questions to help assess the success of the various notification strategy treatments. We list the research questions here, and provide answers to these questions in Section 4 of this report. The analysis for each of these research questions was conducted separately for the Targeted and Not Targeted strata.

- Which notification treatment produces the highest total self-administered response rate (including mail and Internet) and highest Internet self-administered response rate?
- Which notification treatment produces the highest Internet usage rate after the first month of data collection?
- How do item nonresponse rates differ between Internet and mail responses as well as • notification strategies?
- Are there differences in the demographics of Internet respondents and mail respondents? Across notification strategies?

2.4 Analysis Design

This test was designed to simulate a typical one month mail data collection period in the ACS. There were no CATI or CAPI nonresponse follow-up operations for the experimental treatments, but the Control included nonresponse follow-up since it was the ACS production sample. The online survey was available beyond the first month so we could see whether we would get more visits or return visits from the treatment samples after we typically would have started nonresponse follow-up by CATI. The focus in this study is the first month of data collection, before the Control cases were sent to CATI nonresponse follow-up, since we do not know what effect the CATI operation would have on the measures in this report for the experimental treatments. Where appropriate, results are given through the end of the second month of data collection (December 2011).

To maximize the testing power for each research question, we used a four-step method, shown in Table 3, for comparing the notification treatments. Step 1 of the testing consisted of two parts. Part A compared the Choice and the Choice with Icons treatments to measure the effect of adding the icons to the questionnaire. Part B compared Choice with Icons to Choice with Icons on Accelerated Mailing Schedule to determine the effect of the different mailing schedules for the Choice option⁶. Step 2 compared the winners from both parts of Step 1. If both parts of Step 1 had the same winner or the resulting Step 2A test would be a duplicate of one of the tests in Step 1, Step 2A was skipped. The two Push treatments (with and without the new postcard) were compared in Step 2B. Step 3 compared the best Choice treatment to the best Push treatment. Step 4 compared the winner of the experimental treatments to the Control group.

Step 1	Step 2	Step 3	Step 4	
A. Compare Choice to Choice w/ Icons	A. Compare winner of Step 1A to winner of Step 1B	Compare Choice	C	
B. Compare Choice w/ Icons to Choice w/ Icons on Accelerated Mailing Schedule	B. Compare Push Treatments	Winner to Push Winner	Compare Step 3 Winner to Control	

Table 3. Comparisons Across Treatments (for each stratum)

Note that the winners were determined based on specific evaluation measures for each research question (See Section 4 for evaluation measures). In the event that the treatments were not significantly different at any step in the process, the treatment with the most desirable rate was selected to move forward to the next testing step. At times, we extended the statistical testing to make comparisons between the Control and another treatment of interest, as noted in the report.

⁶ The effect of the different mailing schedules for the Push options was tested in the April Internet Test by comparing Push Accelerated and Push Regular (Tancreto *et al.*, 2012).

All analyses used t-tests for the comparisons where the family-wise error rate was adjusted for multiple comparisons using the Bonferroni-Holm Multiple Comparison Procedure⁷. All results are weighted to reflect the probability of selection into the sample.

3. LIMITATIONS

3.1 Comparisons Across Treatments

Several operational and timing differences across treatments influence the ability to make specific comparisons. In particular, comparisons between the control and the experimental treatments must account for the fact that only the control treatment included nonresponse follow-up activities that are known to increase levels of response. The control was the ACS production sample panel for the month of November. This panel followed the ACS protocol of mail data collection in month 1, followed by nonresponse follow-up by CATI in month 2. The experimental notification strategy treatments did not go to the CATI nonresponse follow-up operation in month 2. For this reason, the comparisons between the control and experimental treatments in this report focus on responses received in the first month of data collection as CATI calls are known to elicit mail response, which would affect comparisons. Also, any experimental treatment cases that responded by mail or Internet in the second month may have been converted to CATI interviews if we were using regular ACS production operations.

In addition, the Control, the Choice, and the Choice with Icons treatments used a regular mail schedule for the replacement mailing while the three remaining "accelerated" treatments received those mailings one week earlier. Similar attention is warranted when making comparisons between treatments with different mail schedules.

3.2 Comparison to the April Internet Test

There are four limitations when comparing results between the April 2011 Internet Test and the November 2011 Follow-Up Internet test— the timing of when mailing pieces were sent out, criteria for including mail returns in response rate calculations, differences in the replacement questionnaire universe, and the composition of who responds to the treatments.

3.2.1 Timing Differences

The ACS mailing schedule is based on timing rules rather than calendar dates. For instance, the initial survey questionnaire is generally sent on the last Monday of the month prior to the data collection month. Nonrespondents for the replacement questionnaire are identified on the Monday three weeks after the initial questionnaire mailing, and sent the replacement questionnaire on Thursday of that week. The CATI nonresponse follow-up operation starts on the first day of the following month.

⁷ When Step 2A was skipped, we adjusted the total number of tests performed in the Bonferroni-Holm Multiple Comparison procedure. For more information about the Bonferroni-Holm Multiple Comparison Procedure see Westfall *et al.*, 1999.

Because of this mailing schedule structure, the November Test had 37 days in the data collection month (October 24 – November 30), while the April test had 30 days in its data collection month (March 28 – April 28). This seven-day time difference is manifested in the time between the replacement mailing and the end of the month. These extra days allowed for more responses to come in (especially mail responses) by the end of the first month of data collection in the November test than the April test.

3.2.2 Mail Return Dates for Rate Calculations

The April Internet Test used the check-in date to determine whether or not a mail return would be classified as a response. The check-in date allows for up to three days for processing (to determine if the form is blank or not) after the form is received.

However, in May 2011, ACS production began using the laser sort date to classify mail responses, and the November test reflected this change in methodology. Using the laser sort date instead of the check-in date allowed mail returns to be counted as responses as soon as they were received, similar to counting Internet activity as a response with the earliest possible date of Internet activity. For both mail and Internet responses, the status after processing was still taken into account to exclude blank forms from responses.

3.2.3 Replacement Questionnaire Universe

In May 2011, ACS production operations changed how they dealt with ACS mailings that were returned as Undeliverable as Addressed (UAA; see Section 3.3 below for the UAA definition). If the initial mailing was returned as UAA prior to identifying the replacement mailing universe, the address was not sent any further mailings. This procedure was followed for the November test. For the April Internet Test, UAAs were included in the replacement mailings.

An additional difference in the replacement questionnaire universe is related to incomplete Internet responses. All respondents who had an incomplete Internet response should have received the replacement questionnaire. However, for the April Internet Test, the replacement questionnaire was not mailed to Internet respondents that were considered sufficiently, but not fully, complete. In the November Follow-Up Internet Test the replacement package was mailed to all applicable cases. This may have prompted more mail response and/or more complete Internet response as compared to the April test.

3.2.4 Composition of Treatments

The distribution of Internet respondents differs between the two tests when combining data across treatments for item nonresponse as well as demographics. The April test had two Choice treatments (one with very little Internet response) and two Push treatments; thus, half of the experimental treatments were "pushed" to the Internet. The November test had three Choice treatments and two Push treatments. This resulted in proportionately more people choosing to use the Internet in November than in April, rather than being pushed and potentially producing estimates that reflect more "choice" respondents than "push" respondents than the April test.

3.3 Differential UAA Rates between Strategies

Some mailings that are provided to the United States Postal Service for delivery are returned as UAA because the postal service was unable to deliver to the address provided. For all response rate calculations, cases where the initial ACS mailing package was returned as UAA impacted the denominator as follows:

- Cases whose UAA was received before the nonresponse universe was identified, were never mailed a replacement mailing, and did not have any other indication of a response were excluded from the denominator since these cases did not receive any follow-up mailings and thus did not have a chance to respond.
- Cases whose UAA was received after the replacement mailing universe had been determined were included in the denominator since it is possible that a case could get the second mailing and thus have a chance to respond.

The replacement questionnaire universe was identified on November 7, 2011 for the accelerated schedule, and November 14, 2011 for the regular schedule. Thus, treatments on the regular schedule had an extra week (November 8-14) to identify UAAs to exclude from the response rate denominators. Because of this, more UAAs were excluded from response rate calculations of treatments on the regular schedule than the accelerated schedule, inflating the response rates slightly for treatments on the regular schedule.

3.4 Data Used to Calculate Item Nonresponse Rates

Unedited data were used to compute the evaluation measures in this report because we did not want edits and imputation to mask how respondents complete the survey. As such, we cannot assess the impact of the edits and imputation on the final item nonresponse rates that would be calculated in ACS production.

Also, in calculating the item nonresponse rates, we looked at the presence of an answer, not at the validity of that answer. This may give an unfair advantage to the item nonresponse rates for Internet cases. The data from the mail responses have been keyed, which in many cases means that an invalid answer (e.g. "N/A", "Don't Know", "None of your business", etc.) for a particular question was turned into a blank response for that question. That same invalid answer in an Internet case was not turned into a blank response, and therefore, was counted as having a valid response. Also, when multiple responses were marked on the paper question for questions requiring a single response, a post-processing step deletes the duplicate responses making the entire response blank. However, the Internet instrument was programmed to allow only one answer for those questions, eliminating the possibility of a blanked duplicate response, and possibly leading to lower item nonresponse for those items. The Internet instrument also automated skip patterns and included some soft edits, potentially prompting for responses to items that may be accidently missed or skipped on a mail form.

3.5 Speed of Returns

In the April Internet Test we examined the speed at which mail and Internet returns were received. Unfortunately, for the November test there were some inconsistencies in the laser sorting of mail returns—thus, measures of speed of returns are not accurate and are not included in this report. We would expect the speed of returns to mimic the pattern for April; please refer to the April report for more details and interpretation (Tancreto *et al.*, 2012).

4. RESULTS

Our main focus in this test was to measure the effect of providing an Internet response option on the overall self-administered response rates. Besides these rates, we looked at additional items to get an overall picture of the effects of the new response mode and to gauge potential cost savings and data quality—Internet response and usage rates, item nonresponse, and demographic characteristics of respondents and responding households. Again, we conducted the analyses separately for each stratum to determine which notification strategy treatment performed best in each stratum.

The Definition of a Response

It is important to define what is considered a response for this report. This definition is slightly different if the household replied by mail or Internet.

For mail returns, if the case returned a non-blank⁸ form or completed an interview through Telephone Questionnaire Assistance (TQA), it is considered a response. Mail respondents signify that, at least until further contact from a follow-up operation, they have completed as much information as they are willing to provide by the sheer act of sending back the form or ending the TQA interview.

On the other hand, we do not know the intent of Internet respondents who started the survey but did not complete it (i.e. break-offs). They may have deliberately left the survey, timed out, or forgot to or could not (due to login problems) return to complete the survey. Internet returns were classified into three groups, based on how far the respondent got in the survey, using rules originally developed for the CATI/CAPI modes. The survey has three sections demographic questions (relationship, sex, age/date of birth, Hispanic origin, and race) for each person in the household; housing questions; and detailed questions about each person. A case that listed at least one household member but did not get beyond the housing questions is classified as an "insufficient partial" break-off. Cases that reached the first question in the detailed person section are considered a "sufficient partial" break-off. Cases that reached the last screen in the survey are considered "complete." The distribution of the three types of Internet returns by strategy can be found in Table 4. The number of Internet responses (n) for each treatment is also displayed.

⁸ ACS operations consider a form to be non-blank even if there is only minimal information provided, specifically, a phone number or name of a household member. This definition originates from the Failed Edit Follow-Up operation, where cases can be followed up using the respondent supplied telephone number or a telephone number found on the Master Address File.

	Notification Strategy						
Stratum	Choice	Choice with Icons	Choice with Icons Accelerated	Push Accelerated	Push Accelerated with New PC		
Targeted	n=1,077	n=1,021	n=1,100	n=2,885	n=2,963		
Percent Complete	91.5	91.6	91.1	89.0	89.2		
Percent Sufficient Partial	6.7	6.6	7.0	8.6	8.7		
Percent Insufficient Partial	1.9	1.9	1.9	2.4	2.1		
Not Targeted	n=665	n=653	n=673	n=1,774	n=1,873		
Percent Complete	89.8	90.8	90.3	87.4	88.7		
Percent Sufficient Partial	8.7	6.9	8.0	9.9	9.0		
Percent Insufficient Partial	1.5	2.3	1.6	2.7	2.3		

Table 4. Internet Return Type by Notification Strategy and Stratum (through November 30, 2011)
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Source: U.S. Census Bureau, 2011 ACS Follow-Up Internet Test, November to December 2011

The question arose in the April test as to whether all three types of Internet respondents should be considered a response for self-administered response rate calculations. The trade-off is between response rates and data quality; including insufficient and sufficient partials as responses yields higher response rates but also higher item missing data rates.

The resulting decision from the April Internet Test was to consider insufficient partials as a nonresponse and (in a production environment) pursue these units in nonresponse follow-up operations. Thus, insufficient partials are not included as responses in self-administered response rates nor are they used in any other evaluation measures in this report⁹; sufficient partials and completes are both counted as responses.

Thus, the self-administered response rate and Internet response rate are defined as such:

Self- administered	=	# of mailable sample addresses that provided a non-blank response by mail, by TQA, or at least a sufficient partial response by Internet	*100
Response Rate	_	Total # of mailable sample addresses excluding UAAs	-
		# of mailable sample addresses that provided at least a	

	in of manable sample addresses that provided at least a	
Internet	sufficient partial Internet response	- *100
Response Rate	Total # of mailable sample addresses excluding UAAs	- 100

⁹ While insufficient partials were easily identified and excluded from the analyses, there is no easily identifiable equivalent for mail returns. Thus, there may be some mail returns that should be excluded under the sufficient partial definition that are included in the analyses. These cases should only comprise a very small percentage of total mail returns.

4.1 Which notification treatment produces the highest total self-administered response rate (including mail and Internet) and the highest Internet response rate?

Based on April results, we expected the self-administered response rates for the Push treatments to outperform those of the Choice treatments and Control in the Targeted Stratum, and be similar to the other treatments in the Not Targeted Stratum. Additionally, we thought the Choice with Icons Accelerated would have self-administered response rates closer to the Push treatments (which also had accelerated schedules) compared to the two other Choice treatments. We also expected to get more Internet response in the Choice with Icons treatment than Choice, and more Internet response in the Push treatments than the Choice treatments.

Table 5 contains the self-administered response rates for each notification strategy and Control by strata. These rates indicate the amount of self-administered response (by Internet and mail) received at the time when the ACS would normally transition to nonresponse follow-up by CATI, after the first month of data collection (November 30, 2011). The table also includes the percent of mailable cases (excluding UAAs) that responded by Internet. Table 6 contains statistical testing of the total self-administered response rates and Internet response rates according to the four-step process identified in Section 2.4, for both strata, for the same time period.

			Notification Strat	egy		
Stratum	Control (Mail only)	Choice	Choice with Icons	Choice with Icons Accelerated	Push Accelerated	Push Accel with New Postcard
Targeted						
Response Rate	43.3	44.6	43.8	46.3	44.1	48.7
(SE)	(0.2)	(0.5)	(0.5)	(0.4)	(0.5)	(0.4)
INT Response Rate	NI / A	11.3	10.6	11.0	28.7	29.6
(SE)	N/A	(0.4)	(0.4)	(0.3)	(0.5)	(0.4)
Not Targeted						
Response Rate	37.0	36.0	36.5	37.7	32.5	37.2
(SE)	(0.1)	(0.4)	(0.4)	(0.5)	(0.4)	(0.4)
INT Response Rate	NI / A	7.4	7.2	6.9	18.0	19.0
(SE)	N/A	(0.3)	(0.2)	(0.3)	(0.4)	(0.4)

Table 5. Self-Administered Response Rates and Internet Response Rates (excluding UAAs) by Notification Strategy and Stratum (through November 30, 2011)

Source: U.S. Census Bureau, 2011 ACS Follow-Up Internet Test, November to December 2011

	Compare Strate		Compare Choice Strategies		•	Compare Best of Choice Strategies		Push es	Compare Best Choice and Best Push		Compare Best Strategy and Control	
Stratum	Difference (Choice - Choice w/Icons)	Best	Difference (Choice w/icons - Choice w/ Icons Accel)	Best	Difference (Best of Test 1 – Best of Test 2)	Best	Difference (Push Accel -Push Accel w/ PC)	Best	Difference (Choice- Push)	Best	Difference (Best - Control)	Best
Targeted												
Resp. Rate (SE)	0.9 (0.7)	Choice	-2.5* (0.7)	Choice w/Icons Accel	-1.6* (0.6)	Choice w/Icons Accel	-4.7* (0.6)	Push w/PC	-2.4* (0.6)	Push w/PC	5.4* (0.4)	Push w/PC
Internet Resp.Rate (SE)	0.7 (0.5)	Choice	-0.4 (0.5)	Choice w/Icons Accel	0.3 (0.4)	Choice	-0.9 (0.6)	Push w/PC	-18.3* (0.6)	Push w/PC	N/.	A
Not Target	ed											
Resp. Rate (SE)	-0.5 (0.6)	Choice w/Icons	-1.2 (0.6)	Choice w/icons Accel	N/A**	Choice w/Icons Accel	-4.7* (0.7)	Push w/PC	0.6 (0.6)	Choice w/Icons Accel	0.7 (0.5)	Choice w/Icons Accel
Internet Resp. rate (SE)	0.2 (0.4)	Choice	0.3 (0.3)	Choice w/Icons	N/A**	Choice	-1.0 (0.5)	Push w/PC	-11.7* (0.5)	Push w/PC	N/.	A

Table 6. Differences in Self-Administered Response Rates and Internet Response Rates (excluding UAAs) by Notification Strategy and Stratum (through November 30, 2011)

Source: U.S. Census Bureau, 2011 ACS Follow-Up Internet Test, November to December 2011

* Indicates statistical significance at α <0.1, controlling for multiple comparisons.

** This test was done in Test 2 (Compare Choice Strategies). Thus, this test was excluded from the alpha adjustment for multiple comparisons.

First, for the first month of data collection, there was no impact on either overall selfadministered response or Internet response from adding icons where we presented the choice of modes on the questionnaire, in either stratum. There was some improvement seen when accelerating the second questionnaire mailing under a choice strategy. The Choice with Icons Accelerated treatment produced a significantly higher self-administered response rate than the other two Choice treatments in the Targeted stratum. Given there were no significant differences in the Internet response rates across the Choice treatments, the accelerated schedule served as an earlier reminder to return either of the two mail questionnaires. There was no significant effect of accelerating the second questionnaire mailing with a choice strategy in the Not Targeted stratum.

Overall, at the end of the first month of data collection, the new postcard had a marked positive benefit on self-administered response rates. In the Targeted stratum, the Push Accelerated with New Postcard treatment significantly outperformed the Push Accelerated treatment and the Choice with Icons Accelerated treatment (the best Choice treatment). In fact, the new postcard alone accounted for a 4.7 percentage point response gain in both strata. Moreover, the Push Accelerated with New Postcard treatment had a significant 5.4 percentage point advantage in response compared to the Control in Targeted, although it was not significantly different from Control in the Not Targeted stratum.

Looking at Internet response in both strata, the percent that responded via Internet is not significantly different across the Push treatments or across the Choice treatments for the month of November. Internet response in Push treatments was more than double the rate in Choice

panels. This was expected as those in the Push treatments did not receive a questionnaire in the first mailing and were thus forced to use the Internet, unless they held out until the paper form arrived.

Taking a closer look at the Push Accelerated and Push Accelerated with New Postcard treatments, the Internet response rates are not significantly different while the overall response rate is significantly higher for the New Postcard treatment in November. Thus, while the new postcard did little for Internet response, it did serve as a reminder (similar to the postcard that follows the initial mailing) to mail the paper questionnaire back, which is exactly what we expected the postcard to do.

We did not conduct CATI nonresponse follow-up on cases in the experimental treatments in this test (Control cases were included in CATI starting December 1, 2011). However, the fifth mailing piece—the additional reminder postcard—was sent to households that had not responded (including partially complete Internet responses) for which we did not have a phone number. These cases typically receive the postcard instead of a CATI call early in the second month of data collection (for this test, December 1, 2011). Response rates and testing for the experimental treatments¹⁰ at the end of December are found in Tables 7 and 8, respectively. Again, these rates do not simulate the rates we would expect if the treatment cases had gone to CATI nonresponse follow-up.

		1	Notification Strateg	SY.	
Stratum	Choice Choice with Ico		Choice w/ Icons Accelerated	Push Accelerated	Push Accelerated with New Postcard
Targeted					
Response Rate	53.7	52.9	51.8	51.1	54.9
(SE)	(0.5)	(0.5)	(0.4)	(0.5)	(0.4)
Internet Response Rate	13.0	12.3	12.3	30.4	31.1
(SE)	(0.4)	(0.4)	(0.3)	(0.5)	(0.4)
Not Targeted					
Response Rate	43.8	44.1	42.7	38.8	42.9
(SE)	(0.4)	(0.5)	(0.6)	(0.5)	(0.5)
Internet Response Rate	8.7	8.5	7.7	19.3	20.1
(SE)	(0.3)	(0.2)	(0.3)	(0.4)	(0.4)

Table 7. Self-Administered Response Rates and Internet Response Rates (excluding UAAs) by Notification Strategy and Stratum (through December 30, 2011)

Source: U.S. Census Bureau, 2011 ACS Internet Test, November to December 2011

¹⁰ We removed the Control from Tables 7 and 8, since CATI nonresponse follow-up calls may have resulted in some mail returns in the month of December.

Stratum (thiot	Bungerenne	ci 50, 20	//				1		L	
	Compare	Choice	Compare C	Choice	Compare Best	t of Choice	Compare P	ush	Compare Best Choi	
	Strate	tegies Strategies Strategies Strateg				Strategie	S	and Best Push		
Stratum	Difference (Choice - Choice w/icons)	Best	Difference (Choice w/icons - Choice w/ icons Accel)	Best	Difference (Winner Test 1 – Winner Test 2)	Best	Difference (Push Accel - Push Accel w/ PC)	Best	Difference (Choice- Push)	Best
Targeted										
Estimate	0.9	Chaise	1.1	Choice	NI / A * *	Chaise	-3.8*	Push	-1.2	Push
(SE)	(0.7)	Choice	(0.7)	w/icons	N/A**	N/A** Choice		w/PC	(0.7)	w/PC
Not Targeted										
Estimate	-0.2	Choice	1.4	Choice	NI / A * * *	Choice	-4.1*	Push	1.2	Choice
(SE)	(0.6)	w/icons	(0.7)	w/icons	N/A***	w/icons	(0.7)	w/PC	(0.6)	w/icons

Table 8. Differences in Self-Administered Response Rates (excluding UAAs) by Notification Strategy and Stratum (through December 30, 2011)

Source: U.S. Census Bureau, 2011 ACS Internet Test, November to December 2011

* Indicates statistical significance at α <0.1, controlling for multiple comparisons.

** This test was done in Test 1. Thus, this test was excluded from the alpha adjustment for multiple comparisons. *** The winners for Test 1 and Test 2 are the same. Thus, this test was excluded from the alpha adjustment for multiple comparisons.

The only remaining significant self-administered response rate difference among the strategies in both strata after two months of data collection was that the Push Accelerated with New Postcard treatment was still significantly higher than the Push Accelerated treatment. This confirms that the postcard had a positive effect on response. No other differences were found across treatments.

4.2 Which notification treatment produces the highest Internet usage rates after the first month of data collection?

The Internet usage rate shows the percent of all responses that came from Internet. The formula to compute the Internet usage rate is:

		# of sample addresses with an Internet response	_
Internet Usage Rate	=	Total # of sample addresses that provided a non-	*100
		blank response by mail, by TQA, or at least a	
		sufficient partial response by Internet	

We expected that the Push treatments would have higher Internet usage rates than any Choice treatment (as we saw in the April test) because households in the Push treatments did not have the option of responding by mail in the initial mailing. We also hypothesized that the Internet usage rates would be higher for the Choice with Icons treatments than the Choice treatment. We thought that adding icons might draw more attention to the Internet option, as there is evidence from cognitive interviewing that respondents tend to pay attention to the questionnaire and disregard other mailing materials.

Internet usage rates (at the end of the first month of data collection) for the experimental treatments by stratum are found in Table 9. Testing of differences in Internet usage rates is shown in Table 10.

		Ν	otification Strate	gy	
Stratum	Choice	Choice with Icons	Choice with Icons Accelerated	Push Accelerated	Push Accelerated with New Postcard
Targeted					
INT Usage Rate	25.3	24.2	23.8	65.2	60.8
(SE)	(0.8)	(0.8)	(0.6)	(0.7)	(0.7)
Not Targeted					
INT Usage Rate	20.5	19.8	18.4	55.5	51.2
(SE)	(0.7)	(0.6)	(0.6)	(1.0)	(0.8)

Table 9. Internet Usage Rates by Notification Strategy and Stratum (through November 30, 2011)

Source: U.S. Census Bureau, 2011 ACS Follow-Up Internet Test, November to December 2011

Table 10. Differences in Internet Usage Rates by Notification Strategy and Stratum (through November 30, 2011)

	Compare Choice Strategies		Compare Choice Strategies		Compare Best Strateg		Compare P Strategie		Compare Best Choice and Best Push	
Stratum	Difference (Choice - Choice w/icons)	Best	Difference (Choice w/icons - Choice w/ icons Accel)	Best	Difference (Winner Test 1 – Winner Test 2)	Best	Difference (Push Accel - Push Accel w/ PC)	Best	Difference (Choice- Push)	Best
Targeted										
Estimate (SE)	1.0 (1.2)	Choice	0.4 (1.0)	Choice w/icons	N/A**	Choice	4.4* (1.0)	Push Accel	-40.0* (0.9)	Push Accel
Not Targeted										
Estimate (SE)	0.7 (1.0)	Choice	1.4 (0.8)	Choice w/icons	N/A**	Choice	4.2* (1.3)	Push Accel	-34.9* (1.2)	Push Accel

Source: U.S. Census Bureau, 2011 ACS Follow-Up Internet Test, November to December 2011

* Indicates statistical significance at α <0.1, controlling for multiple comparisons.

** This test was done in Test 1. Thus, this test was excluded from the alpha adjustment for multiple comparisons.

As expected, in both strata, after one month of data collection Internet usage was higher for Push treatments than for Choice treatments. There were no significant differences among the Choice treatments. The Push Accelerated treatment had a significantly higher Internet usage rate than the Push Accelerated with New Postcard treatment, due mostly to the additional mail responses for the Push Accelerated with New Postcard treatment from the new postcard.

At the end of December the differences in Internet usage between treatments in November held with the exception of the difference between the Push Accelerated and Push Accelerated with New Postcard treatments in the Not Targeted stratum. This difference was no longer significant.

4.3 How do item nonresponse rates differ between Internet and mail responses as well as notification strategies?

We explored item nonresponse across mail (excluding the Control group) and Internet returns to compare the completeness of the returns by mode (Table 11). These rates were computed on pre-edited data, so they do not reflect final ACS item nonresponse rates. As a reminder, these rates exclude Internet break-offs classified as insufficient partials.

The universes for most of the questions chosen for item nonresponse analysis did not depend on an answer from a previous question. Thus, the nonresponse for these items was not influenced by a prior item's nonresponse. The universe for three of the detailed questions ¹¹ did depend on reported age so if age was missing, the person record was excluded for analysis for these questions.

We expected to see a pattern similar to the April item nonresponse—Internet returns having very low item nonresponse in basic demographic and housing questions and higher nonresponse for questions in the detailed person section.

 $^{^{11}}$ Educational attainment, Speak another language, and Work Last week.

		Targeted		N	Not Targeted	
Variable	Internet	Mail	Internet - Mail	Internet	Mail	Internet - Mail
Basic Demographic Quest	ions					
Age/DOB	0.4 (0.1)	1.0 (0.1)	-0.6* (0.1)	0.4 (0.1)	1.3 (0.1)	-0.8* (0.1)
Sex	0.1 (0.0)	2.3 (0.1)	-2.2* (0.1)	0.1 (0.0)	2.5 (0.1)	-2.4* (0.1)
Relationship	0.1 (0.0)	0.6 (0.1)	-0.6* (0.1)	0.0 (0.0)	0.9 (0.1)	-0.9* (0.1)
Hispanic Origin	0.3 (0.1)	5.2 (0.2)	-4.9* (0.2)	0.3 (0.1)	7.0 (0.3)	-6.7* (0.3)
Race	0.3 (0.1)	2.3 (0.1)	-2.0* (0.1)	0.3 (0.1)	2.9 (0.2)	-2.6* (0.2)
Housing Questions						
Type of Building	0.1 (0.0)	1.5 (0.1)	-1.4* (0.1)	0.0 (0.0)	2.5 (0.2)	-2.5* (0.2)
Number of Rooms	0.5 (0.1)	2.7 (0.1)	-2.2* (0.2)	0.4 (0.1)	3.5 (0.2)	-3.1* (0.2)
Number of Vehicles	1.2 (0.1)	1.9 (0.1)	-0.7* (0.1)	1.9 (0.2)	2.4 (0.2)	-0.5* (0.2)
Food Stamps	1.2 (0.1)	2.3 (0.1)	-1.2* (0.2)	1.9 (0.2)	3.0 (0.2)	-1.1* (0.2)
Tenure	1.2 (0.1)	4.3 (0.2)	-3.2* (0.2)	1.7 (0.2)	5.4 (0.3)	-3.7* (0.3)
Detailed Person Questions	5					
Place of Birth	6.4 (0.3)	4.4 (0.2)	2.0* (0.4)	7.4 (0.4)	6.2 (0.2)	1.3* (0.4)
Educational attainment	6.2 (0.2)	6.0 (0.2)	0.2 (0.3)	7.4 (0.4)	8.6 (0.2)	-1.3* (0.4)
Speak Another Language	6.4 (0.3)	5.2 (0.2)	1.1* (0.3)	7.7 (0.4)	7.3 (0.2)	0.3 (0.4)
Health Insurance	7.5 (0.3)	5.1 (0.2)	2.3* (0.4)	8.8 (0.4)	7.0 (0.2)	1.8* (0.5)
Difficulty Hearing	7.3 (0.3)	5.1 (0.2)	2.2* (0.4)	8.7 (0.4)	6.8 (0.2)	1.8* (0.4)
Work Last week	5.7 (0.2)	6.0 (0.2)	-0.3 (0.3)	7.1 (0.4)	8.2 (0.2)	-1.1* (0.5)

Table 11. Item Nonresponse Rates for Selected Questions by Mode and Stratum (for Households that responded by November 30, 2011; standard errors in parentheses)

Source: U.S. Census Bureau, 2011 ACS Follow-Up Internet Test, November to December 2011

* Indicates statistical significance at α <0.1.

After the first month of data collection, item nonresponse rates for Internet responses were significantly lower than mail for basic demographic and housing items, but most detailed person questions examined had higher item nonresponse rates for Internet than mail. The questions in the detailed person section were more likely to suffer from item nonresponse on the Internet due to Internet break-offs since Internet respondents tended to break-off at the start of (or during) the detailed person questions (resulting in no detailed information for one or more people).

The focus thus far has been on comparing Internet and mail returns, but we also wanted to examine item nonresponse rates by treatments since they contain a blend of Internet and mail responses. Table 12 contains item nonresponse rates for each treatment and the Control by stratum for the month of November. The table includes testing results between Push Accelerated with New Postcard and the Control only, as indicated in the Push Accelerated with New Postcard column. The Push Accelerated with New Postcard was the only treatment tested against the Control group since it was the leading treatment from the self-administered response rate analyses. Comparing multiple treatments would have reduced the power of our tests for the comparison of most interest.

Households that	respond	ed by P	vovem	ber 30, 2	2011; st	andard e	rr	ors in pare	ntnese	•			
			Tai	rgeted			,			Not T	argeted		
	Control			Choice	Push	Push		Control			Choice	Push	Push
Variable	-	Choice		w/lcons	Accel	Accel		(mail	Choice		w/Icons	Accel	Accel
	only)		lcons	Accel		w/ PC		only)		Icons	Accel		w/ PC
Basic Demographic													
Questions													
Age/DOB	0.8	0.9	0.8	0.8	0.6	0.7		1.1	1.0	0.9	1.2	0.8	1.0
	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)		(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)
Sex	2.2	1.6	1.8	1.7	0.7	1.0*		2.5	1.8	1.8	2.3	1.0	1.1*
	(0.1)	(0.2)	(0.1)	(0.2)	(0.1)	(0.1)		(0.1)	(0.2)	(0.1)	(0.2)	(0.1)	(0.1)
Relationship	0.6	0.5	0.4	0.5	0.3	0.2*		0.8	0.8	0.5	0.9	0.3	0.5*
	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)		(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Hispanic Origin	4.3	3.9	3.6	3.2	2.1	2.1*		6.0	4.4	4.8	5.7	2.9	4.2*
	(0.1)	(0.3)	(0.3)	(0.2)	(0.2)	(0.2)	4	(0.1)	(0.3)	(0.4)	(0.4)	(0.3)	(0.3)
Race	2.1	1.6	1.7	1.5	1.1	1.0*		2.7	1.8	2.3	2.5	1.7	1.4*
	(0.1)	(0.2)	(0.2)	(0.1)	(0.2)	(0.1)		(0.1)	(0.2)	(0.3)	(0.2)	(0.2)	(0.2)
Housing Questions													
	1.4	1.2	1.0	1.0	0.7	0.9*	T	2.4	1.8	1.9	2.1	1.3	1.3*
Type of Building	(0.1)	(0.2)	(0.2)	(0.1)	(0.1)	(0.1)		(0.1)	(0.2)	(0.3)	(0.3)	(0.2)	(0.2)
Number of Rooms	2.4	2.0	2.0	1.8	1.5	1.7*	T	3.2	2.8	2.9	2.9	2.0	1.8*
	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)		(0.1)	(0.3)	(0.3)	(0.3)	(0.3)	(0.2)
Number of	1.6	1.5	1.6	1.7	1.6	1.6		2.4	1.9	2.2	2.6	2.4	2.0
Vehicles	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)		(0.1)	(0.3)	(0.3)	(0.2)	(0.3)	(0.2)
	1.7	2.1	1.8	1.7	1.7	1.9	T	2.5	2.8	2.2	3.0	2.8	2.4
Food Stamps	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)		(0.1)	(0.3)	(0.3)	(0.3)	(0.3)	(0.2)
	3.3	3.4	3.2	3.2	2.6	2.8*	T	4.7	4.4	4.1	4.8	3.8	3.7*
Tenure	(0.1)	(0.3)	(0.2)	(0.3)	(0.2)	(0.2)		(0.1)	(0.4)	(0.4)	(0.4)	(0.3)	(0.3)
Detailed Person	. ,	. /	· /		. ,		1	. ,	. /	. ,		. ,	
Questions													
Diaco of Birth	3.5	4.7	4.6	4.1	6.6	6.3**	Ţ	5.3	6.2	5.8	6.6	7.7	7.0**
Place of Birth	(0.1)	(0.4)	(0.4)	(0.3)	(0.4)	(0.4)		(0.1)	(0.3)	(0.4)	(0.4)	(0.6)	(0.4)
Educational	5.0	5.5	5.8	5.1	7.2	6.7**	T	7.4	7.9	7.1	8.1	9.0	8.7**
attainment	(0.1)	(0.3)	(0.4)	(0.3)	(0.4)	(0.4)		(0.1)	(0.4)	(0.5)	(0.4)	(0.6)	(0.4)
Speak Another	4.2	5.1	5.2	4.6	7.0	6.7**		6.3	6.9	6.3	7.5	8.4	8.0**
Language	(0.1)	(0.3)	(0.4)	(0.3)	(0.4)	(0.4)		(0.1)	(0.4)	(0.4)	(0.4)	(0.5)	(0.4)
	4.1	5.4	5.1	5.0	7.6	7.6**		6.0	7.0	6.7	7.4	9.0	8.3**
Health Insurance	(0.1)	(0.4)	(0.4)	(0.3)	(0.4)	(0.4)		(0.1)	(0.4)	(0.4)	(0.4)	(0.6)	(0.5)
Difficulty	4.1	5.4	5.1	4.6	7.5	7.5**	l	5.9	6.8	6.5	7.3	9.0	8.1**
Difficulty Hearing	(0.1)	(0.4)	(0.4)	(0.3)	(0.4)	(0.4)		(0.1)	(0.4)	(0.5)	(0.4)	(0.6)	(0.5)
	5.0	5.3	5.5	5.1	6.4	6.9**	l	7.1	7.2	6.8	8.2	8.5	8.2**
Work Last week	(0.1)	(0.3)	(0.4)	(0.3)	(0.3)	(0.4)		(0.1)	(0.4)	(0.4)	(0.4)	(0.6)	(0.4)
	. /	. /	. ,	· /	. /			· /	. /	. /	. ,	. /	

Table 12. Item Nonresponse Rates for Selected Questions by Notification Strategy (for Households that responded by November 30, 2011; standard errors in parentheses)

Source: U.S. Census Bureau, 2011 ACS Follow-Up Internet Test, November to December 2011

Note: Testing was only done between Push Accelerated with New Postcard and the Control.

* Significantly lower than Control at α <0.1.

** Significantly higher than Control at α <0.1

The effects of the modes from Table 11 are reflected in Table 12. After one month of data collection, treatments with high Internet response (the Push treatments) more closely follow the patterns of Internet nonresponse in Table 11. The Push Accelerated with New Postcard treatment had significantly higher item nonresponse than the Control (likely due to Internet breakoffs) for all of the detailed person questions, but had significantly lower item nonresponse

rates for almost all basic demographic and some housing items in both strata. Item nonresponse for age, number of vehicles, and food stamps are the only rates that are not significantly different between the two treatments for both strata.

It is important to note that the rates in Table 12 are not a simple weighted average between the mail and Internet numbers in Table 11. For example, the item nonresponse rates for Health Insurance in the Targeted stratum are 7.5 for Internet and 5.1 for mail. One might expect, when combining mail and Internet responses that the resulting item nonresponse rate will be between 5.1 and 7.5. However, for Push Accelerated the rate is 7.6 in the Targeted stratum. This is because the Internet respondents for Push treatments are different than the Internet respondents for Choice treatments. In the Choice treatments, Internet respondents only include people who chose to respond via Internet, where the Push treatments include people who would have chosen Internet, if given an option, plus people who completed via the Internet because they did not have another option at that time.

4.4 Are there differences in the demographics of Internet respondents and mail respondents? Across notification strategies?

Results from the April Internet Test showed that Internet respondents, compared to mail respondents in both strata, were more likely to be younger, female, Asian, other race, with higher education, and more likely to speak a language other than English at home after the first month of data collection. The April test also showed that Internet respondents tended to live in larger households than mail respondents and were less likely to be Black. Differences in demographic characteristics of Internet respondents and mail respondents were re-examined in this test to see if the demographic differences found in the April test were the same, especially given the operational differences between the two tests.

Demographic characteristics for respondents who responded by the end of November (Table 13) were calculated and compared. Table 13 contains data for 79.4 percent of all mail respondents for the two month data collection period who responded by the end of November. About 91.8 percent of Internet respondents responded by this same time. For the person-level items (i.e., all items except household size and renter), we used the characteristics of the first person listed on the household roster (Person 1) as the respondent, although we know from past studies that Person 1 on the mail questionnaire is not always the respondent (Hill *et al.*, 2008; DeMaio *et al.*, 1990). In the Internet instrument, the respondent was asked to provide his or her name. If the respondent lived in the household, the instrument automatically listed the respondent as Person 1 on the roster. Therefore, some of the differences observed between mail and Internet respondent characteristics may be due to the use of Person 1 as a proxy for respondent.

For each stratum, we grouped together all Internet respondents regardless of notification strategy. We did the same for mail respondents across strategies (excluding the control panel cases since they did not have the option to use the Internet and may have different characteristics due to the lack of mode choice).

·		Targeted		1	Not Targete	d
Characteristic ⁺	Internet	Mail	Internet - Mail	Internet	Mail	Internet - Mail
A == (== = = =)	48.2	58.4	-10.2*	47.7	58.7	-10.9*
Age (mean)	(0.2)	(0.2)	(0.2)	(0.3)	(0.2)	(0.3)
Female	46.6	41.4	5.1*	51.8	47.0	4.7*
Female	(0.4)	(0.4)	(0.6)	(0.6)	(0.5)	(0.7)
Race						
White	86.4	89.1	-2.8*	83.7	85.3	-1.5
White	(0.3)	(0.3)	(0.4)	(0.6)	(0.4)	(0.6)
Black	3.5	4.4	-0.8*	5.8	8.7	-2.9*
BIACK	(0.2)	(0.2)	(0.2)	(0.3)	(0.3)	(0.4)
Am Ind/AK native	0.2	0.2	-0.0	0.5	0.5	-0.0
Am mu/AK hative	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)
Asian	6.5	3.9	2.6*	5.7	2.6	3.1*
Asian	(0.3)	(0.2)	(0.3)	(0.4)	(0.2)	(0.4)
Hawaiian/OPI	0.1	0.0	0.0	0.1	0.1	-0.0
Hawallah/OPI	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Other	1.2	0.6	0.7*	1.7	1.1	0.6*
other	(0.1)	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)
Multiple Races	2.1	1.7	0.4*	2.6	1.8	0.8*
Multiple Races	(0.1)	(0.1)	(0.2)	(0.2)	(0.1)	(0.3)
Hispanic	4.8	4.0	0.8*	7.0	6.3	0.7*
Hispanic	(0.2)	(0.2)	(0.3)	(0.4)	(0.2)	(0.4)
Education						
Less than High School	1.7	6.6	-4.9*	3.2	12.4	-9.2*
Less than High School	(0.1)	(0.2)	(0.2)	(0.2)	(0.3)	(0.4)
High School graduate	11.4	24.5	-13.1*	16.8	30.4	-13.6*
ingi school grauuale	(0.3)	(0.4)	(0.6)	(0.5)	(0.5)	(0.7)
More than High School	86.9	68.9	18.0*	80.0	57.2	22.8*
wore than fligh school	(0.4)	(0.4)	(0.6)	(0.5)	(0.5)	(0.8)
Household size (mean)	2.65	2.24	0.42*	2.53	2.13	0.40*
nousenoiu size (medn)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)
Renter	19.3	17.6	1.7*	25.4	25.5	-0.1
NEIILEI	(0.5)	(0.4)	(0.6)	(0.6)	(0.5)	(0.7)
Only Speaks English	88.2	89.5	-1.3*	87.4	88.9	-1.4*
Only speaks clightin	(0.4)	(0.3)	(0.4)	(0.4)	(0.3)	(0.5)

Table 13. Demographic Characteristics for the Respondent (Person 1) for Internet and Mail Returns (excluding Control) (for Households that responded by November 30, 2011; standard errors in parentheses)

Source: U.S. Census Bureau, 2011 ACS Follow-Up Internet Test, November to December 2011

* Indicates statistical significance at α <0.1.

** Estimates are percentages unless otherwise noted.

+ The estimates in this table represent percentages (unless otherwise noted).

Table 13 shows that after one month of data collection Internet respondents were more likely than mail respondents (excluding the Control group respondents) to be younger, more educated, and to be living in larger households in both strata. Internet respondents were also more likely to be Asian, non-Black, "other" race, multiple race, Hispanic, and speak a language other than English at home than mail respondents. Additionally, in the Targeted stratum, Internet respondents were more likely than mail respondents to be non-White and rent their home. After two months of data collection there were no trend changes for demographics between mail and Internet.

These findings are similar to the April Internet test findings for demographic characteristics. Some relationships, however, did change significance from the April test to this test. Specifically, after one month of data collection, significantly more Internet respondents than mail respondents had multiple races or were Hispanic in this test but in the April test there was no significant difference for these demographic groups in the Not Targeted stratum. Additionally, the significant finding in April for Internet respondents being less likely to be renters in the Not Targeted stratum no longer holds in this test. These differences in findings for November may be the result of the longer collection cycle in the November test allowing for more typical late responders to respond.

Next, we looked at whether the demographic characteristics of the households and their members were influenced the prevalence of Internet usage in each treatment (Tables 14 and 15). All persons within the responding households were included for this analysis. Therefore, some trends seen in Table 13 did not hold due to the addition of other household members, especially children who impact the mean age and education characteristics.

Tables 14 and 15 display the demographic profiles of responding households for the notification treatments after the first (Table 14) and second (Table 15) months of data collection. While there were some trends between treatments after the first month of data collection, the differences subsided after the second month of data collection. Table 14 includes testing results between Push Accelerated with New Postcard and the Control only, as indicated in the Push Accelerated with New Postcard column. The Control panel was excluded from Table 15, since data from the Control group may be affected by CATI/CAPI which begins at the end of the first month.

Targeted Choice Choice Choice Choice Choice Choice Choice W/ W/Cons Accel W/PC Choice W/ W/Cons Accel W/W/PC Gamme 51.8 51.7 50.9 51.9 51.0 50.8 52.5 52.6 52.7 52.8 52.5 52.6 52.5 52.6 52.7 52.8 53.7 53.1 53.7 53.1 53.7 53.1	Households that re	sponded				LI; Stan	uaru erro	rs în parent	neses)	N			
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Characteristict Only Icones Accel Accel Accel Mail Choice W/ Wilcons Accel W/PC Only Icons Accel W/PC Age (mean) 43.4 42.8 43.0 42.4 41.3 41.5* 44.9 43.7 43.5 44.2 41.9 42.7* Age (mean) 61.1 (0.3) (0.3) (0.3) (0.3) (0.1) (0.4) (0.5) (0.4) (0.5) (0.4) (0.6) (0.5) (0.5) (0.2) (0.9) (0.8) (0.7) (0.6) (0.5) (0.2) (0.9) (0.8) (0.7) (0.6) (0.7) (0.6) (0.7) (0.6) (0.7) (0.6) (0.7) (0.1) (0.1) (0.1) (0						Push			ch			Push	
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(0.0) (0.0) (0.1) (0.0) (0.1) (0.0) (0.1) (0.0) (0.1) (0.0) (0.1) (0.0) (0.1) (0.0) (0.1) (0.0) (0.1) (0.0) (0.1) (0.0) (0.1) (0.0) (0.1) (0.0) (0.1) <th< td=""><td rowspan="2">Hawaiian/OPI</td><td>0.1</td><td></td><td>0.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>0.1</td><td></td></th<>	Hawaiian/OPI	0.1		0.0								0.1	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		(0.0)	(0.0)	(0.0)	(0.1)	(0.0)		(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)
(0.1) (0.2) (0.1) (0.2) (0.2) (0.2) (0.1) (0.3) (0.4) (0.3) <th< td=""><td>Other</td><td>0.9</td><td></td><td>1.0</td><td></td><td>1.6</td><td>1.5**</td><td>1.5</td><td></td><td>2.0</td><td></td><td>1.6</td><td>1.8</td></th<>	Other	0.9		1.0		1.6	1.5**	1.5		2.0		1.6	1.8
Multiple Races (0.1) (0.3) (0.2) (0.2) (0.2) (0.1) (0.3)	Other	(0.1)	(0.2)	(0.1)	(0.2)	(0.2)	(0.2)	(0.1)	(0.3)	(0.4)	(0.3)	(0.3)	(0.3)
(0.1) (0.3) (0.3) (0.2) (0.2) (0.1) (0.3) <th< td=""><td>Multiple Paces</td><td>2.7</td><td>3.2</td><td>2.8</td><td>2.3</td><td>2.7</td><td>2.9</td><td>2.8</td><td>3.3</td><td>3.1</td><td>2.9</td><td>2.6</td><td>2.7</td></th<>	Multiple Paces	2.7	3.2	2.8	2.3	2.7	2.9	2.8	3.3	3.1	2.9	2.6	2.7
Hispanic (0.2) (0.4) (0.4) (0.4) (0.4) (0.4) (0.2) (0.6) (0.6) (0.6) (0.7) (0.6) Education Image: Constraint of the stand stress of the stress of th	Multiple Races	(0.1)	(0.3)	(0.3)	(0.2)	(0.2)		(0.1)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)
Here (0.2) (0.4) (0.5) (0.6) (0.7) (0.5) (0.7) (0.5) (0.7) (0.5) (0.7) (0.5) (0.6) (0.7) (0.6) (0.7) (0.6) (0.7) (0.6) (0.7) (0.5) (0.6) (0.5) (0.6) (0.7) (0.5) (0.6) (0.7) (0.6) (0.7) (0.6) (0.7) (0.6) (0.7) (0.5) (0.6) (0.7) (0.5)	Hispanic	5.7	5.6	6.3	5.3	6.3	6.5**	8.7	8.3	8.6	9.8	9.3	9.3
Less than High School 21.4 21.4 22.0 21.6 22.7 22.9** 24.0 23.4 24.9 23.8 24.0 25.1** School (0.2) (0.5) (0.5) (0.5) (0.6) (0.5) (0.7) (0.7) (0.7) (0.5) (0.6) High School 19.2 18.5 19.1 18.2 18.4 17.7* 25.0 24.2 24.7 24.8 23.4 23.3* Graduate (0.2) (0.5) (0.5) (0.4) (0.4) (0.5) (0.2) (0.6) (0.7) (0.6) (0.7) (0.5) More than High 59.3 60.1 58.9 60.2 58.9 59.3 51.0 52.4 50.4 51.4 52.6 51.5 School (0.2) (0.6) (0.6) (0.6) (0.6) (0.2) (0.9) (0.8) (0.7) (0.7) (0.7) Household size 2.37 2.35 2.37 2.39 2.45 2.46**		(0.2)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.2)	(0.6)	(0.6)	(0.6)	(0.7)	(0.6)
School (0.2) (0.5) (0.5) (0.6) (0.5) (0.2) (0.7) (0.7) (0.5) (0.7) (0.5) (0.5) (0.6) (0.2) (0.6) (0.7) (0.5) (0.5) (0.6) (0.2) (0.6) (0.7) (0.5) (0.5) (0.5) (0.6) (0.2) (0.6) (0.6) (0.5) (0.6) (0.2) (0.6) (0.7) (0.7) (0.7) (0.7) <t< td=""><td>Education</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Education												
High School 19.2 18.5 19.1 18.2 18.4 17.7* 25.0 24.2 24.7 24.8 23.4 23.3* Graduate (0.2) (0.5) (0.4) (0.4) (0.5) (0.2) (0.6) (0.7) (0.6) (0.7) (0.6) (0.7) (0.5) More than High 59.3 60.1 58.9 60.2 58.9 59.3 51.0 52.4 50.4 51.4 52.6 51.5 School (0.2) (0.6) (0.6) (0.5) (0.6) (0.6) (0.7) (0.7) (0.7) (0.7) (0.7) Household size 2.37 2.35 2.37 2.39 2.45 2.46** 2.20 2.21 2.25 2.25 2.33 2.28** (mean) (0.01) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.	Less than High	21.4	21.4	22.0	21.6	22.7	22.9**	24.0	23.4	24.9	23.8	24.0	25.1**
Graduate (0.2) (0.5) (0.4) (0.4) (0.5) (0.2) (0.6) (0.7) (0.6) (0.7) (0.6) (0.7) (0.6) (0.7) (0.6) (0.7) (0.6) (0.7) (0.6) (0.7) (0.5) More than High 59.3 60.1 58.9 60.2 58.9 59.3 51.0 52.4 50.4 51.4 52.6 51.5 School (0.2) (0.6) (0.6) (0.5) (0.6) (0.6) (0.2) (0.9) (0.8) (0.7) (0.7) (0.7) Household size 2.37 2.35 2.37 2.39 2.45 2.46** 2.20 2.21 2.25 2.33 2.28** (mean) (0.01) (0.02)	School	(0.2)	(0.5)	(0.5)	(0.5)	(0.6)	(0.5)	(0.2)	(0.7)	(0.7)	(0.5)	(0.7)	(0.6)
More than High School 59.3 (0.2) 60.1 (0.6) 58.9 (0.5) 60.2 (0.6) 58.9 (0.5) 59.3 (0.6) 51.0 (0.6) 52.4 (0.6) 50.4 (0.2) 51.4 (0.9) 52.6 (0.8) 51.4 (0.2) 52.6 (0.9) 51.4 (0.8) 52.6 (0.7) 51.4 (0.7) 52.6 (0.2) 51.4 (0.01) 52.4 (0.2) 51.4 (0.02) 52.6 (0.02) 51.4 (0.02) 52.6 (0.	High School	19.2	18.5	19.1	18.2	18.4	17.7*	25.0	24.2	24.7	24.8	23.4	23.3*
School (0.2) (0.6) (0.6) (0.5) (0.6) (0.6) (0.2) (0.9) (0.8) (0.7) (0.7) (0.7) Household size (mean) 2.37 2.35 2.37 2.39 2.45 2.46** 2.20 2.21 2.25 2.25 2.33 2.28** (mean) (0.01) (0.02) (0.02) (0.02) (0.02) (0.01) (0.02) (0.02) (0.02) Renter 17.4 19.2 17.7 18.1 18.2 18.3 25.1 26.4 24.2 26.1 24.4 25.8 (0.2) (0.6) (0.6) (0.5) (0.6) (0.2) (0.8) (0.7) (0.8) (0.8) (0.8) (0.8) (0.8) (0.2) (0.02) <td>Graduate</td> <td>(0.2)</td> <td>(0.5)</td> <td>(0.5)</td> <td>(0.4)</td> <td>(0.4)</td> <td>(0.5)</td> <td>(0.2)</td> <td>(0.6)</td> <td>(0.7)</td> <td>(0.6)</td> <td>(0.7)</td> <td>(0.5)</td>	Graduate	(0.2)	(0.5)	(0.5)	(0.4)	(0.4)	(0.5)	(0.2)	(0.6)	(0.7)	(0.6)	(0.7)	(0.5)
Household size (mean) 2.37 2.35 2.37 2.39 2.45 2.46** 2.20 2.21 2.25 2.25 2.33 2.28** (mean) (0.01) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.01) (0.03) (0.02) (0.02) (0.02) Renter 17.4 19.2 17.7 18.1 18.2 18.3 25.1 26.4 24.2 26.1 24.4 25.8 (0.2) (0.6) (0.6) (0.5) (0.6) (0.2) (0.8) (0.7) (0.8) (More than High	59.3	60.1	58.9	60.2	58.9	59.3	51.0	52.4	50.4	51.4	52.6	51.5
(mean) (0.01) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.01) (0.03) (0.02) (0.02) (0.02) Renter 17.4 19.2 17.7 18.1 18.2 18.3 25.1 26.4 24.2 26.1 24.4 25.8 (0.2) (0.6) (0.6) (0.5) (0.6) (0.2) (0.8) (0.7) (0.8) (0.8) (0.8) Only Speaks English 86.6 86.8 87.7 87.5 87.1 86.0 86.5 85.9 85.3 86.9 86.4	-			(0.6)	(0.5)	(0.6)			(0.9)	(0.8)	(0.7)		
Renter 17.4 19.2 17.7 18.1 18.2 18.3 25.1 26.4 24.2 26.1 24.4 25.8 (0.2) (0.6) (0.6) (0.6) (0.5) (0.6) (0.6) (0.7) (0.8) (0.7) (0.8)	Household size	2.37	2.35	2.37	2.39	2.45	2.46**	2.20	2.21	2.25	2.25	2.33	2.28**
Renter 17.4 19.2 17.7 18.1 18.2 18.3 25.1 26.4 24.2 26.1 24.4 25.8 (0.2) (0.6) (0.6) (0.6) (0.5) (0.6) (0.6) (0.7) (0.8) (0.7) (0.8)	(mean)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Renter (0.2) (0.6) (0.6) (0.5) (0.6) (0.2) (0.8) (0.7) (0.8) (0.8) (0.8) Only Speaks English 86.6 86.8 87.7 87.5 87.5 87.1 86.0 86.5 85.9 85.3 86.9 86.4		17.4	19.2	17.7		18.2	18.3	25.1	26.4	24.2	26.1	24.4	25.8
Oply Spocks English 86.6 86.8 87.7 87.5 87.5 87.1 86.0 86.5 85.9 85.3 86.9 86.4	Kenter	(0.2)		(0.6)	(0.6)					(0.7)	(0.8)		
Only Spoaks English				· · · ·									
	Only Speaks English	(0.2)	(0.5)		(0.5)	(0.5)	(0.5)	(0.2)	(0.8)	(0.7)	(0.7)	(0.7)	(0.6)

Table 14. Demographic Characteristics of Responding Households by Notification Strategy (for Households that responded by November 30, 2011; standard errors in parentheses)

Source: U.S. Census Bureau, 2011 ACS Follow-Up Internet Test, November to December 2011

Note: Testing was only done between Push Accelerated with New Postcard and the Control.

* Significantly lower than Control at α <0.1.

** Significantly higher than Control at α <0.1

⁺ The estimates in this table represent percentages (unless otherwise noted).

At the end of the first month of data collection, the characteristics of households in the Choice treatments and the Control appear more similar than those responding to the Push treatments. This is likely due to more Internet response in the Push treatments which results in them following the demographic trends for Internet respondents in Table 13. However, statistical testing was only done for the Push Accelerated with New Postcard treatment compared to the Control since it was the leading treatment from the self-administered response rate analyses. Comparing multiple treatments would have reduced the power of our tests for the comparison of most interest.

After one month of data collection, households in the Push Accelerated with New Postcard treatment are significantly larger, younger, and less educated (with a shift from "high school graduate" to "less than high school") than households responding to the Control. The differences in age and education are likely explained by the addition of children (as seen in larger household size) in Push Accelerated with New Postcard households. In addition, in the Targeted stratum, households in the Push Accelerated with New Postcard treatment are more likely to have fewer males and be "Other" race, Hispanic, and non-White when compared to the households responding to the Control.

	espon	ueu by			2011, 516			ot Targete		
		Chaica	Target Choice	eu	Push				eu	Push
	Choice		w/lcons	Push	Accel	Choice Choice Choice w/ w/lcons			Push	Accel
Characteristic ⁺	Choice	lcons	Accel	Accel	w/ PC	Choice	Icons Acce		Accel	w/ PC
	41.7	42.0	41.6	41.1	41.1	42.5	42.5	43.3	41.5	42.4
Age (mean)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.4)	(0.4)	(0.4)	(0.3)
-	51.5	51.0	51.8	50.9	50.8	52.7	52.6	52.8	52.6	52.6
Female	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
Race	()	(/	()	()	()	(-)	<u>(-)</u>	(- /	<u> </u>	<u> </u>
\A/l+:+ -	84.2	85.5	85.2	85.0	83.4	80.8	79.9	80.4	82.1	81.6
White	(0.6)	(0.6)	(0.5)	(0.5)	(0.5)	(0.8)	(0.8)	(0.7)	(0.8)	(0.7)
Black	4.2	4.3	4.3	4.4	4.6	8.2	8.8	8.9	8.1	8.8
DIdCK	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.5)	(0.6)	(0.5)	(0.5)	(0.5)
Am Ind/AK native	0.5	0.3	0.2	0.3	0.4	0.7	0.6	0.6	0.5	0.6
	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Asian	6.6	5.9	6.3	5.9	6.6	4.7	5.4	4.7	4.7	4.2
Asian	(0.5)	(0.3)	(0.4)	(0.3)	(0.4)	(0.5)	(0.5)	(0.4)	(0.4)	(0.3)
Hawaiian/OPI	0.0	0.0	0.2	0.1	0.2	0.1	0.0	0.2	0.1	0.0
	(0.0)	(0.0)	(0.1)	(0.0)	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)
Other	1.2	1.2	1.3	1.5	1.7	2.0	2.3	2.3	1.7	2.1
other	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)
Multiple Races	3.3	2.7	2.5	2.8	3.2	3.5	3.1	3.0	2.8	2.6
	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)	(0.2)
Hispanic	6.1	6.9	5.8	6.7	7.0	9.6	10.4	10.4	10.1	10.4
	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.5)	(0.5)	(0.5)	(0.6)	(0.6)
Education										
Less than High	22.4	22.5	22.1	23.0	23.3	24.4	25.4	24.3	24.9	25.5
School	(0.5)	(0.4)	(0.4)	(0.5)	(0.5)	(0.6)	(0.6)	(0.5)	(0.6)	(0.6)
High School	18.1	18.8	17.9	18.6	17.6	23.9	24.4	24.0	23.9	23.1
Graduate	(0.5)	(0.4)	(0.3)	(0.4)	(0.5)	(0.6)	(0.6)	(0.6)	(0.6)	(0.5)
More than High	59.5	58.7	60.0	58.4	59.2	51.7	50.2	51.6	51.2	51.4
School	(0.6)	(0.5)	(0.5)	(0.6)	(0.6)	(0.8)	(0.7)	(0.6)	(0.7)	(0.7)
Household size	2.39	2.41	2.42	2.44	2.47	2.26	2.29	2.27	2.34	2.28
(mean)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Renter	20.0	19.1	18.6	19.0	19.0	27.8	25.8	26.6	26.2	26.4
	(0.5)	(0.6)	(0.6)	(0.5)	(0.5)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)
Only Speaks	86.1	86.9	87.0	86.8	86.5	85.4	84.4	84.5	86.0	85.9
English	(0.5)	(0.5)	(0.4)	(0.6)	(0.5)	(0.7)	(0.6)	(0.6)	(0.7)	(0.6)

Table 15. Demographic Characteristics of Responding Households by Notification Strategy (for
Households that responded by December 30, 2011: standard errors in parentheses)

Source: U.S. Census Bureau, 2011 ACS Follow-Up Internet Test, November to December 2011

+ The estimates in this table represent percentages (unless otherwise noted).

At the end of December the effects of the modes are not as apparent when looking at household-level demographics by treatment, so the Choice and Push treatments look more alike. Waiting until the end of December has allowed for more time to receive mail responses, especially in the treatments that did not have an accelerated mailing schedule, which balances the proportion of mail and Internet responses between treatments, which in turn balances the demographic profiles.

5. SUMMARY

The various Internet notification treatments were evaluated across a variety of measures. The cumulative results are summarized to determine which treatment performs best for notifying households of the Internet option in ACS production beginning in January 2013. Among the treatments tested, the Push Accelerated with New Postcard treatment seems to perform the best across the measures. First, comparing to the Control, it increased the self-administered response rate by 5.4 percentage points in the Targeted stratum, and maintained the self-administered response rate in the Not Targeted stratum (at the time we would normally cut for nonresponse follow-up by CATI).

In both strata, most of the response in the Push Accelerated with New Postcard treatment came from Internet returns, with more than twice the Internet usage as compared to the Choice treatments during the first month of data collection. However, Internet break-offs are harmful to the item nonresponse rates, particularly in the detailed person section of the questionnaire. After the first month of data collection, the Push Accelerated with New Postcard treatment had lower item nonresponse rates than the Control for most of the basic and housing questions, but higher rates for the detailed person questions in both strata.

The Census Bureau has recommended integrating the Push Accelerated with New Postcard methodology in ACS production starting in January 2013 in both Targeted and Not Targeted areas. The Census Bureau is considering the possibility of some type of follow-up for Internet break-off cases to help collect missing data to reduce levels of item nonresponse.

6. NEXT STEPS

Internet break-offs are problematic as they cause higher item nonresponse rates for questions that appear later in the instrument. Future research will focus on ways to persuade Internet respondents to finish the survey in one sitting, possibly by modifying screens or the instruction wording in the instrument, focusing on the screens that had the most break-offs. We would also like to explore alternative ways of contacting these partial Internet respondents, including email or text reminders encouraging them to come back and complete the survey.

The paradata results from the April 2011 Internet Test (Horwitz, forthcoming), have indicated other research topics that may include evaluating the Help screen wording (focusing on screens where respondents used Help) and making write-in boxes associated with a radio button more noticeable to reduce item nonresponse and error messages on those question screens.

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Appendix A: Notification Strategy Mail Materials

Choice Instruction Card



Choice with Icons Questionnaire



Push Instruction Card



New Additional Postcard for Push Accelerated with New Postcard Treatment

