



UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001

January 26, 2012

2012 AMERICAN COMMUNITY SURVEY RESEARCH AND EVALUATION REPORT
MEMORANDUM SERIES #ACS12-RER-09

MEMORANDUM FOR ACS Research and Evaluation Steering Committee

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Subject: 2010 ACS Content Test Evaluation Report Covering Public Assistance

Attached is the final 2010 ACS Content Test Evaluation Report Covering Public Assistance. This report describes the results of the 2010 Content Test with a change in wording to the Public Assistance question. Final results indicate the test question wording will not be implemented for 2013 ACS. If you have any questions about this report, please contact Edward Welniak at (301)763-5533 or Amanda Noss at (301)763-6675.

Attachment: (2010 ACS Content Test Evaluation Report Covering Public Assistance)

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2010 ACS Content Test Evaluation Report Covering Public Assistance

FINAL REPORT

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EXECUTIVE SUMMARY

Test Objective

In late August through mid-December 2010, the Census Bureau conducted a field test of new and revised content in the 2010 American Community Survey (ACS) Content Test. The results of that testing will help determine the content to be incorporated into the ACS in 2013.

Research shows that the receipt of cash public assistance (PA) or welfare in the ACS is much lower than administrative counts (see Lynch et. al., 2008). Program eligibility can vary by household structure and depends on the presence of children and householder. Participation can also be sporadic throughout the year. Researchers believe that the ACS question does not make it clear to the respondent that they should include participation on behalf of children or that they should report even single month participation in a cash PA program.

Methodology

The Content Test compared two versions of the cash public assistance income question. The control version replicated the wording and response categories used in the current production ACS question (CATI/CAPI wording shown), which are as follows:

-“Did you receive any cash public assistance or welfare payments from the state or local welfare office DURING THE PAST 12 MONTHS?”

<1> Yes

<2> No

- If yes:
“What was the amount?”

The test version for CATI/CAPI included the following changes to the control version of the cash public assistance question:

-“Did you receive any welfare payments or cash assistance from the state or local welfare office, for yourself or any children in this household DURING THE PAST 12 MONTHS?” *Include all assistance, even if for only one month. Do NOT include benefits from food, energy, or rental assistance programs.*

<1> Yes

<2> No

- If yes:
“What was the amount?”

The test question emphasizes reporting amounts received for a child as well as not including benefits for food, energy or rental assistance programs.

Research Questions and Results

Is the response distribution of cash public assistance income comparable to the Current Population Survey's Annual Social and Economic Supplement (CPS ASEC) distribution of cash public assistance income?

Yes. The overall distribution of cash public assistance income for the test version is comparable to that of the CPS ASEC. However, formal comparisons were not made since the Content Test data were not edited or imputed, adjusted for nonresponse, nor raked to known population totals.

Do the changes to the cash public assistance question raise the estimate of persons receiving cash public assistance?

No. The changes to cash public assistance do not significantly raise the estimate of persons receiving cash public assistance income.

Do the changes to the cash public assistance question raise the estimate of cash public assistance income?

No. The mean and median estimates of cash public assistance income are not significantly higher in the test version of the question compared to the control.

Do the changes to the cash public assistance question lower the item missing data rates?

No. The changes to the question do not significantly lower the item missing data rates. Instead, the item missing data rates for "cash public assistance income" are significantly higher for the test version compared to the control.

Do the changes to the cash public assistance question lower response error (i.e., bias) in the estimates of cash public assistance reciprocity and cash public assistance income?

Yes. But the changes to the cash public assistance question significantly reduced the overestimate of reciprocity which is the opposite of what the test version was aiming to accomplish, therefore producing negative results. No significant changes were found for the income amounts.

For each mode of data collection, do the changes to the cash public assistance question affect the item missing data rates, the estimates of reciprocity and cash public assistance income, or the response error (i.e., bias)?

Yes. The test version reduced the overestimate of public assistance reciprocity for mail responses compared to the control. All other measures by mode of data collection showed no statistical differences.

For each mail response stratum, do the changes to the cash public assistance question affect the item missing data rates, the estimates of reciprocity and cash public assistance income, or response error (i.e., bias)?

Yes. Response error for cash public assistance income reciprocity for both mail response strata was significantly lower in the test than control. The median estimate for cash public assistance income was significantly higher for the test version than the control in the low response stratum. All other measures by stratum showed no statistical differences.

Does either question version elicit respondent or interviewer behaviors that may contribute to interviewer or respondent error?

Results indicate that interviewer behavior on the test questions was not as good as interviewer behavior for the control questions. Review of the behavior coder notes indicate that interviewers stopped reading the test question at "... during the past 12 months" and often dropped the last sentence ("Do not include ..."). For respondent behavior, the test series performed better than the control.

For the Hispanic and Black population subgroups, do the changes to the cash public assistance question affect the estimate of reciprocity, item missing data rate, or reliability of the data?

The results are mixed. The reciprocity rate for the test version was statistically higher than the control for Hispanics. The test version produced a significantly lower item missing data rate than the control version of the Hispanics as well. However, the test version also resulted in an increase in the overestimate of reciprocity among Hispanics. The median estimate of cash public assistance income was statistically higher in the test version of the question among Blacks. The test version also reduced the overestimate of reciprocity amount among Blacks.

Recommendation

Health and Human Services (HHS), the sponsor for the change to the Cash Public Assistance question, suggested not to proceed with this change for 2013. There were several positive and negative results, however there were more negative results. The results are further discussed below. The goal was to capture more households with public assistance income and this was not achieved with the test version.

1. BACKGROUND

1.1 Motivation for the 2010 ACS Content Test

To evaluate proposed changes to the content of the American Community Survey (ACS), the Census Bureau conducted the 2010 ACS Content Test. The objective of the ACS Content Test, for both new and existing questions, was to determine the impact of changing question wording, response categories, and redefinition of underlying constructs on the quality of data collected.

Through the Office of Management and Budget (OMB) Interagency Committee on the ACS, subject matter experts from the Census Bureau and key data users from other federal agencies collaborated in identifying revised and new questions for inclusion in the Content Test. The suggested new and revised questions affected both the housing and detailed person sections of the ACS questionnaire.

In the housing section, the food stamps question was altered to reflect a name change for the food stamps program. In addition, a series of new questions were added related to household computer ownership and Internet subscription.

Several changes were made in the detailed person section. First, a change in data needs for the veteran series led to a revised set of response categories for the veteran status and period of military service questions. Second, the question wording of the cash public assistance income question was modified to address under-reporting of assistance on behalf of children and single payment recipients. Third, to simplify the income questions related to wages (wages, salary, commissions, bonuses, or tips) and property income (interest, dividends, rental income, royalty income or income from estates and trusts), these questions were broken up into smaller questions for the Computer-Assisted Telephone Interviewing (CATI) and Computer-Assisted Personal Interviewing (CAPI) instruments only. Fourth, a set of new questions on parental place of birth were added to allow data users to divide the population into “first generation” (the foreign born), “second generation” (the children of immigrants), and “third or higher generation” (native born with no foreign-born parents).

To meet the test objective of the 2010 ACS Content Test, analysts evaluated changes to question wording, response categories, instructions, and examples relative to a control version of the question or another version for new questions. Specifically, this report discusses the cash public assistance income question.

1.2 Previous Testing or Analysis

Research shows that the receipt of Cash Public Assistance (PA) or welfare in the ACS is much lower than administrative counts (see Lynch, Resnick, 2008). Participation can be sporadic throughout the year. Researchers at Health and Human Services (HHS) believe that the ACS question does not make it clear to the respondent that they should include participation on behalf of children or that they should report even single month participation in a PA program. In many households only the children are eligible for assistance. In many states children 15 years old and younger qualify for such assistance programs. Households may be receiving income based on these children and individuals completing the survey may not be counting this type of income when reporting in the ACS.

1.3 Recommendations from Cognitive Testing

Prior to conducting the Content Test, the Research Triangle Institute (RTI), Westat, and Research Support Services (RSS) conducted cognitive interviewing, under contract, to assist in identifying a final set of questions for the field test. Multiple versions of each question topic were tested with the goal of choosing the best one for the revised questions and the best two for the new questions. The questions were pretested in the three modes used in the ACS data collection (paper, telephone interview, and personal interview) in English and Spanish. Cognitive interviews consisted of one-on-one interviews using the proposed questions in the context of the ACS survey. Survey methodologists also conducted respondent debriefings.

RTI tested two versions of proposed new ACS questions about cash public assistance as a source of income. Both versions included phrasing to encourage respondents to report public assistance as an income source even if they had received it only once during the 12-month reference period. One version did this by stating “even if for only one month;” the other version stated “even if for only one payment.” A further variation concerned the ordering of the two key phrases within the question: Version 1 stated “...even if for only one month, for this person or any children in this household,” while Version 2 stated “... for this person or any children in this household, even if only one payment.” See Appendix B for wording.

The findings of this testing did not clearly point to one question version being better than the other. The problems and difficulties observed were almost evenly distributed across the two versions and unrelated to the wording variations of interest. The main recommendation was to place more emphasis on the instructions not to include benefits from other programs, and use the word “month” rather than “payment.” Therefore, our recommendation was a modified version of the question: “DURING THE PAST 12 MONTHS, did [<Name>/yourself] receive any welfare payments or cash assistance from the state or local welfare office for [<Name>/yourself] or any children in this household, even if for only 1 month? Do NOT include benefits from any other type of assistance, such as SSI, food, energy, or rental assistance programs.”

For more information and complete question wording, see RTI International (2009), “Cognitive Testing of the American Community Survey Content Test Items.”

1.4 Recommendations from the Expert Review Panel

Following the cognitive testing, an expert review panel, composed of government survey methodology experts, reviewed and added changes to the final question versions proposed to move forward from the cognitive testing into the field test. The proposed changes for each question topic were approved by the corresponding OMB interagency subcommittee responsible for initiating the research. The OMB provided final approval of the proposed changes.

The expert panel’s recommendation was to change the CATI/CAPI question wording slightly to include the bolded text below. A similar change was made to the mail question.

“DURING THE PAST 12 MONTHS, did you receive any welfare payments or cash assistance from the state or local welfare office **for yourself or any children in this household, even if for only one month? Do NOT include benefits from food, energy, or rental assistance programs.**” Respondents were to answer “yes” or “no.” See appendix B and C for final question wording.

The panel also recommended including an interviewer instruction for this question in the CATI / CAPI instruments that lists the local welfare program name(s).

2. SELECTION CRITERIA

The research questions in sections 5.2 through 5.10 appear in order of importance for the decision of whether the test version of the question is better than the control question. The selection criteria below are also shown in order of importance to the decision.

The overall distribution of cash public assistance income for the test version should be comparable to that of the CPS ASEC.

An increase in cash public assistance receipt and the amount of cash public assistance received in the test version implies a positive change since this item is historically underestimated.

The item missing data rates and response error (i.e., bias) will be considered together when determining whether the test version performs better.

3. METHODOLOGY

3.1 Data Collection Methods

The initial stages of the Content Test consisted of content determination, cognitive laboratory pretesting, and expert reviews for the purpose of developing alternate versions of question content. The field test portion of the ACS Content Test used the data collection methodology currently used in the production ACS (i.e., mail questionnaire, follow-up CATI, and follow-up CAPI) with an added reinterview conducted via a CATI instrument known as the Content Follow-Up (CFU). Additional data were collected on respondent and interviewer behavior during the field test via Computer Audio Recorded Interviewing (CARI) technologies for a subset of respondents during the CATI and CAPI follow-up modes of data collection.

The Content Test followed the same schedule and procedures for the mail, CATI, and CAPI operations as the September 2010 ACS production panel. Questionnaires were mailed to sampled households at the end of August 2010. The Content Test used an English-only mail form but the automated instruments (CATI, CAPI, and CFU) included both English and Spanish versions. Households not responding by mail and for which we had a phone number were contacted for a CATI interview during the month of October 2010. In November 2010, Census Bureau field representatives visited a sample of households that did not respond by mail or CATI to attempt a CAPI interview. The CAPI operations ended December 2, 2010.

The field test included a CATI CFU reinterview to collect additional measures for the study of response error. This operation started approximately two weeks after the initial mail out of questionnaires and ended two weeks after the end of the CAPI follow-up data collection operation. The CFU included all occupied households for which we received a response in the original interview and had a telephone number. A response was defined as a case where the household provided data through at least the first person's place of birth question for mail cases or at least a sufficient partial interview for CATI/CAPI interviews. The reinterview was conducted about 2 to 4 weeks after the original interview and with the original respondent when possible. Note that the CFU CATI interview was an abbreviated version of the original Content Test interview. The CFU instrument included the basic demographic section and only those questions preceding the questions being tested in the housing and the detailed person sections to provide context (see Appendix D for the flow of the CFU instrument).

The ACS Content Test did not include all of the production data collection operations and processes. First, while the Telephone Questionnaire Assistance (TQA) program's toll-free number was available to Content Test respondents for assistance, the CATI instrument did not include content changes from the Content Test. Therefore data collected from Content Test respondents via TQA CATI interview were not included in our analysis. Second, since our objective was to study response error using unedited data, the Content Test excluded the Failed Edit Follow-up (FEFU) CATI operation and the edit and imputation data processes.

3.2 Sample Design

The 2010 Content Test consisted of a national sample of 70,000 residential addresses in the contiguous United States (the sample universe did not include Puerto Rico, Alaska, and Hawaii). The sample design for the Content Test was largely based on the ACS production sample design with some modifications to meet the test objectives. The modifications included adding an additional level of stratification by stratifying addresses into high and low mail response areas, over-sampling addresses from the low mail response areas to ensure equal response from both strata, and sampling units as pairs. The high and low mail response strata were defined based on ACS mail response rates at the tract-level. The paired sample selection formed pairs by first systematically sampling an address within the defined sampling strata and then pairing that address with the address listed next in the geographically sorted list. However, the pair was not likely comprised of neighboring addresses. One member of the pair was randomly assigned to the control group and the other member was assigned to the test group. Those addresses assigned to the test group received the revised ACS questions and the questions new to the ACS. The control group received the current questions on the production ACS as well as different versions of the new questions.

Another modification to the production ACS sample design included adding a third sampling stage. At the first stage, the production 2010 ACS first stage sample was used as the Content Test first stage sample. At the second stage, all housing units in the ACS first stage sample not selected in the production 2010 ACS second-stage sample were selected as the Content Test second-stage sample. In addition, any units that were selected to be in other operations (e.g., training, other tests, etc.) were not selected in the Content Test second stage sample. At the third stage, addresses were selected using a sampling method similar to the production ACS second stage sample design with the exception of adding the high and low mail response stratification.

3.3 Methodology Specific to the Cash Public Assistance Income

Only persons 15 or older were considered in the universe for the analysis, since all income questions are only asked of this universe. On the mail questionnaire, public assistance reciprocity was determined if there was a Yes response in the reciprocity field or if a dollar amount greater than zero was in the amount field.

The ASEC questions were used to ask the question a second time and then make inferences and use as a “true measure”. See Appendix F for CFU question wording.

4. LIMITATIONS

Control and test CATI/CAPI workload assignments were not assigned using an interpenetrated experimental design. That is, interviewers were allowed to administer interviews for both control and test cases, in addition to production ACS cases. The potential risk of this approach is the introduction of a cross-contamination or carry-over effect due to the interviewer administering multiple versions of the same question item. Interviewers are trained to read the questions verbatim to minimize this risk, but there still exists the possibility that an interviewer may deviate from the scripted wording of one question version to another. This could potentially mask a treatment effect from the data collected.

The CFU reinterview was not conducted in the same mode of data collection for households that responded by mail or CAPI in the original interview since CFU interviews were only administered using a CATI mode of data collection. As a result, the data quality measures derived from the reinterview may include some bias due to the differences in mode of data collection.

Respondents needed to provide a telephone number in the original Content Test interview or the Census Bureau had to be able to find a telephone number for that unit through reverse address look-up to be included in the CFU interview. As a result, 18.4 percent of the responding households from the original interview were not eligible for the CFU reinterview.

We did not have the same respondent in the CFU that we had in the original interview for 9.1 percent of the CFU cases. This means that differences between the original interview and the CFU for these cases could be due in part to having different people answering the questions.

The Content Test does not include the production weighting adjustments for seasonal variations in ACS response patterns, nonresponse bias, and under-coverage bias. The CFU portion of the Content Test did include a unit nonresponse adjustment for those Content Test cases that responded to the Content Test, but failed to respond to the CFU. As a result, the statistics derived from the Content Test data do not provide the same level of inference as the production ACS to the entire population of housing units and persons in the contiguous United States.

5. RESEARCH QUESTIONS AND RESULTS

5.1 Response to the Content Test and Content Follow-Up

Table 1 shows the unit response rates for each of the modes of data collection and all modes combined (excluding CFU) by the control and test groups. The comparison between control and test show that respondent participation was similar for both control and test for each of the modes of data collection and all modes combined, with the exception of the CATI mode. The test treatment produces a CATI rate of response that is

3 percentage points higher compared to that of the control. We are not able to explain the increase in response due to the test treatment for the CATI mode of data collection other than by random occurrence given that the conditions affecting unit response were equivalent between the test and control groups.

Table 1. Content Test Response Rate Comparisons Between the Control and Test Treatments

Mode	Test (%)	Standard Error (%)	Control (%)	Standard Error (%)	Test - Control (%)	Standard Error (%)	Significant
All Modes (CFU excluded)	95.4	0.2	95.7	0.2	-0.3	0.3	No
Mail	58.1	0.5	57.7	0.5	0.5	0.7	No
CATI	52.6	1.2	49.6	1.0	3.0	1.5	Yes
CAPI	90.4	0.5	91.5	0.5	-1.1	0.7	No
CFU	54.3	0.5	53.5	0.6	0.8	0.7	No

5.2 Is the response distribution of cash public assistance income comparable to the Current Population Survey's Annual Social and Economic Supplement (CPS ASEC) distribution of cash public assistance income?

Table 2 shows the response distributions of the test and control versions compared to the 2010 CPS ASEC. The overall distribution of cash public assistance income for the test version is comparable to that of the 2010 CPS ASEC. Formal statistical comparisons were not made since the Content Test data were not edited or imputed, nor were there adjustments for non-response or raking to known population totals. The differences between the CPS ASEC and ACS Test and control questions in the \$1,000 to \$4,999 and the \$5,000 to \$9,999 income intervals can be partially explained by the clustering of responses at rounding points (\$5,000, \$6,000, \$7,000, \$8,000, \$9,000 and \$10,000) in the ACS. The clustering in the ASEC is not as pronounced, likely due to the fact that the ASEC allows respondents to report income sub-annually (monthly) along with periodicity (number of months received), which the ACS does not. Similar differences exist between the ASEC and the ACS production distribution.

Category	ASEC Estimate (%)	Standard Error (%)	Test Estimate (%) (n=507)	Standard Error (%)	Control Estimate (%) (n=622)	Standard Error (%)
\$1 or \$2	0.5	NA	1.0	1.0	0.0	0.3
\$3 to \$199	3.0	NA	4.5	1.3	5.4	1.0
\$200 to \$499	8.5	NA	9.3	1.8	9.6	1.8
\$500 to \$999	12.7	NA	13.0	2.6	14.8	2.3
\$1,000 to \$4,999	56.6	NA	45.8	3.3	46.0	2.8
\$5,000 to \$9,999	15.1	NA	20.2	3.3	18.7	2.3
\$10,000 or more	3.6	NA	6.1	1.4	5.5	1.2
Total:	100.0		100.0		100.0	

Source: U.S. Census Bureau, 2010 Current Population Survey, Annual Social and Economic Supplement.

5.3 Do the changes to the cash public assistance question raise the estimate of persons receiving cash public assistance?

To measure this, the proportion of persons receiving cash public assistance, or the reciprocity rates, were computed and compared between the control and test versions.

Table 3 shows public assistance reciprocity rates for the control and test groups and the difference between the test and control groups. A one-sided test was used to determine if the test group had a statistically significant larger reciprocity proportion using an $\alpha = 0.10$. The changes to cash public assistance did not significantly raise the estimate of persons receiving cash public assistance income. The main goal of this content test was to capture more household receiving this source of income. Table 3 shows that this goal was not met with the test version.

Table 3. Reciprocity Rates							
	Test Estimate (%)	Standard Error (%)	Control Estimate (%)	Standard Error (%)	Test – Control (%)	Standard Error (%)	Significance
Reciprocity Rate	1.4	0.1	1.6	0.1	-0.2	0.1	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

5.4 Do the changes to the cash public assistance question raise the estimate of cash public assistance income?

To measure this, the mean and median estimates of PA amounts were computed and compared between the control and test versions. PA recipients were included in the computations even if the PA amount was 0.

Table 4 shows median and mean estimates of cash public assistance income for the test and control groups and the difference between the test and control groups. A one-sided test was used to determine if the test group had a statistically significant larger median and mean using an $\alpha = 0.10$. The results showed that the mean and median estimates of cash public assistance income are not significantly higher in the test version of the question. Had there been higher mean or median estimates this would have been an indication that the test version was an improvement. Since there was no significant positive change there was no significant information leaning towards the test version.

Measure	Test Estimate	Standard Error	Control Estimate	Standard Error	Test - Control	Standard Error	Significance
Mean	\$2,072	\$182	\$2,069	\$134	\$3	\$226	No
Median	\$1,713	\$55	\$1,664	\$42	\$49	\$72	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

5.5 Do the changes to the cash public assistance question lower the item missing data rates?

The item missing data rates were compared between the control and test versions for PA reciprocity and amount to see whether the control version rates are significantly higher.

The reciprocity item missing data rate for the test and controls panels were computed. The difference in the reciprocity item missing data rates was also calculated. A one-sided test was used to determine whether there is a statistically significant negative difference between the test and control reciprocity item missing data rates, using a significance level of $\alpha = 0.10$.

Table 5 shows item missing data rates for the test and the control and the difference between the test and control for both the reciprocity and the amount questions. The changes to the question do not significantly lower the item missing data rates for either reciprocity or amount. Instead, the item missing data rates for amount are significantly higher for the test version than control.

Item Missing Data Rates	Test Estimate (%)	Standard Error (%)	Control Estimate (%)	Standard Error (%)	Test – Control Estimate (%)	Standard Error (%)	Test signif. less than control?
Reciprocity	10.2 (n=38,869)	0.2	10.5 (n=38,892)	0.3	-0.3	0.4	No
Amount	18.9 (n=610)	2.5	14.7 (n=732)	1.8	4.2	3.1	No ¹

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

¹Test is significantly greater than control at the $\alpha = 0.10$ significance level using a one-sided test.

5.6 Do the changes to the cash public assistance question lower response error (i.e., bias) in the estimates of cash public assistance reciprocity and cash public assistance income?

Using data from the Content Test and CFU, we compared net difference rates (*ndr*) between the control and test versions. A response was required in both survey measures to be included in this analysis. The net difference rate provides an approximate measure of bias in the content test estimates when we assume that the reinterview provides a measure of “truth.” A negative NDR means that there is an overestimate of the true values while a positive ndr means there is an underestimate.

See Figure 1. Below.

Note that CFU used questions from the CPS Annual Social and Economic Supplement for the Cash Public Assistance questions as well as the other income questions changed for the Content Test. The CFU was identical for the Control and Test versions.

Figure 1.

CFU response (reinterview)	Content test response		
	Yes	No	Total
Yes	a	b	a+b
No	c	d	c+d
Total	a+c	b+d	n = a+b+c+d

$$ndr = \text{estimated value} - \text{true value} \approx \frac{a+c}{n} - \frac{a+b}{n} = \frac{c-b}{n}$$

The universe for CFU is all persons age 15+ (the same as the universe for the content test Cash Public Assistance questions). In order for estimates of *ndr* to be representative of this universe, note that the elements *a*, *b*, *c*, and *d* in the table above will be sums of the appropriate sample weights for cases (not unweighted counts).

Table 6 shows the net difference rates for reciprocity and nine income ranges for the test and control questions. Additionally, the differences between the NDRs for the test group and control group were tested using a one-sided test with $\alpha = 0.10$. The difference between the absolute values of the amount NDRs for test group and the control group were tested using a one-sided test with a Bonferonni-Holm adjusted alpha controlling the family-wise error level of 0.10.

The changes to the cash public assistance question significantly lower the reciprocity NDR which means the test question has reduced the overestimate of reciprocity. This outcome is the opposite of what the test version was aiming at accomplishing, therefore producing negative results. However, the test version amount NDRs is not significantly lower for any of the nine amount categories.

Table 6. Net Difference Rates							
Category	NDR Test Estimate (%)	Standard Error (%)	NDR Control Estimate (%)	Standard Error (%)	Test - Control (%)	Standard Error (%)	Test signif. less than control?
<i>Reciprocity:</i>	(n=18,731)		(n=18,592)				
NDR	-0.2	0.1	-0.5	0.1	-0.3	0.2	Yes
<i>Amount:</i>	(n=436)		(n=511)				
DK/REF/OTHER	6.6	3.0	3.1	1.2	3.5	3.3	No
\$0	-28.3	2.9	-36.3	3.2	-8.0	4.5	No
\$1 or \$2	0.0	0.4	0.0	0.3	0.0	0.5	No
\$3 - \$199	1.8	1.5	2.8	0.8	-0.9	1.6	No
\$200 - \$499	2.5	0.9	4.1	1.7	-1.6	1.8	No
\$500 - \$999	1.3	1.7	5.5	2.8	-4.2	3.1	No
\$1,000 - \$4,999	8.9	2.1	14.7	2.4	-5.8	3.0	No
\$5,000 - \$9,999	4.0	1.9	4.7	1.9	-0.7	2.8	No
\$10,000 or more	3.2	1.2	1.5	1.2	1.7	1.7	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

5.7 For each mode of data collection, do the changes to the cash public assistance question affect the item missing data rates, the estimates of reciprocity and cash public assistance income, or the response error (i.e., bias)?

For each mode (mail, CATI, CAPI) and also for combined CATI/CAPI, the item missing data rates were compared, estimates of reciprocity and Cash Public Assistance income and response error (i.e., bias) were calculated as above between the control and test versions.

Table 7 show Reciprocity Net Difference Rates by Mode of Interview for the Test and Control versions and the difference between the test and control versions. Statistical significance of differences is determined at the $\alpha = 0.10$ significance level using a one-sided test.

The test version resulted in a significantly lower NDR in the estimate of public assistance reciprocity for mail responses compared to control. The item missing data rate for the test version was lower for the mail mode than the control. All other measures by mode of data collection showed no statistical differences.

See tables A-1 to A-5 in appendix A for additional testing.

Table 7. Reciprocity Net Difference Rates by Mode of Interview							
Mode	Test Estimate (%)	Standard Error (%)	Control Estimate (%)	Standard Error (%)	Test-Control (%)	Standard Error (%)	Test signif. less than control?
Mail	0.2 (n=12,804)	0.1	0.8 (n=12,710)	0.1	-0.5	0.2	Yes
CATI/CAPI	0.1 (n=5,927)	0.2	0.3 (n=5,882)	0.2	-0.1	0.3	No
CATI	0.2 (n=2,344)	0.2	0.1 (n=2,391)	0.3	0.2	0.3	No
CAPI	0.1 (n=3,583)	0.3	0.3 (n=3,491)	0.3	-0.2	0.4	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010.

5.8 For each mail response stratum, do the changes to the cash public assistance question affect the item missing data rates, the estimates of reciprocity and cash public assistance income, or the response error (i.e., bias)?

For each mail response stratum, the item missing data rates were calculated, estimates of reciprocity and cash public assistance income and net difference rates were also calculated as above.

Net difference rates for cash public assistance income reciprocity for each mail response stratum were significantly lower in the test than control. The median estimate for cash public assistance income was significantly higher for the test version than control in the low response stratum.

See tables A-6 to A-10 in Appendix A for more testing.

Table 8a. Net Difference Rates -High Response Stratum							
Category	NDR Test Estimate (%)	Standard Error (%)	NDR Control Estimate (%)	Standard Error (%)	Test - Control (%)	Standard Error (%)	Test signif. less than control?
<i>Recipency:</i>							
NDR	0.1	0.2	0.4	0.2	-0.4	0.2	Yes
<i>Amount:</i>							
DK/REF/OTHER	9.4	4.5	1.7	1.6	7.8	4.8	No
\$0	24.4	4.0	32.4	4.2	-8.0	6.1	No
\$1 or \$2	0.0	0.0	0.0	0.0	0.0	0.0	No
\$3 - \$199	2.0	2.0	2.5	1.0	-0.4	2.3	No
\$200 - \$499	1.6	0.9	3.3	2.1	-1.8	2.2	No
\$500 - \$999	0.9	2.2	5.0	3.8	-4.0	4.0	No
\$1,000 - \$4,999	6.4	2.6	14.6	3.0	-8.1	3.8	No
\$5,000 - \$9,999	2.6	2.2	4.2	2.4	-1.6	3.3	No
\$10,000 or more	3.2	1.7	1.1	1.7	2.1	2.4	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

Table 8b. Net Difference Rates -Low Response Stratum							
Category	NDR Test Estimate (%)	Standard Error (%)	NDR Control Estimate (%)	Standard Error (%)	Test - Control (%)	Standard Error (%)	Test signif. less than control?
<i>Recipency:</i>							
NDR	0.4	0.2	0.8	0.2	-0.3	0.2	Yes
<i>Amount:</i>							
DK/REF/OTHER	1.5	0.8	6.5	2.2	5.0	2.6	No
\$0	35.4	3.5	45.0	3.6	9.6	4.6	No
\$1 or \$2	0.0	0.0	0.0	0.0	0.0	0.0	No
\$3 - \$199	1.4	1.8	3.3	1.1	2.0	2.1	No
\$200 - \$499	4.1	1.6	5.9	1.9	1.7	2.2	No
\$500 - \$999	5.3	2.4	6.6	2.5	1.3	3.3	No
\$1,000 - \$4,999	13.4	3.2	14.9	3.6	1.5	4.7	No
\$5,000 - \$9,999	6.6	3.3	5.6	2.7	1.0	4.1	No
\$10,000 or more	3.1	1.1	2.2	0.8	0.9	1.4	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

Measure	Test Estimate	Standard Error	Control Estimate	Standard Error	Test - Control	Standard Error	Significance
Mean	\$2,558	\$154	\$2,579	\$154	\$-20.24	\$229	No
Median	\$1,968	\$80	\$1,838	\$59	\$130	\$101	YES

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

5.9 Does either question version elicit respondent or interviewer behaviors that may contribute to interviewer or respondent error?

Results indicate that the test series does not perform as well as the control series on interviewer behavior. Review of the behavior coder notes indicate that interviewers frequently stopped reading at "... during the past 12 months" and often dropped the last sentence ("Do not include ..."). For respondent behavior, the test series performed better than the control.

5.10 For the Hispanic and Black population subgroups, do the changes to the cash public assistance question affect the estimate of reciprocity, item missing data rate, or reliability of the data?

For each population subgroup (Hispanic and Black) the item missing data rates were compared, estimates of reciprocity and Cash Public Assistance income and response error (i.e., bias) were calculated as above between the control and test versions.

The results are mixed. See tables 10a to 10d below. The reciprocity rate for the test version was statistically higher than the control for Hispanics. The test version produced a significantly lower item missing data rate than the control version for Hispanics as well. However, the test version also resulted in a statistically higher NDR for reciprocity among Hispanics. The median estimate of cash public assistance income was significantly higher in the test version of the question among Blacks. The test version also resulted in a statistically lower NDR for reciprocity among Blacks.

Subgroup	Test Estimate (%)	Standard Error (%)	Control Estimate (%)	Standard Error (%)	Difference Estimate (%)	Standard Error (%)	Significance
Hispanic	2.2	0.3	1.8	0.2	0.5	0.3	Yes
Black	3.2	0.4	3.8	0.4	-0.6	0.5	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010.

* Statistical significance of differences is determined at the $\alpha = 0.10$ significance level using a one-sided test.

Subgroup	Test Estimate	Standard Error	Control Estimate	Standard Error	Test - Control	Standard Error	Significance
Hispanic	\$2,095	\$201	\$2,054	\$131	\$41	\$254	No
Black	\$1,993	\$155	\$1,715	\$102	\$278	\$194	Yes

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010.

* Statistical significance of differences is determined at the $\alpha = 0.10$ significance level using a one-sided test.

Subgroup	Test Estimate (%)	Standard Error (%)	Control Estimate (%)	Standard Error (%)	Difference Estimate (%)	Standard Error (%)	Test signif. less than control?
Hispanic	7.5 (n=7,529)	0.5	9.0 (n=7,244)	0.6	-1.5	0.7	Yes
Black	11.5 (n=6,407)	0.6	12.1 (n=6,322)	0.7	-0.6	0.9	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010.

* Statistical significance of differences is determined at the $\alpha = 0.10$ significance level using a one-sided test.

Subgroup	Test Estimate (%)	Standard Error (%)	Control Estimate (%)	Standard Error (%)	Test - Control (%)	Standard Error (%)	Test signif. less than control?
<i>Reciprocity:</i>							
Hispanic	-0.8 (n=74)	0.3	-0.3 (n=79)	0.3	0.6	0.4	No ¹
Black	-0.3 (n=95)	0.5	-1.4 (n=110)	0.5	-1.2	0.7	Yes

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010.

* Statistical significance of differences is determined at the $\alpha = 0.10$ significance level using a one-sided test.

¹Test is significantly greater than control at the $\alpha = 0.10$ significance level using a one-sided test.

6. SUMMARY

There were unfavorable results in terms of higher item missing data rates for amounts and higher net difference rates for reciprocity for Hispanics. Despite some other positive results, these two unfavorable results were in opposition to the original intent of the question change and the goal of obtaining more reciprocity was not met.

Based on the test results, it was apparent there were no clear advantages to changing the cash public assistance question. It is recommended that the public assistance question remain as currently asked and continue to be asked the same in all modes (CATI, CAPI and mail).

References

Lynch, V., Resnick, D., Staveley, J., Taeuber, C. (2008) "Differences in Estimates of Public Assistance Reciprocity Between Surveys and Administrative Records", US Census Bureau and the Family Investment Administration, The Maryland Department of Human Resources

RTI International (August 12, 2009). "Cognitive Testing of the American Community Survey Content Test Items," Research Triangle Park, NC)

Acknowledgements

The authors would like to acknowledge Mary C. Davis and Padraic Murphy for their contributions to the statistical analysis of this report.

Appendix A: Tables

Measure	Test Estimate	Standard Error	Control Estimate	Standard Error	Test - Control	Standard Error	Significance
Mail	0.9	0.1	1.4	0.1	-0.5	0.1	No
CATI/CAPI	1.9	0.1	1.8	0.1	0.1	0.2	No
CATI	0.9	0.1	1.1	0.1	-0.1	0.2	No
CAPI	2.1	0.2	1.9	0.2	0.2	0.3	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

Measure	Test Estimate	Standard Error	Control Estimate	Standard Error	Test - Control	Standard Error	Significance
Mail	16.2	0.3	16.6	0.4	-0.4	0.5	No
CATI/CAPI	2.7	0.3	2.89	0.2	-0.2	0.3	No
CATI	3.7	0.5	3.05	0.5	0.6	0.6	No
CAPI	2.4	0.3	2.84	0.3	-0.4	0.4	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

Category	NDR Test Estimate (%)	Standard Error (%)	NDR Control Estimate (%)	Standard Error (%)	Test - Control (%)	Standard Error (%)	Test signif. less than control?
<i>Reciprocity:</i>							
NDR	0.1	0.2	0.2	0.2	-0.1	0.3	No
<i>Amount:</i>							
DK/REF/OTHER	17.3	7.4	9.5	3.7	7.8	8.3	No
\$0	48.7	6.1	49.2	7.5	-0.5	8.8	No
\$1 or \$2	0.0	0.0	0.0	0.0	0.0	0.0	No
\$3 - \$199	3.7	3.8	1.1	0.8	2.6	3.8	No
\$200 - \$499	1.9	1.6	5.9	4.1	-3.9	4.3	No
\$500 - \$999	0.9	4.2	8.5	7.2	-7.6	7.3	No
\$1,000 - \$4,999	16.4	4.6	16.7	5.0	-0.2	6.8	No
\$5,000 - \$9,999	6.9	4.6	9.5	4.9	-2.6	7.0	No
\$10,000 or more	1.4	0.9	2.0	3.0	-0.5	2.0	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

Table A-4. Net Difference Rates -CATI							
Category	NDR Test Estimate (%)	Standard Error (%)	NDR Control Estimate (%)	Standard Error (%)	Test- Contr ol (%)	Standar d Error (%)	Test signif. less than control?
<i>Reciprocity:</i>							
NDR	0.2	0.2	0.1	0.3	0.1	0.3	No
<i>Amount:</i>							
DK/REF/OTHER	20.5	9.6	1.9	1.9	18.6	9.7	No
\$0	52.3	8.8	57.4	13.9	-5.1	17.1	No
\$1 or \$2	0.0	0.0	0.0	0.0	0.0	0.0	No
\$3 - \$199	0.0	0.0	3.9	3.0	-3.9	3.0	No
\$200 - \$499	1.8	3.2	5.8	3.6	-4.0	4.4	No
\$500 - \$999	7.6	7.9	10.3	9.4	-2.7	12.0	No
\$1,000 - \$4,999	16.9	7.6	35.5	14.1	-18.5	15.5	No
\$5,000 - \$9,999	3.6	2.6	8.4	8.5	-4.6	8.8	No
\$10,000 or more	1.8	2.0	8.3	8.5	-6.5	8.6	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

Table A-5. Net Difference Rates -CAPI							
Category	NDR Test Estimate (%)	Standard Error (%)	NDR Control Estimate (%)	Standard Error (%)	Test- Contr ol (%)	Standar d Error (%)	Test signif. less than control?
<i>Reciprocity:</i>							
NDR	0.1	0.3	0.3	0.3	-0.2	0.4	No
<i>Amount:</i>							
DK/REF/OTHER	16.9	9.0	10.5	4.2	6.3	10.1	No
\$0	48.2	7.1	48.2	8.4	0.0	10.1	No
\$1 or \$2	0.0	0.0	0.0	0.0	0.0	0.0	No
\$3 - \$199	4.3	4.4	0.7	0.8	3.6	4.4	No
\$200 - \$499	2.0	1.8	6.0	4.5	-3.9	4.8	No
\$500 - \$999	0.0	4.7	8.3	8.0	-8.2	8.3	No
\$1,000 - \$4,999	16.3	5.2	14.3	5.0	2.1	7.3	No
\$5,000 - \$9,999	7.4	5.3	11.8	5.6	-4.4	8.0	No
\$10,000 or more	1.4	1.0	3.3	3.2	-1.9	3.3	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

Table A-6. High Response Stratum-Reciency							
Measure	Test Estimate	Standard Error	Control Estimate	Standard Error	Test - Control	Standard Error	Significance
Reciency	1.0	0.1	1.2	0.1	-0.2	0.1	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

Table A-7. Item Missing Data Rates- High Response Stratum							
Measure	Test Estimate	Standard Error	Control Estimate	Standard Error	Test - Control	Standard Error	Significance
Reciency	10.3	0.3	10.7	0.4	-0.3	0.5	No
Amount	9.1	0.3	9.5	0.3	-0.3	0.4	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

Table A-8. Means and Medians- High Response Stratum							
Measure	Test Estimate	Standard Error	Control Estimate	Standard Error	Test - Control	Standard Error	Significance
Mean	\$1,817	\$268	\$1,818	\$201	-\$1.75	\$343	No
Median	\$1,603	\$69	\$1,590	\$55	\$13	\$92	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

Table A-9. Low Response Stratum							
Measure	Test Estimate	Standard Error	Control Estimate	Standard Error	Test - Control	Standard Error	Significance
Reciency	2.3	0.1	2.5	0.1	-0.2	0.2	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

Table A-10. Item Missing Data Rates- Low Response Stratum							
Measure	Test Estimate	Standard Error	Control Estimate	Standard Error	Test - Control	Standard Error	Significance
Recipiency	9.7	0.2	10.0	0.3	-0.3	0.4	No
Amount	8.1	0.2	8.3	0.2	-0.2	0.3	No

Source: U.S. Census Bureau, 2010 American Community Survey Content Test, September to December 2010

- <1> Yes
- <2> No

[IF YES] What was the amount?

Appendix C: CATI and CAPI Versions of the Control and Test Questions

CONTROL Wording

Did [FILL1: <Name>/you] receive any Cash Public Assistance or welfare payments from the state or local welfare office DURING THE PAST 12 MONTHS?

<1> Yes

<2> No

If Yes: What was the amount?

TEST Wording

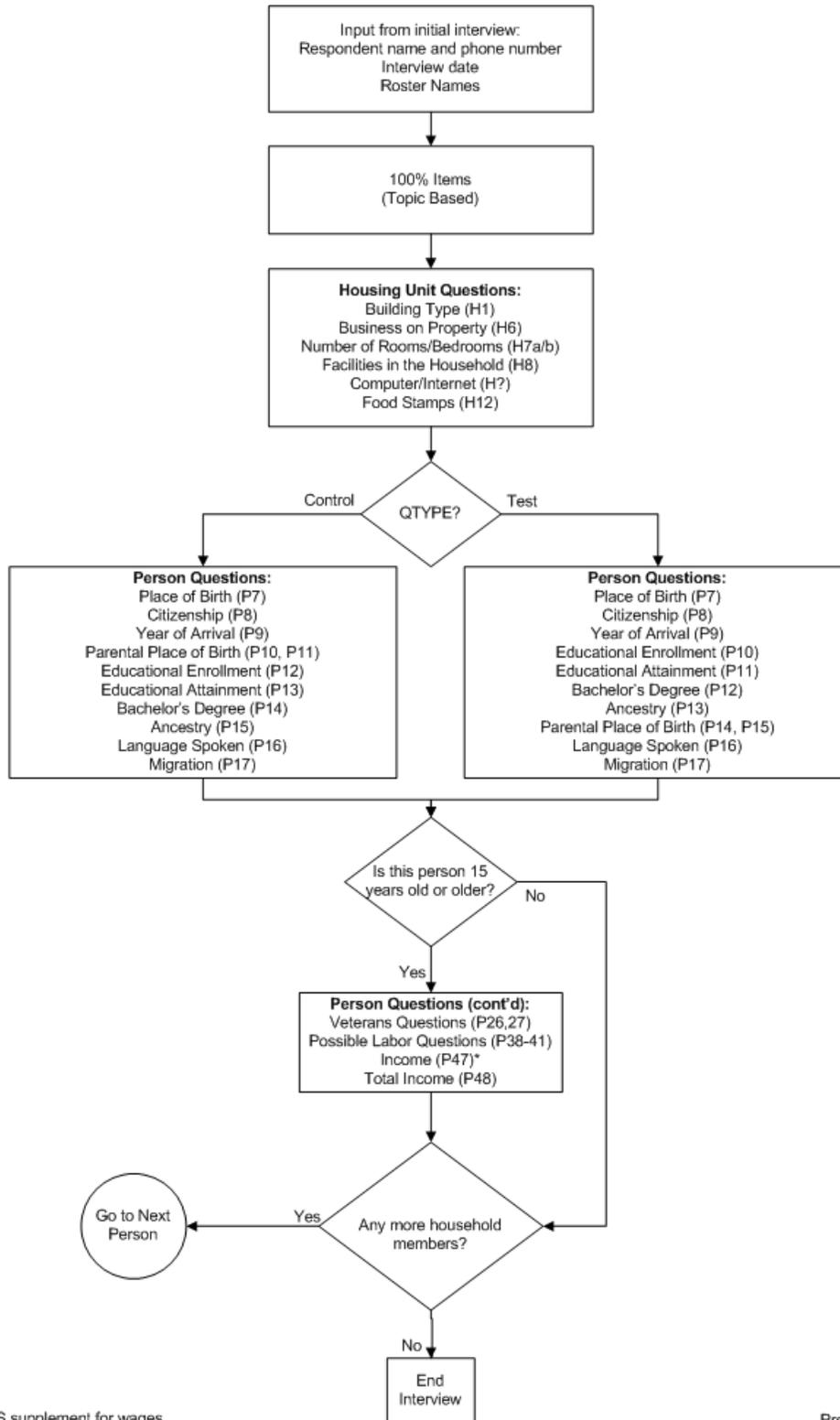
Did [FILL1: <Name>/you] receive any welfare payments or Cash assistance from the state or local welfare office, for [FILL1: <Name>/yourself] or any children in this household DURING THE PAST 12 MONTHS? *Include all assistance, even if for only one month. Do NOT include benefits from food, energy, or rental assistance programs.*

<1> Yes

<2> No

If yes: "What was the amount?"

Appendix D: Flow of the Content Follow-Up



* using CPS supplement for wages,
property income & cash public
assistance

Appendix E: Information Page

Test Design

Treatments	Two question versions with different wording (see page 4).
Sample Size	35,000 households per treatment (70,000 total)
Sample Design	Similar to production ACS with an additional level of stratification into high and low mail response areas.
Modes	Mail, CATI, and CAPI, with a CATI content follow-up (CFU) of all households. <i>CATI and CAPI interviews will be recorded using Computer-Assisted Recorded Interviewing (CARI) technology.</i>
Time Frame	Same schedule as the production September panel: mailout in late August, CATI in October, CAPI in November. CFU goes from mid-September to mid-December.

Research Questions & Evaluation Measures

No.		Evaluation Measures
1	Is the response distribution of cash public assistance income comparable to the Current Population Survey's Annual Social and Economic Supplement (CPS ASEC) distribution of cash public assistance income?	Compare the response distribution of cash public assistance income between the test version and the CPS ASEC. <i>We cannot make formal statistical comparisons since the Content Test data will not have been edited or imputed, adjusted for nonresponse, nor raked to known population totals.</i>
2	Do the changes to the cash public assistance question raise the estimate of cash public assistance income?	Compare the mean and median estimates of cash public assistance income between the control and test versions.
3	Do the changes to the cash public assistance question lower response error (i.e., bias) in the estimates of cash public assistance reciprocity and cash public assistance income?	Using data from the Content Test and CFU, compare net difference rates between the control and test versions (based on answers to more detailed content follow-up questions).
4	Do the changes to the cash public assistance question lower the item missing data rates?	Compare the item missing data rates between the control and the test versions.
5	Do the changes to the cash public assistance question raise the estimate of persons receiving cash public assistance?	Compare the estimate of persons receiving cash public assistance between the control and test versions.

No.		Evaluation Measures
6	For each mode of data collection, do the changes to the cash public assistance question affect the item missing data rates, the estimates of reciprocity and cash public assistance income, or the response error (i.e., bias)?	<p>For each mode (mail,CATI,CAPI), compare the item missing data rates, estimates of reciprocity and cash public assistance income, and response error (i.e., bias) between the control and the test versions.</p> <p><i>Comparisons across modes of data collection cannot be made since measurable differences cannot be attributed strictly to the mode of data collection. Observed differences across modes may also be due to mode specific respondent characteristics and reinterview mode effects (CFU only).</i></p>
7	For each mail response stratum, do the changes to the cash public assistance question affect the item missing data rates, the estimates of reciprocity and cash public assistance income, or the response error (i.e., bias)?	For each mail response stratum (high and low), compare the item missing data rates, estimates of reciprocity and cash public assistance income, and response error (i.e., bias) between the control and the test versions.
8	Does either question version elicit respondent or interviewer behaviors that may contribute to interviewer or respondent error?	Compare the behavior coding results derived from the CARI recordings between the control and the test versions.
9	For the Hispanic and Black population subgroups, do the changes to the cash public assistance question affect the estimate of reciprocity, item missing data rate, or reliability of the data?	<p>For the Hispanic and Black subgroups separately, compare the item missing data rates, estimates of cash public assistance reciprocity, and reliability measures between the control and the test versions.</p> <p><i>Note: This test was not designed to study differences across panels by race/ethnicity breakdowns with statistical precision, as this was not a stated goal of the test. Therefore, these results will be provided for informational purposes only.</i></p>

Selection Criteria (In order of priority)

Research Question(s)	Criteria
1	The overall distribution of cash public assistance income for the test version should be comparable to that of the CPS ASEC.
2-3	An increase in cash public assistance receipt and the amount of cash public assistance received in the test version implies a positive change since this item is historically underestimated
4-5	The item missing data rates and response error (i.e., bias) will be considered together when determining whether the test version performs better.

Supplemental Information

Research Question(s)	Criteria
6-9	Not part of the selection criteria. These data are presented to give additional information regarding how the questions performed.

Appendix F: CFU wording

CPS INSERT FOR CASH PUBLIC ASSISTANCE AND WELFARE

CPS Q59A88

At any time in the past 12 months, even for one month, did <name/you> receive any CASH assistance from a state or local welfare program (if possible <such as (State Program Name)>)?

Do not include food stamps, SSI, energy assistance, WIC, School meals, or transportation, childcare, rental, or education assistance.

-(Display this information on the interviewer question screen-

Include Cash payments from:

welfare or welfare-to-work programs, (State Program Name and/or acronyms), Temporary Assistance for Needy Families program (TANF), Aid to Families with Dependent Children (AFDC), General Assistance/Emergency Assistance program, Diversion Payments, Refugee Cash and Medical Assistance program, General Assistance from Bureau of Indian Affairs, or Tribal Administered General Assistance)

1 Yes (skip to CPS Q59C8)

2 No

CPS Q59A89

Just to be sure, in the past 12 months, did <name/you> receive CASH assistance from a state or local welfare program, on behalf of CHILDREN in the household?

1 Yes

2 No (skip to ACS 47ga)

CPS Q59C8

From what type of program did (name/you) receive the CASH assistance? Was it a welfare or welfare-to-work program such as (State Program Name), General Assistance, Emergency Assistance, or some other program?

- Enter all that apply, separate with commas

- Probe: Any Other Program?

1 (State Program Name)/welfare/AFDC

2 General Assistance

3 Emergency Assistance/short-term Cash assistance

4 Some other program (specify)

CPS Q59C8s

What type of program?

CPS Q59e

In the past 12 months, how much CASH assistance did (name/you) receive?
- Enter dollar amount