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2023 AMERICAN COMMUNITY SURVEY RESEARCH AND EVALUATION REPORT MEMORANDUM
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Subject: 2022 American Community Survey Content Test Evaluation Report:
Income

Attached is the 2022 American Community Survey (ACS) Content Test report for Income. This report presents the methods and results of the test for new versions of the Income questions.

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2022 American Community Survey Content Test Evaluation Report: Income

FINAL REPORT



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EXECUTIVE SUMMARY

The U.S. Census Bureau conducted the 2022 American Community Survey (ACS) Content Test from September through December of 2022. The 2022 ACS Content Test tested the wording, format, and placement of proposed new ACS questions and proposed revisions of current ACS questions for potential inclusion in the ACS data collection instruments. The tested questions came from 10 topics. This report presents the results of this field test for Income.

In preparation for the 2022 Content Test, the Census Bureau, in consultation with the Office of Management and Budget (OMB) and the Interagency Council on Statistical Policy Subcommittee on the ACS, determined which proposals solicited from over 25 federal agencies would be tested in 2022. Approved proposals for new content or changes to existing content were tested according to the ACS content change process, which includes cognitive testing and field testing.

The 2022 ACS Content Test consisted of a nationally representative sample of 120,000 housing unit addresses, excluding Puerto Rico, Alaska, and Hawaii. The sample, which was independent of production ACS, was divided evenly among three treatments, a Control treatment and two test treatments.

Like production ACS, the data collection for the 2022 ACS Content Test was conducted in two phases: a self-response phase, which lasted up to nine weeks, followed by a nonresponse followup phase, conducted via Computer-Assisted Personal Interviewing (CAPI). The CAPI operation lasted about one month. For households where we received a response in the original Content Test interview, a Content Follow-Up telephone reinterview was conducted to measure response error.

Income questions were included in the Content Test to determine the effects of changing the reference period from “the last 12 months” to the last calendar year, in preparation for eventually using administrative records data to replace or supplement income data on the ACS. While cognitively testing the question wording, we detected some areas in question and instruction wording that could be improved. The Content Test included a test of these alternative question and instructing wording. There were two test versions of the Income questions. Version 1 included the change to the reference period along with updates to question and instructional wording. Version 2 included only the change to the reference period.

The following study summarizes comparisons of missing data rates (or non-responses rates), prevalence rates, and other metrics across these versions for four key income sources: retirement income, interest income (defined as income from interest, dividends, royalties, rental, estates and/or trusts), self-employment earnings, and public assistance. These income sources tend to suffer from greater misreporting and respondent confusion, which the question

wording and instructions were intended to address. Comparisons focused on questions about reciprocity (i.e., whether a respondent received that income type) and amount (i.e., if so, how much did the respondent receive). Comparisons across version were completed overall and by interview type (i.e., internet, mail, and CAPI).

Key Findings

We identified the effects of question and instruction wording changes on data collection for income by comparing non-response rates between Version 1 (including the change in reference period and wording changes) and Version 2 (reference period change only). All differences were not significantly significant, except for the ones noted below:

- Version 1 had lower item nonresponse rates than Version 2 for interest income reciprocity in the mail mode and for interest income amount overall and in the internet mode.
- Version 1 had a lower item nonresponse rate than Version 1 for public assistance amount in the internet mode. Version 1 had a higher nonresponse rate for public assistance amount for CAPI.

We identified effects of the change in the reference period on data collection by comparing non-response rates between Control and Version 2. All differences were not statistically significant, except for the ones noted below:

- Version 2 had higher item nonresponse than Control for total income amount in the internet mode.
- Version 2 had higher item nonresponse rates than the Control for self-employment reciprocity (overall, internet, and CAPI modes), public assistance reciprocity (overall and internet mode), and retirement reciprocity (overall, internet, and mail modes).

We identified effects on aggregate reported income using the same comparisons. All differences were not statistically significant, except aggregate retirement income was higher for internet respondents and lower for CAPI respondents in Version 1 compared to Version 2.

We also identified effects on the likelihood of respondents reporting break-even amounts for self-employment and net rental income using the same comparisons. All differences were not statistically significant, except we found a higher rate of break-even amounts for self-employment income in Version 1 than Version 2 both overall and for the mail mode of data collection.

Response reliability for self-employment income reciprocity as measured by the Gross Difference Rate (GDR) and Index of Inconsistency (IOI) was higher for Version 1 than Version 2, indicating worse response reliability. There was no statistical difference in the Net Difference

Rate (NDR) for public assistance income between Version 1 and Version 2 indicating that the level of bias was not statistically different for the question versions.

Recommendation

Recommendations from the Income Statistics Branch regarding modifying the reference period or implementing the question and instruction wording changes are pending results from future research. In addition to the metrics assessed in this report, it is critical that Census Bureau staff consider the proposed changes' effects on other measures of data quality. In particular, staff must evaluate the effect the reference period change has on accuracy. Staff will identify these impacts by comparing respondents' answers to information observed in linked administrative data and measure how discrepancies vary between treatment and control groups. Census staff will develop their official recommendations after this additional analysis is complete.

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1 BACKGROUND

The U.S. Census Bureau conducted the 2022 American Community Survey (ACS) Content Test from September to December of 2022. The 2022 ACS Content Test tested the wording, format, and placement of proposed new ACS questions and proposed revisions of current ACS questions for potential inclusion in the ACS data collection instruments. The questions came from these ten ACS topics, three of which, Sewer, Electric Vehicles, and Solar Panels are new:

- Household Roster
- Sewer
- Electric Vehicles
- Solar Panels
- Supplemental Nutrition Assistance Program (SNAP)
- Educational Attainment
- Health Insurance Coverage
- Disability
- Labor Force
- Income

This report presents the results of the field test for Income.

1.1 Proposals for New and Revised ACS Questions

In June 2018, the Census Bureau solicited proposals for new or revised ACS content from over 25 federal agencies. For new questions, the proposals explained why these data were needed and why other data sources that provide similar information were not sufficient. Proposals for new content were reviewed to ensure that the requests met a statutory or regulatory need for data at small geographic levels or for small populations.

The Census Bureau, in consultation with the Office of Management and Budget (OMB) and the Interagency Council on Statistical Policy Subcommittee on the ACS, determined which proposals moved forward. Approved proposals for new content or changes to current content were tested via the ACS content change process. This process includes cognitive testing and field testing. An interagency team consisting of Census Bureau staff and representatives from other federal agencies participated in development and testing activities.

In accordance with OMB's Standards and Guidelines for Statistical Surveys (OMB, 2006) and the Census Bureau's Statistical Quality Standards (U.S. Census Bureau, 2022a), the Census Bureau conducted cognitive interviewing to pretest survey questions prior to field testing or implementing the questions in production.

1.2 Cognitive Testing

For the 2022 ACS Content Test, the Census Bureau contracted with Research Triangle Institute (RTI) International to conduct three rounds of cognitive testing.¹ Cognitive interviews were conducted virtually, in English and Spanish.² In the first round of cognitive testing, each topic tested one or two versions of the question. Based on the results of the first round, wording modifications to the questions were made and one or two versions per topic were tested in the second round. The interagency team used the results of both rounds of cognitive testing to recommend question content for the field test. For more information on the cognitive testing procedures and results from rounds one and two, see RTI International (2022a).

The third round of cognitive testing was conducted in Puerto Rico and in Group Quarters (GQ), as the 2022 ACS Content Test did not include field testing in these areas. Cognitive interviews in Puerto Rico were conducted in Spanish; GQ cognitive interviews were conducted in English. For more information on the cognitive testing procedures and results from the third round, see RTI International (2022b).

Three topics included in the cognitive testing were not included in the field test: Homeowners Association or Condominium Fee, Home Heating Fuel, and Means of Transportation to Work. For the most part, the changes to these questions are expected to either impact a small population or result in a small change in the data that would not be detectable in the Content Test. The subject matter experts recommended that cognitive testing was sufficient for these questions and that field testing was not necessary; the Interagency Council on Statistical Policy Subcommittee on the ACS agreed with this recommendation. Content changes for these topics will be implemented in production ACS in 2024.

1.3 Field Testing Income in the 2022 ACS Content Test

1.3.1 Justification for Inclusion of Income in the Content Test

The Census Bureau is currently conducting research to determine the feasibility of using administrative data sources to validate survey responses and to possibly serve as a replacement or supplement for income questions in its surveys (Bee and Rothbaum, 2019). Possible administrative data sources include the Longitudinal Employer-Household Dynamics (LEHD), the Payment History Update System (PHUS), and the Supplemental Security Records (SSR). The LEHD provides quarterly information on earnings that comes from each state's Unemployment Insurance System. The PHUS and SSR provide monthly information on Social Security Income

¹ For each test topic, subcommittees were formed to develop question wording and research requirements for cognitive testing. The subcommittees included representation from the Census Bureau and other federal agencies.

² Cognitive testing interviews were conducted virtually due to the COVID-19 pandemic. Interviews were attempted by videoconferencing first and were moved to phone interviews if there were technical problems with Skype or MS Teams.

and Supplemental Security Income that comes from the Social Security Administration. The Census Bureau has established data sharing agreements with states and the Social Security Administration to provide this data.

To better align with administrative data sources like these, a change in the reference period from “past 12 months” to a prior calendar year is needed. Income questions in the ACS have always had a reference period of “the past 12 months.” The “past 12 months” varies, depending on the date that a household responds to the survey. For example, questions asked in September have a reference period of that day’s date in September of the prior year to the day of response in September of the current year. We tested changing the reference period from “past 12 months” to a prior calendar year. The calendar year of reference for this test was 2021, since the test was conducted in 2022.

There are other potential benefits to changing the reference period. Survey methodologists have conducted studies showing that “sharpening the boundaries of a reference period” can improve recall and therefore the accuracy of reporting (Tourangeau, Rips, and Rasinski, 2000). In this case, defining the reference period as the prior calendar year, instead of a sliding reference period of the past 12 months, has the goal of improving recall and accuracy of reporting. Additionally, using a frame of reference that matches the way that other methods capture similar data (e.g., filling out relevant tax forms) allows a respondent to use that previous recall exercise to improve their responses.

1.3.2 Cognitive Testing Development for Income

In preparation for an eventual change of reference period, the Census Bureau contracted with Westat to cognitively test the Labor Force and Income Series of questions in 2016. Although we were primarily testing the ability of respondents to recall Labor Force and Income information from the prior year as compared to the past 12 months, the testing also revealed some areas of the questions that could be improved to provide greater clarity for respondents (Steiger, Robins, and Stapleton, 2017). Using the recommendations from the Westat report, RTI International further cognitively tested versions of the questions specifically for this Content Test (RTI International, 2022a). The improvements made to the questions developed by this cognitive testing are outlined below.

1.3.3 Question Content

We tested two versions of the Income series of questions to analyze both the effect of changing the reference period and the effect of the other modifications made to the questions. The Test treatment, also referred to as Version 1, includes all the modifications made to the questions as a result of cognitive testing (listed below) along with a change to the reference period. The Roster Test treatment, also referred to as Version 2, only changed the reference period.

Aside from a new reference period, Version 1 has the following modifications:

- (1) Pre-amble instructions on the paper questionnaire:
 - a. Added the text, “Report all types of income received, taxable and non-taxable” before the new instructions for the reference period.
 - b. Added break-even net income instructions.
 - c. Capitalized the words “income received jointly” so that only those to whom the instructions apply will be alerted to read the instructions and others can skip them.
 - d. Removed net loss of income instructions from the pre-amble and put them after the questions for self-employment and rental income.

- (2) Modified question wording for the following sources of income:
 - a. Self-employment (all modes): Added “including work paid for in cash” and put “farm or non-farm” in parentheses.
 - b. Public assistance (all modes): Changed “any public assistance or welfare payments” to “any financial assistance or payments.”
 - c. Total income (all modes): Added “Including all types of income” to the beginning of the question.

- (3) Separated rental income from the question about interest, dividends, royalty, estates, and trusts (paper and internet) [CAPI mode already has the question asked separately.]

- (4) Modified instructions:
 - a. Public Assistance (all modes): Added instructions about what types of income to exclude.
 - b. Retirement income (paper and internet): Moved the instruction “Do NOT include Social Security”; it now appears right after the question.

1.3.4 Research Questions

The questions examined for this research are presented below.

RQ1. For each treatment, how do the proportions of persons (in the universe) who received self-employment, interest/dividends/royalty/estates/trusts, rental income, and public assistance compare with published CPS ASEC data?

RQ2. Version 1: For self-employment income, are the item missing data rates for reciprocity or amount different for Version 1 than for Version 2?

RQ3. Version 2: For self-employment income, are the item missing data rates for reciprocity or amount different for Version 2 than for the Control version?

RQ4. Version 1: For interest, dividends, royalty income, rental income, and income from estates and trusts, are the item missing data rates for reciprocity or amount different for Version 1 than for Version 2?

RQ5. Version 2: For interest, dividends, royalty income, rental income, and income from estate and trusts, are the item missing data rates for reciprocity or amount different for Version 2 than for the Control version?

RQ6. Version 1: For public assistance, are the item missing data rates for reciprocity or amount different for Version 1 than for Version 2?

RQ7. Version 2: For public assistance, are the item missing data rates for reciprocity or amount different for Version 2 than for the Control version?

RQ8. Version 1: For retirement and pension, are the item missing data rates for reciprocity or amount different for Version 1 than for Version 2?

RQ9. Version 2: For retirement and pension, are the item missing data rates for reciprocity or amount different for Version 2 than for the Control version?

RQ10. Version 1: For total income, are the item missing data rates different for Version 1 than for Version 2?

RQ11. Version 2: For total income, are the item missing data rates different for Version 2 than for the Control version?

RQ12. Version 1: Are the section missing data rates different for Version 1 than for Version 2?

RQ13. Version 2: Are the section missing data rates different for Version 2 than for the Control version?

RQ14. Is the proportion of eligible persons reported as receiving self-employment income different for Version 1 than for Version 2?

RQ15. Is the proportion of eligible persons that reported a break-even amount of self-employment income different for Version 1 than for Version 2?

RQ16. Is the proportion of eligible persons that reported a loss for self-employment income different for Version 1 than for Version 2?

RQ17. Is the proportion of eligible persons reported as receiving combined interest, dividends, royalty income, rental income, or income from estates and trusts different for Version 1 than for Version 2?

RQ18. Is the proportion of eligible persons that reported a break-even amount of rental income different for Version 1 than those that reported a break-even amount of combined interest, dividends, royalty income, rental income, or income from estates and trusts for Version 2?

RQ19. Is the proportion of eligible persons that reported a loss for rental income different for Version 1 than those that reported a loss for combined interest, dividends, royalty income, rental income, or income from estates and trusts for Version 2?

RQ20. Is the proportion of eligible persons reported as receiving public assistance income different for Version 1 than for Version 2?

RQ21. Is the proportion of eligible persons reported as receiving retirement or pension income different for Version 1 than for Version 2?

RQ22. Is there a difference between treatments in response reliability for the following types of income reciprocity: self-employment; combined interest, dividends, royalty, and rental income; public assistance; and retirement income?

RQ23. Is the aggregate amount of self-employment income different for Version 1 than for Version 2?

RQ24. Is the combined aggregate amount of interest, dividends, royalty income, rental income, and income from estates and trusts different for Version 1 than for Version 2?

RQ25. Is the aggregate amount of retirement and pension income different for Version 1 than for Version 2?

RQ26. How do the median earnings for all workers among the SOC major groups compare between treatments?

RQ27. How do the median earnings for full-time year-round workers among the SOC major groups compare between treatments?

RQ28. How do reciprocity and amounts for wages and salary income from Version 2 and control compare with Longitudinal Employer-Household Dynamics (LEHD) data?

RQ29. How do reciprocity and amounts for Social Security income from Version 2 and control compare with SSA data from the Payment History Update System (PHUS)?

RQ30. How do reciprocity and amounts for Supplemental Security Income (SSI) from Version 2 and control compare with SSA data from Supplemental Security Records (SSR)?

2 METHODOLOGY

2.1 Sample Design

The 2022 ACS Content Test consisted of a national sample of roughly 120,000 housing unit addresses, excluding Puerto Rico, Alaska, and Hawaii (due to cost constraints, only stateside housing units were included). The sample was independent of the ACS production sample; however, 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 ACS production sample design is described in Chapter 4 of the ACS and Puerto Rico Community Survey (PRCS) Design and Methodology report (U.S. Census Bureau, 2022b).

The sample design modifications included stratifying addresses into high and low self-response areas, oversampling addresses from the low self-response areas to ensure equal response from both strata, and selecting an initial sample of addresses, followed by a nearest neighbor method for selecting the remaining addresses for sample. The high and low self-response strata were defined based on ACS self-response rates from the 2018 and 2019 panels at the tract level.

In the sample selection process, we selected an initial sample of 40,000 addresses, then selected the two nearest neighbors for each initially selected address. If possible, we selected nearest neighbors that were in both the same content test sampling stratum as well as the same state, county, and sub-county area as the initially selected address. In total, three samples were selected, one for the Control treatment and two for the two test treatments. These three treatments are shown in Table 1.

The Control treatment contained production questions and questions from the three new topics: Solar Panels, Electric Vehicles, and Sewer. The Test treatment contained a test version question for all topics except Household Roster. Two of the new topics, Solar Panels and Sewer, only had one version of the test question; therefore, the same question was asked in the Control and Test treatments. The other new topic, Electric Vehicles, had two versions; one was asked in the Control and Roster Test treatments and the other in the Test treatment.

The primary purpose of the Roster Test treatment was to test the household roster test question separately since changes in the amount and types of people included in the household could impact the results of person-level topics. Therefore, the analyses for Test Version 2 of the Health Insurance Coverage, Labor Force, and Income questions could have been impacted by

these changes. However, it was determined that the additional information gained from testing an additional version of the topics in the Roster Test treatment was worth the risk.³

Table 1. Questions by Treatment

Topic	Control Treatment	Test Treatment	Roster Test Treatment
Household Roster	Production	Production	Test Version
Solar Panels	Test Version	Test Version	Test Version
Electric Vehicles	Test Version 1	Test Version 2	Test Version 1
Sewer	Test Version	Test Version	Test Version
Educational Attainment	Production	Test Version	Production
Health Insurance Coverage	Production	Test Version 1	Test Version 2
Disability	Production	Test Version	Production
SNAP	Production	Test Version	Test Version [†]
Labor Force	Production	Test Version 1	Test Version 2
Income	Production	Test Version 1	Test Version 2

[†] The SNAP Test Version will be in both test treatments to align with Labor Force and Income that also have a reference period change to the previous calendar year.

2.2 Data Collection

The 2022 ACS Content Test occurred in parallel with data collection activities for the September 2022 ACS production panel. Data collection for production ACS data consists of two main phases: an approximately two-month self-response data collection phase and a one-month follow-up phase.

During the self-response phase, addresses in sample are asked to self-respond by internet or mail. The Census Bureau sends addresses in sample up to five mailings to encourage self-response. This operation is followed by a one-month Computer-Assisted Personal Interviewing (CAPI) operation, where Census Bureau field representatives attempt to complete a survey for a sub-sample of the remaining nonresponding addresses.

³ We examined differences in key household and person characteristics among the Control and Roster Test treatments to explore any indication of bias in the Health Insurance Coverage, Labor Force, and Income analyses. See Spiers et al. (2023) for more information.

The following data collection protocols for the 2022 ACS Content Test remained the same as production ACS:

- Data were collected using the self-response modes of internet (in English and Spanish) and paper questionnaires for the first and second month of data collection.
- In the third month of data collection, a sub-sample of nonresponding addresses were selected for CAPI.
- During CAPI, Census Bureau field representatives conducted interviews in person and over the phone.
- Self-response via internet or paper was accepted throughout the three-month data collection period.

The following data collection protocols for the 2022 ACS Content Test differed from production ACS:

- There were no paper versions of the 2022 ACS Content Test questionnaires in Spanish.⁴
- If respondents called Telephone Questionnaire Assistance (TQA) and opted to complete the survey over the phone, the interviewers conducted the survey using the production ACS questionnaire.⁵ Since the TQA interviews did not include test questions, they were excluded from the analysis of the 2022 ACS Content Test.
- The 2022 ACS Content Test did not include the Telephone Failed-Edit Follow-Up (FEFU) operation. In production, this operation follows up on households that provided incomplete information on the form or reported more than five people on the roster of a paper questionnaire.⁶
- The 2022 ACS Content Test used a telephone reinterview component to measure response reliability or response bias (depending upon the ACS topic). This telephone reinterview operation is discussed in Section 2.3 below.

For detailed information about ACS data collection procedures, consult the ACS and PRCS Design and Methodology Report (U.S. Census Bureau, 2022b).

⁴ In 2019, 412 Spanish questionnaires were mailed back out of all mailable cases. Based upon this rate, we projected that only 8 Spanish questionnaires would be mailed back in the 2022 Content Test, which would not be cost-effective.

⁵ The interviewer did not know which treatment the caller was in and therefore administered the production questionnaire. In 2019, less than one percent (0.6%) of cases responded by TQA and had no other response in a different mode. Based upon this rate, we projected about 744 TQA-only responses would be excluded from the 2022 ACS Content Test analysis.

⁶ The information obtained from the FEFU improves accuracy in a production environment but confounds the evaluation of respondent behavior in the Content Test environment. For paper questionnaires, where the household size is six or more (up to 12), we only collected name, age, and sex of these additional persons, but not detailed information as we do in the FEFU operation for ACS production.

2.3 Content Follow-Up Operation

To measure response reliability or response bias, a Content Follow-Up (CFU) reinterview was attempted with every household with an original Content Test interview that met the CFU eligibility requirements. Among the requirements were that the household must be occupied, and the household must have a valid telephone number. See the CFU requirements document for the complete list of eligibility requirements (Spiers, 2021).

2.3.1 Content Test Follow-Up Protocol

As in previous ACS Content Tests, a case was sent to the CFU operation no sooner than two weeks (14 calendar days) after the original interview and had to be completed within three weeks after being sent to the CFU. This timing attempted to balance two competing needs: (1) to minimize the possibility of real changes in answers due to a change in life circumstances between the two interviews; (2) to minimize the possibility of the respondent repeating their previous answer based on their recollection of the original interview response, rather than considering the most appropriate answer.

All CFU reinterviews were conducted by telephone. At the first contact with a household, interviewers asked to speak with the original respondent. If that person was not available, interviewers scheduled a callback at a time when the original respondent was expected to be available. If this respondent could not be reached at the time of the second contact, the interviewer requested to speak with any other eligible household member (a household member who is 15 years or older). CFU reinterviews for the Content Test were conducted in either English or Spanish.

The CFU data collection instrument included the questions being tested for the 2022 ACS Content Test and some production ACS questions for context. It also included questions on public assistance from the 2022 Current Population Survey Annual Social and Economic Supplement (CPS ASEC) to measure response bias in the income from the public assistance question.

The CFU collected an independent household roster by re-asking the Household Roster questions along with Relationship, Sex, Age, and Date of Birth. The remaining CFU questions were only asked of the original household roster members. Only the Control and Roster Test panels collected an independent household roster. The Test panel used the original household roster to ask housing and detailed person questions.⁷

⁷ The Test panel did not need to collect an independent household roster. The independent roster was needed to calculate the response reliability metrics for the Household Roster topic, which only used data from the Control and Roster Test treatments.

2.3.2 Content Test Follow-Up for Income

For the CFU reinterview for Income we asked followup questions about reciprocity, not amounts, for the following types of income: self-employment; combined interest, dividends, royalty, and rental income; public assistance; and retirement income. For each type of income other than public assistance income, the CFU question was a re-ask of the same question used in the original interview to evaluate response reliability. For the public assistance question, the CFU question came from the 2022 Current Population Survey Annual Social and Economic Supplement (CPS ASEC) shown in Appendix A. This question is considered more accurate, but more burdensome, than the ACS question and allowed us to evaluate response bias between versions. See Section 2.4.2.4 for details on response error measurement in the Content Test. Only households in the Test Version 1 and Test Version 2 samples were asked the Income reinterview questions.

2.4 Analysis Metrics

The sample addresses for the Control and test treatments were selected in a manner so that their response propensities and response distributions (on particular characteristics) would be the same. Similar distributions allow us to conclude that any difference in the metrics used to analyze Income is attributable to differences in the wording and format. We tested these unit-level assumptions in both the original interview and the CFU interview. See Section 2.4.1 for details. The metrics that we used to evaluate Income are presented in Section 2.4.2.

For the 2022 ACS Content Test, typical production ACS edits were not made because the primary concern of this test was how changes to existing questions and differences between versions of new questions affected the unaltered responses provided directly by respondents. For this reason, responses were not imputed either. A few edits were applied to the non-topic data, such as calculating a person's age based on his or her date of birth, but such edits were minimal.⁸

All estimates from the ACS Content Test were weighted. The final content test weights took into account the initial probability of selection (the base weight) and CAPI sub-sampling. The weights used in the CFU analysis also included an adjustment for CFU non-response.⁹

Comparisons between the Control and test versions of Income were conducted using a two-tailed t-test at the $\alpha=0.1$ level of significance. The Content Test sample size was chosen to provide enough statistical power (0.80) to detect a difference in the gross difference rates

⁸ This only refers to edits made to the data sets before analysis. During the analysis phase, additional edits, such as collapsing categories, were made based on the needs of the individual question.

⁹ The Content Test weight creation process does not include all the steps followed in the ACS, including the noninterview adjustment for the original interview and calibration to housing unit and population controls (see U.S. Census Bureau, 2022b, Chapter 11). For more information on the 2022 Content Test weighting procedure, see Risley and Oliver (2022) and Keathley (2022).

(measuring differences in adds and deletes from the household roster) of at least two percentage points between the Control and Roster Test groups for the Household Roster question.¹⁰ In statistical tests involving multiple comparisons, we controlled for the overall Type I error rate by adjusting the resulting p-values using the Hochberg method (Hochberg, 1988).¹¹

We estimated the variances of the estimates using the Successive Differences Replication (SDR) method with replicate weights, the standard method used in the ACS (see U.S. Census Bureau, 2022b, Chapter 12). We calculated the variance for each rate and difference using the formula below. The standard error of an estimate (X_0) is the square root of the variance:

$$Var(X_0) = \frac{4}{80} \sum_{r=1}^{80} (X_r - X_0)^2$$

where:

- X_0 = the estimate calculated using the full sample,
- X_r = the estimate calculated for replicate r

2.4.1 Unit-Level Analysis

The unit response rate is important, as it provides an indication of the quality of the survey data. As part of our analysis, we examined unit-level (i.e., address-level) responses for the Control and test treatments in the original interviews and CFU reinterviews. These results are provided in a separate report (Spiers et al., 2023).¹²

2.4.2 Topic-Level Analysis

To evaluate the changes to Income, we calculated a variety of metrics, presented in Sections 2.4.2.1 through 2.4.2.6.

2.4.2.1 Benchmarks

To roughly gauge the accuracy of the responses to Income, we compared select estimates derived from these data to similar estimates from the 2022 Current Population Survey Annual Social and Economic Supplement (CPS ASEC). We compared the proportions of people who received self-employment; combined interest, dividends, royalty, estates, and trusts; rental income, and public assistance. We compared survey estimates to benchmark estimates, nominally.

¹⁰ See Section 2.4.2.4 for the definition of Gross Difference Rate.

¹¹ Use the MULTTEST Procedure in SAS®.

¹² As part of the 2022 ACS Content Test, we analyzed respondent burden. The results of this analysis are contained in Virgile et al. (2023).

2.4.2.2 Item Missing Data Rates

To measure nonresponse to Income, we calculated item missing data rates. A high item missing data rate can be indicative of a question that lacks clarity, is sensitive, or is simply too difficult to answer.

To measure nonresponse to the Income series of questions, we calculated the item missing data rates only for the types of income that received wording modifications in addition to the modified year of reference. Those questions are self-employment; combined interest, dividends, royalty, estates, and trusts; rental income; public assistance; retirement and pension; and total income. The item missing data rate is the proportion of eligible persons for which a required response is missing. We also calculated the section missing data rate. This rate accounts for missing responses for the entire Income question series. We compared item missing data rates via two-tailed t-tests.

2.4.2.3 Response Distributions

To assess how changes to Income affected the resulting estimates, we compared the response distributions of Test Version 1 and Test Version 2 of some questions in the Income series. We compared the following questions: self-employment income; combined interest, dividends, royalty, rental income, income from estates and trusts; and retirement or pension income. We were testing modified text to those questions, either in the question itself or the instructions, aside from the change in the reference period. We calculated the response distributions as the proportion of valid responses in a category to all valid responses.

Comparisons were made using a Rao-Scott chi-square test that checks for a significant difference between two sample distributions (Rao & Scott, 1987). If the chi-square test indicated a significant difference between the Test Version 1 and Test Version 2 distributions, we tested for significant differences in the individual category proportions using two-tailed t-tests.

2.4.2.4 Response Reliability and Response Bias

Survey responses are subject to error. Response error occurs for a variety of reasons, such as flaws in the survey design, misunderstanding of the questions, misreporting by respondents, and interviewer effects. For the 2022 ACS Content Test, response error was measured through response reliability and response bias. This was done to reduce respondent burden and breakoffs during the CFU operation. A discussion of each type of measure follows. Response error was used to assess the changes to public assistance and response reliability was used to assess the changes to self-employment income. The intention had been to also assess the changes to rental income and retirement income, but that was not possible.

A survey question has good response reliability if respondents tend to answer the question consistently. For the 2022 ACS Content Test, we measured response reliability for a given

question by comparing the responses to this question in the original interview to the responses to this same question in the CFU reinterview.

Re-asking the same question of the same respondent allows us to measure simple response variance, using the following measures:

- Gross difference rate (GDR)
- Index of inconsistency (IOI)
- L-fold index of inconsistency (IOI_L)

The first two measures, GDR and IOI, were calculated for individual response categories. The L-fold index of inconsistency was calculated for questions that had three or more mutually exclusive response categories, as a measure of overall reliability for the question.

In Table 2, “Yes” indicates that the unit is in the category of interest, according to the response from either the original interview or the CFU reinterview. “No” indicates that the unit is not reported to be in the category.

Table 2. Original Interview and CFU Reinterview Counts for Calculating GDR, IOI, and NDR

		Content Test original interview		reinterview totals
		Yes	No	
CFU reinterview	Yes	a	b	a + b
	No	c	d	c + d
original interview totals		a + c	b + d	n

Here, a, b, c, d, and n are counts, defined as follows:

- a = units in category for both interview and reinterview
- b = units not in category for original interview, but in category for reinterview
- c = units in category for original interview, but not in category for reinterview
- d = units in category for neither interview nor reinterview
- n = total units in the universe = a + b + c + d

These counts were weighted to make them more representative of the population.

We calculated the GDR for this response category as:

$$GDR = \left(\frac{b + c}{n} \right) \times 100$$

To define the IOI, we must first discuss the variance of a category proportion estimate. If we are interested in the true proportion of a total population that is in a certain category, we can use

the proportion of a survey sample in that category as an estimate. Under certain reasonable assumptions, it can be shown that the total variance of this proportion estimate is the sum of two components, sampling variance (SV) and simple response variance (SRV). It can also be shown that an unbiased estimate of SRV is half of the GDR for the category.

The SV is the part of total variance resulting from the differences between all the possible samples of size n one might have selected. SRV is the part of total variance resulting from the aggregation of response error across all sample units. If the responses for all sample units were perfectly consistent, then SRV would be zero, and the total variance would be due entirely to SV. As the name suggests, the IOI is a measure of how much of total variance is due to inconsistency in responses, as measured by SRV. A preliminary definition of the IOI is:

$$IOI = \left(\frac{SRV}{SRV + SV} \right) \times 100$$

We can estimate SRV using the GDR, but also need to estimate the denominator (i.e., total variance) in this expression. Based on previous studies, the estimate we use for total variance is:

$$SRV + SV = \frac{p_1 q_2 + p_2 q_1}{2}$$

where:

$$p_1 = \frac{a + c}{n} = \text{original interview proportion in category}$$

$$q_1 = 1 - p_1 = \frac{b + d}{n} = \text{original interview proportion not in category}$$

$$p_2 = \frac{a + b}{n} = \text{CFU proportion in category}$$

$$q_2 = 1 - p_2 = \frac{c + d}{n} = \text{CFU proportion not in category}$$

In comparing relative reliability (or response error) between treatments, if the response categories are essentially the same, then we looked at the differences in the GDR and IOI for each response category. We tested the significance of these differences, using two-tailed t-tests.

If the response categories did not match up exactly between the compared treatments, we either collapsed response categories to form equivalent categories for comparison, or we conducted comparisons for the response categories where it made sense.

So far, we have only discussed response reliability with respect to single response categories. If a question has three or more response categories (or “comparison categories” in cases where it is necessary to collapse some response categories for comparison), we also measured the overall response reliability of a question using the L-fold index of inconsistency, IOI_L . We looked at the difference in IOI_L between treatments and tested for significance as with the single category measures.

Suppose a question has L response categories. Let X_{ij} be the weighted count of sample units (households or persons) for which we have CFU responses in category i and original interview responses in category j . Here, both i and j range from 1 to L. Table 3 shows a cross-tabulation of the original interview and CFU results for a generic analysis topic. Note that if $L = 2$, then Table 3 is equivalent to Table 2.

Table 3. Cross-Tab of Original Interview and CFU Results: Questions with Response Categories

		Original Interview categories						CFU totals
		1	2	...	j	...	L	
CFU categories	1	X_{11}	X_{12}	...	X_{1j}	...	X_{1L}	X_{1+}
	2	X_{21}	X_{22}	...	X_{2j}	...	X_{2L}	X_{2+}

	i	X_{i1}	X_{i2}	...	X_{ij}	X_{i+}

	L	X_{L1}	X_{L2}	...	X_{Lj}	...	X_{LL}	X_{L+}
Original interview totals		X_{+1}	X_{+2}	...	X_{+j}	...	X_{+L}	$T = \sum_{i=1}^L \sum_{j=1}^L X_{ij}$

Now define the following proportions:

$$p_{ij} = \frac{X_{ij}}{T}$$

$$p_{+j} = \frac{X_{+j}}{T}$$

$$p_{i+} = \frac{X_{i+}}{T}$$

The IOI_L is calculated as

$$IOI_L = \frac{1 - \sum_{i=1}^L p_{ii}}{1 - \sum_{i=1}^L (p_i + p_{+i})} \times 100$$

It can be shown that the IOI_L is a weighted sum of the L category IOI values (Biemer, 2011), but this formula is easier for calculation.

Response bias occurs when the answers to a survey question tend to systematically stray from the “true” answers. To obtain the “true” answers to a question, the CFU reinterviews were designed to elicit more accurate responses than in the original interview. This usually involves asking a “gold standard” question.¹³ The CFU questions for the receipt of incomes for public assistance will come from the 2022 Annual Social and Economic Supplement of the Current Population Survey (CPS ASEC). For public assistance, we consider the CFU responses to be the true value. We calculated response bias via the net difference rate (NDR).

The NDR is the difference between the original interview proportion of positive responses (“Yes” or in the category of interest) and the CFU proportion of positive responses. The NDR is calculated as follows:

$$NDR = (p_1 - p_2) \times 100 = \left(\frac{c - b}{n} \right) \times 100$$

The NDR can be negative, zero, or positive. If the NDR is significantly negative, this indicates that the original interview version of the question tends to result in an underestimate of the true proportion in a category. Conversely, if the NDR is significantly positive, the original interview question tends to result in an overestimate of the true proportion. If the NDR is zero (i.e., not significantly different from zero), this is an indication that the original interview question results in an unbiased estimate of the true proportion.

For topics measuring response variance, we will also calculate the NDR, but only to check that it was not significantly different from zero. If the NDR is significantly positive or negative, the assumption of “parallel measures” necessary for the SRV and IOI to be valid is not satisfied (Biemer, 2011). In these situations, we will use the following adjustment of the IOI, developed by Flanagan (2001):

$$IOI_{\text{adjusted}} = \frac{\frac{n^2(b + c) - n(c - b)^2}{n - 1}}{(a + c)(c + d) + (a + b)(b + d)} \times 100$$

¹³ A gold standard question is a question from an established survey or source where the response values are considered highly accurate.

2.4.2.5 Other Metrics

For each type of Income question there are two facets: (1) *Reciprocity*: A “Yes” or “No” indicating that the person receives a certain type of income and (2) *Amount*: If the person checks “Yes” they are supposed to fill in the amount of income that they received.

All the metrics mentioned thus far focus on reciprocity, not amount, of income. We also performed analysis on reported amounts of income and compared Test Version 1 to Test Version 2. The analysis is outlined below:

- Aggregate amounts of self-employment income; combined interest, dividends, royalty income, rental income, and income from estates and trusts; and retirement and pension income.
- Median earnings of all workers among the Standard Occupational Code (SOC) major groups.
- Median earnings for full-time, year-round workers among the SOC major groups.

We also compared reciprocity and amounts for some income categories between Test Version 2 and the Control treatment and other known sources of data, as described below:

- Wage and salary income compared with Longitudinal Employer-Household Dynamics (LEHD) data.
- Social Security Income compared with Social Security Administration (SSA) data from the Payment History Update System (PHUS).
- Supplemental Security Income (SSI) compared with Supplemental Security Records (SSR) from the SSA.

3 DECISION CRITERIA

Before field testing the Income questions, a team of subject matter experts identified and prioritized which of the research questions presented in Section 1.3.4, would determine which version of Income would be recommended for inclusion in the ACS. The decision criteria for Income are presented in Table 4.

Table 4. Decision Criteria for Income: Wording Changes (Test Version 1 vs. Test Version 2)

Priority	Research Questions	Decision Criteria
1	14	Response Distributions: We hope to see no difference or an increase in the proportion of eligible persons receiving Self-Employment Income.
2	17	Response Distributions: We hope to see no difference or an increase in the proportion of eligible persons receiving combined Interest, Dividends, Royalty Income and Rental Income for the paper version.
3	21	Response Distributions: We hope to see no difference or a decrease in the proportion of eligible persons receiving Retirement, Survivor, and Disability Income.
4	2, 4, 6, 8, 10, 12	Item Missing Data Rates: We hope to see no difference or a decrease in item nonresponse for Self-Employment Income; combined Interest, Dividends, Royalty Income, Rental Income and Income from Estates and Trust; Public Assistance Income; and Retirement, Survivor, and Disability Income.
5	26, 27	Other metrics: We hope to see similarities in median earnings for full-time year-round workers among the SOC major groups compared between treatments.
6	22	Response Reliability: We hope to see no difference or an increase in response reliability for Self-Employment Income; combined Interest, Dividends, Royalty Income, Rental Income and Income from Estates and Trust; Public Assistance Income; and Retirement, Survivor, and Disability Income.

Table 5. Decision Criteria for Income: Changing the Reference Period (Test Version 2 vs. Control)

Priority	Research Questions	Decision Criteria
1	28†	We hope to see a difference in reciprocity rate for wages and salary between version 2 and LEHD data that is smaller than the difference in reciprocity rate for wages and salary between the control version and LEHD data.
2	29†	We hope to see a difference in reciprocity rate for Social Security between version 2 and SSA data that is smaller than the difference in reciprocity rate for Social Security between the control version and SSA data.
3	30†	We hope to see a difference in reciprocity rate for SSI that is smaller between version 2 and SSA data than the difference in reciprocity rate for SSI between the control version and SSA data.
4	28†	We hope to see a difference in wage and salary amounts between version 2 and LEHD data that is smaller than the difference in wage and salary amounts between the control version and LEHD data.
5	29†	We hope to see a difference in Social Security amounts between version 2 and SSA data that is smaller than the difference in Social Security amounts between the control version and SSA data.
6	30†	We hope to see a difference in SSI amounts between version 2 and SSA data that is smaller than the difference in SSI amounts between the control version and SSA data.
7	3, 5, 7, 9, 11, 13	We hope to see no difference (or a decrease) in item missing data rates.

Note: †Due to the availability timing for these LEHD data and the SSA data, these research questions will be covered in a later separate report.

4 ASSUMPTIONS AND LIMITATIONS

4.1 Assumptions

- The sample addresses for the Control and test treatments were selected in a manner so that their response propensities and response distributions would be the same. This assumption of homogeneity allows us to conclude that any difference between treatments is attributable to differences in wording and format. See Section 5 for more details.
- There was no difference between treatments in mail delivery timing or subsequent response time. The treatments had the same sample size and used the same postal sort and mailout procedures. Previous research indicated that postal procedures alone could cause a difference in response rates at a given point in time between experimental treatments of different sizes, with response for the smaller treatments lagging (Heimel, 2016).
- We assume that the frequency of real changes in answers due to a change in life circumstances between the original interview and CFU reinterview were similar between treatments.

4.2 Limitations

- GQs were not included in the sample for the 2022 ACS Content Test. The results of the Content Test may not extend to GQ populations.
- Housing units from Alaska, Hawaii, and Puerto Rico were not included in the sample for the 2022 ACS Content Test. The results of the Content Test may not extend to the housing unit population in these areas.
- The paper questionnaire was only available in English and was not available in Spanish like in production. The Content Test results related to the English paper questionnaire may not extend to Spanish paper questionnaire.
- For paper questionnaires, where the household size is six or more (up to 12), we only collected name, age, and sex of these additional persons. Detailed information for these persons in ACS production are collected in the FEFU operation. We did not include the FEFU operation because the information collected from it improves accuracy and could confound respondent behavior in the Content Test environment.
- We did not have response data for some partial internet responses (179 cases) due to a server issue. These cases were excluded from the analyses.

- TQA responses were excluded from the analysis of the 2022 ACS Content Test response data because survey responses completed via the TQA operation were only conducted using the ACS production data collection instrument.
- CAPI interviewers were assigned 2022 ACS Content Test cases as well as regular production cases. The potential risk of this approach is the introduction of a cross-contamination or carry-over effect among Control and test treatments and production due to the same interviewer administering multiple versions of the same question item (despite their training to read questions verbatim).
- Due to budget constraints, the CAPI workload could not exceed 28,000 housing units. This workload was less than what was subsampled originally because we over-sampled addresses in low response areas. Limiting the CAPI workload caused an increase in the variances for the analysis metrics used.
- The CFU reinterviews were conducted by phone only, whereas the original interviews were completed online, by mail, by phone in CAPI, and in person in CAPI. Hence, some of the differences observed between the original interviews and the CFU interviews may be the result of mode effect.
- Not all households who provided a response in the original interview were eligible for the CFU reinterview (see Section 2.3 for more information). As a result, 2.5 percent (standard error 0.2) of households from the original Control interviews, 2.5 percent (standard error 0.2) of households from the original Test interviews, and 3.0 percent (standard error 0.2) of households from the original Roster Test interviews were not eligible for the CFU reinterview. These rates were not significantly different between treatments (chi-square p-value 0.11).
- We reinterviewed the same person who responded in the original interview when possible, but accepted interviewing a different person from the same household after two unsuccessful attempts at reaching the original person. Therefore, differences in results between the original interview and CFU reinterview for these cases could partly be from different people answering the questions. We interviewed a different household member in CFU for 7.3 percent (standard error 0.4) of CFU Control cases, 9.4 percent (standard error 0.5) of CFU Test cases, and 8.5 percent (standard error 0.5) of CFU Roster Test cases. These rates were significantly different between treatments (chi-square p-value 0.01) with the rate of CFU Test cases (t-test p-value <0.01) and CFU Roster Test cases (t-test p-value 0.04) being significantly higher than the rate of CFU Control cases.

- We examined potential differences between CFU respondents and nonrespondent within some socioeconomic and demographic characteristics because there were differences in the 2016 CFU reinterview (Spiers, 2021b). For all treatments combined, there were significant differences between CFU respondents and nonrespondents for *household size, tenure, age, race, Hispanic origin, language of original interview response, and high and low response areas*. These differences are similar to the ones found in the 2016 CFU (Spiers, 2021b).
- The 2022 ACS Content Test did not include the production weighting adjustments for unit nonresponse or population controls which are designed to minimize nonresponse and under-coverage bias. The sample for the test also over-sampled addresses in low response areas. As a result, any estimates derived from the Content Test data did not provide the same level of inference as the production ACS and cannot be compared to production estimates.
- Due to an omission, not all the necessary Income questions were included in the CFU reinterview for income types that are combined with other income types into a single question in some modes. Because of this, Rental income and Retirement income were not included in the reliability analysis.

5 RESULTS

This section of the report presents the results of various metrics used to evaluate Income. The comparisons presented assume homogeneity of the response distributions for the three treatments, prior to the field test. We tested this assumption via unit-level (i.e., address level) analyses. The results are presented in (Spiers et al., 2023). Because of the changes to Income that were tested we were primarily concerned with a potential difference between Control and Roster or between Roster and Test.

In general, the overall unit response rates were not significantly different between treatments, nor were the response rate portions by mode. When looking at response rates within high and low response areas, a couple of modal comparisons were significant, but these results did not appear in the overall comparisons. Additionally, when examining demographic and socioeconomic distributions, none of the response distributions were significantly different between treatments.

When looking at distributions among self-responses and CAPI responses, only the distribution for race among CAPI responses for the Control and Test treatments was significantly different and only for the “Other Race Only” category. Since no comparison is being done between Control and Test for Income this is not a concern.

There is no evidence of underlying CFU response rate issues that would negatively affect topic-level response error analyses comparing the Control and Roster treatments. However, there were CFU response rate differences between the Test and Roster treatments overall and within some original interview modes, with the rate for Roster being significantly lower. While this is of particular concern, as the CFU comparisons for Income were done comparing Test and Roster, the only difference among the demographic and socioeconomic distributions was the language of response.

5.1 Benchmark Results for Income

RQ1. *For each treatment, how do the proportions of persons (in the universe) who received self-employment, interest/dividends/royalty/estates/trusts, rental income, and public assistance compare with published CPS ASEC data?*

Table 5. Self-Employment Income Reciprocity – 2022 ACS Content Test vs 2022 CPS ASEC

	Control	Version 1	Version 2	CPS ASEC
Self-Employment	6.4 (0.2)	5.9 (0.2)	5.6 (0.2)	5.0 (0.1)

Source: U.S. Census Bureau, 2022 American Community Survey Content Test and 2022 CPS ASEC | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Standard errors are in parentheses.

Table 6. Interest/Dividends/Royalty/Estates/Trusts Income Reciprocity – 2022 ACS Content Test vs 2022 CPS ASEC

	Version 1	CPS ASEC
Interest/Dividends/Royalty/Estates/Trusts	7.4 (0.2)	55.2 (0.2)

Source: U.S. Census Bureau, 2022 American Community Survey Content Test and 2022 CPS ASEC | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Standard errors are in parentheses.

Table 7. Rental Income Reciprocity – 2022 ACS Content Test vs 2022 CPS ASEC

	Version 1	CPS ASEC
Rental	3.1 (0.1)	4.5 (0.1)

Source: U.S. Census Bureau, 2022 American Community Survey Content Test and 2022 CPS ASEC | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Standard errors are in parentheses.

Table 8. Public Assistance Income Reciprocity – 2022 ACS Content Test vs 2022 CPS ASEC

	Control	Version 1	Version 2	CPS ASEC
Public Assistance	1.1 (0.1)	1.0 (0.1)	1.0 (0.1)	0.6 (0.0)

Source: U.S. Census Bureau, 2022 American Community Survey Content Test and 2022 CPS ASEC | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Standard errors are in parentheses.

Table 5 shows that the share of in-universe respondents who report positive self-employment income is nominally lower in the CPS ASEC than in all three treatments, but the difference does not seem to be appreciable.

Table 8 shows that the share of in-universe respondents who report positive public assistance income is lower in the CPS ASEC than in all three treatments. In percent terms, the difference is large, but in levels, the gap is arguably not meaningful.

CPS ASEC respondents are more likely to report positive rental and interest income. The difference for interest income is large – over seven times higher. This discrepancy is likely due to the different way in which CPS ASEC respondents are asked about interest income.

5.2 Item Missing Data Rate Results for Income

RQ2. *Version 1: For self-employment income, are the item missing data rates for reciprocity or amount different for Version 1 than for Version 2?*

Tables 9 and 10 show no statistical difference for self-employment income item missing data rates for reciprocity or amount between Version 1 and Version 2.

Table 9. Self-Employment Reciprocity Item Missing Data Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	38.2 (0.5)	38.6 (0.5)	-0.4 (0.6)	0.66
Internet	38.8 (0.5)	38.4 (0.6)	0.3 (0.8)	0.66
Mail	32.9 (1.3)	35.3 (1.3)	-2.4 (1.9)	0.66
CAPI	39.3 (1.2)	40.6 (1.1)	-1.4 (1.6)	0.66

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 10. Self-Employment Amount Item Missing Data Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	17.2 (1.3)	17.4 (1.6)	-0.3 (2.0)	0.90
Internet	14.7 (1.5)	15.9 (1.6)	-1.1 (2.1)	0.90
Mail	8.4 (2.5)	5.8 (1.5)	2.6 (2.8)	0.90
CAPI	32.1 (3.9)	30.9 (5.8)	1.2 (7.0)	0.90

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ3. *Version 2: For self-employment income, are the item missing data rates for reciprocity or amount different for Version 2 than for the Control version?*

Table 11 shows higher missing item data rates overall and for the Internet and CAPI mode of data collection for self-employment reciprocity in Version 2 when compared to the Control version.

Table 12 show no difference between Version 2 and Control for self-employment amount item missing data rates by mode and overall.

Table 11. Self-Employment Income Reciprocity Item Missing Data Rate – Control vs Version 2

Mode	Version 2	Control	Difference	P-value
Overall	23.1 (0.5)	19.9 (0.5)	3.2 (0.6)	<0.01*
Internet	21.1 (0.7)	19.1 (0.6)	2.0 (0.9)	0.04*
Mail	38.8 (1.4)	39.7 (1.3)	-0.9 (1.9)	0.62
CAPI	20.2 (1.1)	10.1 (0.9)	10.1 (1.1)	<0.01*

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 12. Self-Employment Income Amount Item Missing Data Rate – Control vs Version 2

Mode	Version 2	Control	Difference	P-value
Overall	17.5 (1.6)	18.1 (1.3)	-0.6 (2.1)	0.98
Internet	15.7 (1.5)	14.1 (1.4)	1.6 (2.0)	0.98
Mail	7.5 (2.1)	13.6 (3.3)	-6.1 (3.8)	0.43
CAPI	30.9 (5.8)	31.1 (4.0)	-0.2 (7.3)	0.98

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ4. *Version 1: For interest, dividends, royalty income, rental income, and income from estates and trusts, are the item missing data rates for reciprocity or amount different for Version 1 than for Version 2? (We will combine the two questions to compare Version 1 with Version 2.)*

Table 13 shows no statistical difference in the overall reciprocity item missing data rates for interest, dividends, royalty income, rental income, and income from estates and trusts between Version 1 and Version 2. However, Version 2 had a higher reciprocity item missing data rate when compared to Version 1 for the mail mode of data collection.

Table 14 shows higher amount item missing data rates for interest, dividends, royalty income, rental income, and income from estates and trusts overall and for the Internet mode of data collection.

Table 13. Interest/Dividend/Royalty/Rental/Estates/Trusts Income Reciprocity Item Missing Data Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	18.3 (0.4)	18.2 (0.4)	0.1 (0.5)	0.89
Internet	19.0 (0.5)	18.8 (0.6)	0.2 (0.7)	0.89
Mail	29.5 (1.1)	34.2 (1.2)	-4.6 (1.7)	0.02*
CAPI	9.2 (1.0)	7.0 (0.7)	2.1 (1.2)	0.22

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 14. Interest/Dividend/Royalty/Rental/Estates/Trusts Income Amount Item Missing Data Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	8.8 (0.8)	15.9 (1.0)	-7.1 (1.4)	<0.01*
Internet	3.2 (0.5)	13.8 (0.9)	-10.6 (1.0)	<0.01*
Mail	6.0 (1.3)	4.8 (1.0)	1.2 (1.6)	0.73
CAPI	39.7 (3.8)	42.0 (4.7)	-2.3 (6.7)	0.73

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ5. *Version 2: For interest, dividends, royalty income, rental income, and income from estates and trusts, are the item missing data rates for reciprocity or amount different for Version 2 than for the Control version?*

Tables 15 and 16 show no statistically significant differences between Version 2 and the Control version for interest, dividends, royalty income, rental income, and income from estates and trusts for both reciprocity and amount item missing data rates.

Table 15. Interest/Dividend/Royalty/Rental/Estates/Trusts Income Reciprocity Item Missing Data Rate – Control vs Version 2

Mode	Version 2	Control	Difference	P-value
Overall	18.2 (0.4)	17.3 (0.4)	0.9 (0.6)	0.32
Internet	18.8 (0.6)	17.1 (0.5)	1.7 (0.8)	0.13
Mail	34.2 (1.2)	33.6 (1.0)	0.5 (1.6)	0.95
CAPI	7.0 (0.7)	7.1 (0.7)	-0.1 (0.9)	0.95

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 16. Interest/Dividend/Royalty/Rental/Estates/Trusts Income Amount Item Missing Data Rate – Control vs Version 2

Mode	Version 2	Control	Difference	P-value
Overall	15.9 (1.0)	15.4 (1.0)	0.4 (1.5)	0.87
Internet	13.8 (0.9)	12.1 (1.0)	1.7 (1.3)	0.85
Mail	4.8 (1.0)	5.6 (1.5)	-0.7 (1.8)	0.87
CAPI	42.0 (4.7)	43.1 (4.7)	-1.1 (6.6)	0.87

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ6. *Version 1: For public assistance, are the item missing data rates for reciprocity or amount different for Version 1 than for Version 2?*

Table 17 shows no statistical difference between Version 1 and Version 2 for public assistance reciprocity item missing data rates overall or by mode of data collection.

Table 18 shows no statistical difference in the overall public assistance amount item missing data rate between Version 1 and Version 2 but shows a higher amount item missing rate for Version 2 for the Internet mode and a lower item missing data rate for CAPI.

Table 17. Public Assistance Income Reciprocity Item Missing Data Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	18.2 (0.4)	17.5 (0.4)	0.6 (0.5)	0.55
Internet	19.1 (0.5)	18.7 (0.6)	0.3 (0.7)	0.62
Mail	28.4 (1.2)	29.6 (1.0)	-1.2 (1.6)	0.62
CAPI	9.2 (1.0)	7.1 (0.6)	2.1 (1.2)	0.32

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 18. Public Assistance Income Amount Item Missing Data Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	21.7 (3.1)	25.3 (3.0)	-3.6 (4.7)	0.68
Internet	15.2 (3.2)	28.4 (3.7)	-13.2 (4.8)	0.03*
Mail	13.2 (6.0)	16.5 (5.7)	-3.3 (8.0)	0.68
CAPI	51.3 (10.4)	21.9 (7.1)	29.4 (13.4)	0.09*

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ7. *Version 2: For public assistance, are the item missing data rates for reciprocity or amount different for Version 2 than for the Control version?*

Table 19 shows a higher overall reciprocity item missing data rate for public assistance for Version 2 when compared to the Control version and for the Internet mode of data collection.

Table 20 shows no statistical difference overall or by mode between Version 2 and the Control version in the amount item missing data rate for public assistance.

Table 19. Public Assistance Reciprocity Item Missing Data Rate – Control vs Version 2

Mode	Version 2	Control	Difference	P-value
Overall	17.5 (0.4)	16.4 (0.4)	1.2 (0.5)	0.09*
Internet	18.7 (0.6)	17.0 (0.5)	1.7 (0.8)	0.09*
Mail	29.6 (1.0)	27.8 (1.0)	1.8 (1.4)	0.38
CAPI	7.1 (0.6)	7.1 (0.7)	<0.1 (0.9)	0.98

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 20. Public Assistance Income Amount Item Missing Data Rate – Control vs Version 2

Mode	Version 2	Control	Difference	P-value
Overall	25.3 (3.0)	24.7 (5.0)	0.6 (6.4)	0.92
Internet	28.4 (3.7)	26.2 (7.6)	2.2 (9.0)	0.92
Mail	16.5 (5.7)	15.3 (5.4)	1.1 (7.8)	0.92
CAPI	21.9 (7.1)	27.5 (7.9)	-5.6 (10.8)	0.92

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ8. *Version 1: For retirement and pension, are the item missing data rates for reciprocity or amount different for Version 1 than for Version 2?*

Tables 21 and 22 show no statistical difference overall or by mode for either reciprocity or amount item missing rates between Version 1 and Version 2 for retirement and pension income.

Table 21. Retirement and Pension Income Reciprocity Item Missing Data Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	17.7 (0.4)	17.1 (0.4)	0.6 (0.5)	0.62
Internet	18.6 (0.5)	18.2 (0.6)	0.3 (0.7)	0.63
Mail	27.2 (1.1)	28.7 (1.1)	-1.5 (1.6)	0.63
CAPI	9.2 (1.0)	7.1 (0.6)	2.1 (1.2)	0.29

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 22. Retirement and Pension Income Amount Item Missing Data Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	10.7 (0.6)	10.3 (0.7)	0.4 (0.9)	0.68
Internet	9.0 (0.6)	7.9 (0.7)	1.1 (1.0)	0.68
Mail	3.8 (0.7)	5.1 (1.0)	-1.3 (1.3)	0.68
CAPI	30.9 (3.7)	27.1 (3.5)	3.8 (4.7)	0.68

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ9. *Version 2: For retirement and pension, are the item missing data rates for reciprocity or amount different for Version 2 than for the Control version?*

Table 23 shows an overall higher item missing data rate for reciprocity of retirement and pension income in Version 2 than the Control version as well as for the Internet and Mail modes of data collection.

Table 24 shows no statistical difference between Version 2 and the Control version overall or by mode for retirement and pension income amount item missing data rates.

Table 23. Retirement and Pension Income Reciprocity Item Missing Data Rate – Control vs Version 2

Mode	Version 2	Control	Difference	P-value
Overall	17.1 (0.4)	15.8 (0.4)	1.3 (0.6)	0.08*
Internet	18.2 (0.6)	16.6 (0.5)	1.6 (0.8)	0.08*
Mail	28.7 (1.1)	25.9 (0.9)	2.9 (1.3)	0.08*
CAPI	7.1 (0.6)	7.0 (0.7)	<0.1 (0.9)	0.97

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 24. Retirement and Pension Income Amount Item Missing Data Rate – Control vs Version 2

Mode	Version 2	Control	Difference	P-value
Overall	10.3 (0.7)	9.0 (0.7)	1.3 (1.1)	0.69
Internet	7.9 (0.7)	6.8 (0.6)	1.1 (1.0)	0.69
Mail	5.1 (1.0)	3.6 (1.0)	1.4 (1.5)	0.69
CAPI	27.1 (3.5)	27.5 (3.0)	-0.4 (5.0)	0.94

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ10. *Version 1: For total income, are the item missing data rates different for Version 1 than for Version 2?*

Tables 25 shows no statistical difference overall or by mode in the total income item missing data rate between Version 1 and Version 2.

Table 25. Total Income Item Missing Data Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	26.7 (0.5)	25.8 (0.4)	0.9 (0.6)	0.38
Internet	23.7 (0.6)	23.4 (0.6)	0.4 (0.7)	0.63
Mail	30.3 (1.1)	28.8 (1.0)	1.5 (1.4)	0.57
CAPI	33.2 (1.3)	30.6 (1.1)	2.6 (1.7)	0.38

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ11. *Version 2: For total income, are the item missing data rates different for Version 2 than for the Control version?*

Table 26 shows no statistical difference overall between Version 2 and the Control version. However, Version 2 had a higher total income item missing data rate for the Internet mode of data collection when compared to the Control version.

Table 26. Total Income Item Missing Data Rate – Control vs Version 2

Mode	Version 2	Control	Difference	P-value
Overall	25.8 (0.4)	24.5 (0.5)	1.3 (0.7)	0.17
Internet	23.4 (0.6)	21.4 (0.5)	2.0 (0.8)	0.05*
Mail	28.8 (1.0)	28.7 (1.1)	0.1 (1.4)	0.96
CAPI	30.6 (1.1)	30.9 (1.1)	-0.3 (1.5)	0.96

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ12. Version 1: Are the section missing data rates different for Version 1 than for Version 2?

Tables 27 shows no statistical difference overall or by mode in income section missing data rates when comparing Version 1 and Version 2.

Table 27. Income Section Missing Data Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	13.7 (0.4)	13.0 (0.3)	0.6 (0.5)	0.52
Internet	15.1 (0.5)	14.7 (0.5)	0.3 (0.6)	0.57
Mail	16.1 (0.8)	17.3 (0.9)	-1.2 (1.3)	0.57
CAPI	8.0 (0.9)	5.8 (0.6)	2.1 (1.2)	0.26

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ13. Version 2: Are the section missing data rates different for Version 2 than for the Control version?

Tables 28 shows no statistical difference overall or by mode in income section missing data rates when comparing Version 2 and the Control version.

Table 28. Income Section Missing Data Rate – Control vs Version 2

Mode	Version 2	Control	Difference	P-value
Overall	13.0 (0.3)	12.2 (0.4)	0.8 (0.5)	0.35
Internet	14.7 (0.5)	13.5 (0.5)	1.2 (0.7)	0.35
Mail	17.3 (0.9)	15.9 (0.9)	1.4 (1.2)	0.52
CAPI	5.8 (0.6)	6.0 (0.7)	-0.1 (0.8)	0.87

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

5.3 Response Distribution Results for Income

RQ14. *Is the proportion of eligible persons reported as receiving self-employment income different for Version 1 than for Version 2?*

Table 29 shows no statistical difference overall or by mode in self-employment reciprocity rates between Version 1 and Version 2.

Table 29. Self-Employment Income Reciprocity Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	5.9 (0.2)	5.6 (0.2)	0.3 (0.3)	0.64
Internet	5.8 (0.2)	5.7 (0.2)	0.1 (0.3)	0.64
Mail	7.8 (0.6)	7.0 (0.6)	0.8 (0.8)	0.64
CAPI	5.1 (0.5)	4.8 (0.5)	0.3 (0.7)	0.64

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ15. *Is the proportion of eligible persons that reported a break-even amount of self-employment income different for Version 1 than for Version 2?*

Table 30 shows an overall higher proportion of eligible persons that reported a break-even amount for self-employment income for Version 1 compared to Version 2 as well as for the mail mode of data collection.

Table 30. Self-Employment Income Break-Even Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	0.5 (0.1)	0.3 (<0.1)	0.2 (0.1)	0.06*
Internet	0.2 (<0.1)	0.1 (<0.1)	0.1 (<0.1)	0.26
Mail	3.2 (0.7)	1.3 (0.2)	1.9 (0.7)	0.03*
CAPI	0.1 (0.1)	<0.1 (<0.1)	0.1 (0.1)	0.26

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ16. *Is the proportion of eligible persons that reported a loss for self-employment income different for Version 1 than for Version 2?*

Table 31 shows no statistical difference overall or by mode in the rate at which losses in self-employment income were reported between Version 1 and Version 2.

Table 31. Self-Employment Income Loss Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	0.3 (<0.1)	0.3 (<0.1)	<0.1 (0.1)	0.99
Internet	0.4 (0.1)	0.3 (0.1)	<0.1 (0.1)	0.99
Mail	0.4 (0.2)	0.4 (0.1)	<0.1 (0.2)	0.99
CAPI	0.0 (<0.1)	0.1 (0.1)	-0.1 (0.1)	0.99

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ17. *Is the proportion of eligible persons reported as receiving combined interest, dividends, royalty income, rental income, or income from estates and trusts different for Version 1 than for Version 2?*

Table 32 shows no statistically significant differences between Version 1 and Version 2 for interest, dividends, royalty income, rental income, and income from estates and trusts for both reciprocity rates overall and by mode.

Table 32 Interest/Dividends/Royalty/Rental/Estates/Trusts Income Recipiency Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	10.4 (0.3)	10.3 (0.2)	<0.1 (0.4)	0.97
Internet	10.8 (0.3)	11.5 (0.3)	-0.7 (0.5)	0.50
Mail	14.1 (0.7)	12.7 (0.7)	1.4 (1.0)	0.50
CAPI	6.6 (0.7)	5.7 (0.5)	0.9 (0.9)	0.59

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ18. *Is the proportion of eligible persons that reported a break-even amount of rental income different for Version 1 than those that reported a break-even amount of combined interest, dividends, royalty income, rental income, or income from estates and trusts for Version 2?*

Table 33 shows that overall, there was no statistical difference in the rate of eligible persons reported a break-even amount for rental income in Version 1 compared to the rate that reported a break-even amount in combined interest, dividends, royalty income, rental income, or income from estates and trusts for Version 2. However, the rate was higher for the mail mode of data collection.

Table 33 Interest/Dividends/Royalty/Rental/Estates/Trusts Income Break Even Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	0.5 (0.1)	0.4 (0.1)	0.1 (0.1)	0.42
Internet	0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	0.42
Mail	3.1 (0.5)	1.7 (0.3)	1.5 (0.6)	0.06*
CAPI	<0.1 (<0.1)	0.3 (0.1)	-0.3 (0.1)	0.14

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ19. *Is the proportion of eligible persons that reported a loss for rental income different for Version 1 than those that reported a loss for combined interest, dividends, royalty income, rental income, or income from estates and trusts for Version 2?*

Table 34 shows that overall and by mode there was no statistical difference between the rate of eligible persons that reported a loss for rental income different for Version 1 and the rate of those that reported a loss for combined interest, dividends, royalty income, rental income, or income from estates and trusts for Version 2.

Table 34 Interest/Dividends/Royalty/Rental/Estates/Trusts Income Loss Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	0.3 (<0.1)	0.2 (<0.1)	<0.1 (0.1)	0.70
Internet	0.4 (0.1)	0.3 (0.1)	<0.1 (0.1)	0.70
Mail	0.2 (0.1)	0.2 (0.1)	<0.1 (0.1)	0.70
CAPI	0.0 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.70

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ20. *Is the proportion of eligible persons reported as receiving public assistance income different for Version 1 than for Version 2?*

Table 35 shows that overall and by mode there was no difference in the public assistance income reciprocity rates between Version 1 and Version 2.

Table 35 Public Assistance Income Reciprocity Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	1.0 (0.1)	1.0 (0.1)	<0.1 (0.1)	0.91
Internet	1.1 (0.1)	1.0 (0.1)	0.1 (0.1)	0.86
Mail	0.8 (0.1)	0.9 (0.2)	-0.2 (0.2)	0.86
CAPI	0.8 (0.2)	1.1 (0.2)	-0.2 (0.2)	0.86

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

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RQ21. *Is the proportion of eligible persons reported as receiving retirement or pension income different for Version 1 than for Version 2?*

Table 36 shows that, overall and by mode, there was no difference in the retirement or pension income reciprocity rates between Version 1 and Version 2.

Table 36 Retirement or Pension Income Reciprocity Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	12.5 (0.3)	12.6 (0.3)	-0.1 (0.4)	0.81
Internet	12.6 (0.3)	12.5 (0.3)	0.1 (0.5)	0.81
Mail	20.4 (0.9)	20.1 (0.8)	0.3 (1.1)	0.81
CAPI	7.3 (0.6)	8.6 (0.5)	-1.3 (0.8)	0.46

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

5.4 Response Reliability and Response Bias Results for Income

RQ22. *Is there a difference between treatments in response reliability for the following types of income reciprocity: self-employment; combined interest, dividends, royalty, and rental income; public assistance; and retirement income?*

Table 37 shows that the self-employment income reciprocity GDR was higher for Version 1 than Version 2, indicating worse response reliability.

Table 37. Self-Employment Gross Difference Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Self-Employment GDR	9.1 (0.6)	7.4 (0.5)	1.6 (0.7)	0.02*

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result.

Table 37 shows that the self-employment income reciprocity IOI was higher for Version 1 than Version 2, indicating worse response reliability.

Table 38. Self-Employment Index of Inconsistency – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Self-Employment IOI	44.9 (2.3)	35.4 (2.1)	9.5 (3.3)	<0.01*

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result.

Table 39 shows that there was no statistical difference in the NDR for Public Assistance income between Version 1 and Version 2; this is an indication that the two versions of the original interview question had no significant difference in response bias.

Table 39. Public Assistance Net Difference Rate – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Public Assistance NDR	-0.8 (0.2)	-0.6 (0.2)	-0.2 (0.2)	0.38

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result.

We were not able to examine response reliability for combined interest, dividends, royalty and rental income and retirement income due to an omission in the questions included in the CFU re-interview. While the rental and retirement income questions were included, the questions that are combined with those questions in some modes were left off. The decision was made to omit the analysis of those questions entirely rather than limit the analysis to the modes that are directly comparable.

5.5 Other Metric Results for Income

5.5.1 Aggregate Income Estimates

RQ23. *Is the aggregate amount of self-employment income different for Version 1 than for Version 2?*

Table 40 shows that there was no statistical difference in aggregate self-employment income overall and by mode when comparing Version 1 and Version 2.

Table 40. Aggregate Self-Employment Income – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference	P-value
Overall	476,100 (67,100)	358,500 (30,640)	117,600 (74,880)	0.35
Internet	320,000 (56,730)	242,400 (26,230)	77,660 (62,920)	0.43
Mail	83,090 (37,840)	71,670 (14,660)	11,420 (40,160)	0.78
CAPI	73,030 (13,760)	44,490 (8,256)	28,540 (15,020)	0.23

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: Aggregates and standard errors are shown in millions of dollars. Minor additive discrepancies are due to rounding.

Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ24. *Is the combined aggregate amount of interest, dividends, royalty income, rental income, and income from estates and trusts different for Version 1 than for Version 2?*

Table 41 shows that there was no statistical difference in aggregate combined interest, dividends, royalty income, rental income, or income from estates and trusts income overall and by mode when comparing Version 1 and Version 2.

Table 41. Aggregate Interest/Dividends/Royalty/Rental/Estates/Trusts Income – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference†	P-value
Overall	469,500 (57,610)	479,500 (94,260)	-10,030 (111,800)	0.95
Internet	336,300 (52,190)	348,400 (89,000)	-12,100 (105,800)	0.95
Mail	108,900 (22,230)	106,300 (31,110)	2,658 (37,970)	0.95
CAPI	24,240 (6,196)	24,830 (5,581)	-591 (8,920)	0.95

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: †Discrepancies in difference values are due to rounding. Aggregates and standard errors are shown in millions of dollars. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

RQ25. *Is the aggregate amount of retirement and pension income different for Version 1 than for Version 2?*

Table 42 shows that overall and for the mail data collection mode there was no statistical difference in aggregate retirement and pension income between Version 1 and Version 2. However, there was a difference for the other two data collection modes, Version 1 had a higher aggregate for the internet data collection mode and Version 2 had a higher aggregate income for the CAPI data collection mode.

Table 42. Aggregate Retirement and Pension Income – Version 1 vs Version 2

Mode	Version 1	Version 2	Difference†	P-value
Overall	671,200 (28,790)	615,800 (19,340)	55,430 (32,520)	0.18
Internet	485,600 (23,480)	413,400 (16,090)	72,180 (29,700)	0.05*
Mail	149,000 (14,460)	140,400 (10,310)	8,660 (18,520)	0.64
CAPI	36,570 (5,018)	67,990 (8,712)	-25,420 (9,400)	0.03*

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: †Discrepancies in difference values are due to rounding. Aggregates and standard errors are shown in millions of dollars. Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a two-tailed t-test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

5.5.2 Median Earnings Estimates

RQ26. *How do the median earnings for all workers among the SOC major groups compare between treatments?*

The medians earnings for all workers among the SOC major groups overall and for each mode are shown in

APPENDIX B. Median Income for the SOC Major Groups for All Workers. Only one comparison was found to have statistically different median earnings. The median earnings for Version 1 were found to be significantly lower than Version 2 for the “Business and financial operations occupations” category in the internet mode.

RQ27. *How do the median earnings for full-time year-round workers among the SOC major groups compare between treatments?*

The medians earnings for full-time year-round workers among the SOC major groups overall and for each mode are shown in APPENDIX C. Median Income for the SOC Major Groups for Full-Time Yea-Round Workers. Across all comparisons and modes only two categories were found to have a significant difference. For the “Business and financial operations occupations” Version 1 was found to have significantly lower median earnings than Version 2 for the internet mode. For the “Farming, fishing, and forestry occupations” category, Control was found to have significantly lower median earnings than Version 2 for the internet mode.

5.5.3 Administrative Records

RQ28. *How do reciprocity and amounts for wages and salary income from Version 2 and control compare with Longitudinal Employer-Household Dynamics (LEHD) data?*

RQ29. *How do reciprocity and amounts for Social Security income from Version 2 and control compare with SSA data from the Payment History Update System (PHUS)?*

RQ30. *How do reciprocity and amounts for Supplemental Security Income (SSI) from Version 2 and control compare with SSA data from Supplemental Security Records (SSR)?*

Due to the timing of the availability of the administrative records, these three research questions will be addressed in a separate report.

5.5.4 Respondent Burden

The full results of the Respondent Burden analysis can be found in Virgile et al. (2023). This section summarizes the relevant results for Income. The treatment comparisons that are relevant for our analyses is a difference between Version 2 and Control and a difference between Version 1 and Version 2.

Table 43 provides the median time spent on the Income topic, by mode, household size, and treatment. While the differences were not statistically compared, in general the differences were not appreciable. The one exception appears to be the difference between Test and Roster in the internet mode. Test appears to have taken consistently longer than Roster. This is largely explained by the fact that the Test treatment included rental as a separate question, so it was an additional question that those respondents had to take the time to read and answer.

Table 43. Median Completion Time for Income Topic – By Mode, Household Size, and Treatment

Mode	Household Size	Control Median Time	Version 1 Median Time	Version 2 Median Time	Control – Test	Control – Roster	Test – Roster
Internet	All	3:36	3:45	3:31	-0:09	0:05	0:14
	1	2:19	2:33	2:20	-0:14	-0:01	0:13
	2	4:15	4:20	4:10	-0:05	0:05	0:10
	3+	4:05	4:13	3:51	-0:08	0:14	0:22
CAPI	All	1:39	1:38	1:34	0:01	0:05	0:04
	1	1:16	1:14	1:09	0:02	0:07	0:05
	2	1:49	1:55	1:46	-0:06	0:03	0:09
	3+	1:54	1:52	1:50	0:02	0:04	0:02

Source: U.S. Census Bureau, 2022 American Community Survey Content Test. DRB No. CBDRB-FY23-ACSO003-B0068

Note: Median times in minutes and seconds (MM:SS).

Table 44 provides the help screen access rates for the Income topic, with statistical comparisons between all three pairs of treatments. All three treatment comparisons had significant differences; the help access was significantly higher for Version 1 than for the Control treatment and for Version 2. Meanwhile, the rate for Version 2 was significantly higher than that in the Control treatment.

Table 44. Difference in Help Screen Access Rates for Income Topic

Comparison	Rate 1 Percent	Rate 2 Percent	Difference	Adjusted P-Value
Control vs Version 1	11.5 (0.3)	14.8 (0.3)	-3.3 (0.5)	<0.01*
Control vs Version 2	11.5 (0.3)	12.9 (0.4)	-1.4 (0.5)	<0.01*
Version 1 vs Version 2	14.8 (0.3)	12.9 (0.4)	1.9 (0.5)	<0.01*

Source: U.S. Census Bureau, 2022 American Community Survey Content Test. DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. An asterisk (*) indicates a statistically significant result. Significance was tested based on a two tailed t-test at the $\alpha=0.1$ level. P-values were adjusted for multiple comparisons using the Hochberg method.

Table 45 provides breakoff rates for the Income topic, including statistical comparisons between all three pairs of treatments. For the Income topic, the breakoff rate in the Control treatment was significantly lower than the rate for Version 1. The breakoff rate for Version 2 was not statistically significantly different from either the Control or Test treatment rates.

Table 45. Difference in Breakoff Rates for Income Topic

Comparison	Rate 1 Percent	Rate 2 Percent	Difference	Adjusted P-Value
Control vs Test	2.5 (0.2)	3.2 (0.1)	-0.6 (0.2)	<0.01*
Control vs Roster	2.5 (0.2)	2.9 (0.1)	-0.4 (0.2)	0.14
Test vs Roster	3.2 (0.1)	2.9 (0.1)	0.3 (0.2)	0.14

Source: U.S. Census Bureau, 2022 American Community Survey Content Test. DRB DRB No. CBDRB-FY23-ACSO003-B0068

Note: Minor additive discrepancies are due to rounding. Standard errors are in parentheses. An asterisk (*) indicates a statistically significant result. Significance was tested based on a two tailed t-test at the $\alpha=0.1$ level. P-values were adjusted for multiple comparisons using the Hochberg method.

6 CONCLUSIONS AND RECOMMENDATIONS

The Census Bureau is currently conducting research to determine the feasibility of using administrative data sources to validate survey responses and to possibly serve as a replacement or supplement for income questions in its surveys (Bee and Rothbaum, 2019; Bee et al., 2023). Possible administrative data sources include the Longitudinal Employer-Household Dynamics (LEHD), the Payment History Update System (PHUS), and the Supplemental Security Records (SSR). The LEHD provides quarterly information on earnings that comes from each state’s Unemployment Insurance System. The PHUS and SSR provide monthly information on Social Security Income and Supplemental Security Income that comes from the Social Security Administration. The Census Bureau has established data sharing agreements with states and the Social Security Administration to provide this data.

To better align with administrative data sources like these, a change in the reference period from “past 12 months” to a prior calendar year is needed. Income questions in the ACS have always had a reference period of “the past 12 months.” The “past 12 months” varies, depending on the month that a household responds to the survey.

Alongside better alignment with administrative data, there are other potential benefits to changing the reference period. Survey methodologists have conducted studies showing that “sharpening the boundaries of a reference period” can improve recall and therefore the accuracy of reporting (Tourangeau, Rips and Rasinski, 2000). In this case, defining the reference period as the prior calendar year, instead of a sliding reference period of the past 12 months, has the goal of improving recall and accuracy of reporting. Additionally, using a frame of reference that matches the way that other methods capture similar data (e.g., filling out relevant tax forms) allows a respondent to use that previous recall exercise to improve their responses.

The Census Bureau administered a randomized controlled trial to test the impact of changing the reference period from “past 12 months” to a prior calendar year. In 2022, a set of

respondents were randomly assigned to complete the ACS using the current version of the survey and current “prior 12 months” reference period, while another set of respondents were randomly assigned to use the prior calendar year as a reference period. Another set were assigned a version with additional wording changes, plus the change in the reference period. The calendar year of reference for this test was 2021, since the test was conducted in 2022. This analysis considered differences in response rates for key income questions across these versions.

Key Findings

We identified the effects of question and instruction wording changes on data collection for income by comparing non-response rates between Version 1 (including the change in reference period and wording changes) and Version 2 (reference period change only). All differences were not statistically significant, except for the ones noted below:

- Version 1 had lower item nonresponse rates than Version 2 for interest income reciprocity in the mail mode and for interest income amount overall and in the internet mode.
- Version 1 had a lower item nonresponse rate than Version 1 for public assistance amount in the internet mode. Version 1 had a higher nonresponse rate for public assistance amount for CAPI.

We identified effects of the change in the reference period on data collection by comparing non-response rates between Control and Version 2. All differences were statistically not statistically significant, except for the ones noted below:

- Version 2 had higher item nonresponse than Control for total income amount in the internet mode.
- Version 2 had higher item nonresponse rates than the Control for self-employment reciprocity (overall, internet, and CAPI modes), public assistance reciprocity (overall and internet mode), and retirement reciprocity (overall, internet, and mail modes).

We identified effects on aggregate reported income using the same comparisons. All differences were not statistically significant, except aggregate retirement income was higher for internet respondents and lower for CAPI respondents in Version 1 compared to Version 2.

We also identified effects on the likelihood of respondents reporting break-even amounts for self-employment and net rental income using the same comparisons. All differences were not statistically significant, except we found a higher rate of break-even amounts for self-employment income in Version 1 than Version 2 both overall and for the mail mode of data collection.

Response reliability for self-employment income recipiency as measured by the Gross Difference Rate (GDR) and Index of Inconsistency (IOI) was higher for Version 1 than Version 2, indicating worse response reliability. There was no statistical difference in the Net Difference Rate (NDR) for public assistance income between Version 1 and Version 2 indicating that the level of bias was the same for each question version.

Recommendation

Recommendations from the Income Statistics Branch regarding modifying the reference period or implementing the question and instruction wording changes are pending results from future research. In addition to assessing impacts on non-response, it is critical that Census Bureau staff consider the proposed changes' effects on other measures of data quality. In particular, staff must evaluate the effect the reference period change has on recall accuracy. Staff will identify these impacts by comparing respondents' answers to information observed in linked administrative data and measure how discrepancies vary between treatment and control groups. Census staff will develop their official recommendations after this additional analysis is complete.

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- Staff in OMB's Statistical and Science Policy Office.

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APPENDIX A. CFU Questions

The CFU public assistance questions follow the same format and wording as the 2022 Current Population Survey Annual Social and Economic Supplement (CPS ASEC) public assistance questions. These questions are different from the ACS public assistance questions. The CPS ASEC questions are shown below, for reference.

The first question asks if public assistance is received, it is asked about each eligible household member.

T1_PAX1

? [F1]

At any time during 2021, even for one month, did you receive any CASH assistance from a state or county welfare program such as Temporary Assistance for Needy Families Program?

- ♦ Refer to the list of state program names on the help screen and read corresponding name to respondent.
- ♦ Do NOT include federal stimulus payments due to the Coronavirus pandemic

<u>Include cash from:</u>	<u>Don't Include:</u>
Welfare or welfare to work	Food Stamps (SNAP)
TANF	SSI
AFDC/Aid to Families	Energy assistance
General Assistance	WIC
Diversion payments	School meals
Refugee Cash	Childcare
Gen Assist Indian Affairs	Education Assistance

1. Yes

2. No

Public Asst/Welfare

If public assistance is not reported by any eligible household member, then the next question asks if any public assistance was received on behalf of children in the household.

T1_PAX2

? [F1]

Just to be sure, in 2021, did you receive CASH assistance from a state or county welfare program, on behalf of CHILDREN in the household?

- ♦ Do NOT include federal stimulus payments due to the Coronavirus pandemic.

1. Yes

2. No

Public Asst/Welfare

If public assistance is reported, then this question asks from which specific source it is received.

T1_PAX4

? [F1]

From what type of program did you receive the CASH assistance? Was it a welfare or welfare to-work program such as a Temporary Assistance for Needy Families Program, General Assistance, Emergency Assistance, Diversion payments or some other program?

- ♦ Enter all that apply, separate using the space bar or a comma.
- ♦ Probe: Any Other Program?
- ♦ If respondent mentions any of the following categories:
 - Food Stamps
 - SSI
 - Energy Assistance
 - School Meals
 - Transportation
 - Child Care
 - Rental
 - Educational Assistance

Note this, but explain: "Right now we are interested in CASH assistance". Seek answers using the accepted categories.

- ♦ Do NOT include federal stimulus payments due to the Coronavirus pandemic.

<input type="checkbox"/> 1. (State Program Name)/TANF/welfare/AFDC	<input type="checkbox"/> 6. General Assistance from Bureau of Indian Affairs, or Tribal Administered General Assistance
<input type="checkbox"/> 2. General Assistance	<input type="checkbox"/> 7. Some other program (specify)
<input type="checkbox"/> 3. Emergency Assistance/short-term cash assistance	
<input type="checkbox"/> 4. Diversion Payments	
<input type="checkbox"/> 5. Refugee Cash and Medical Assistance program	

Enter at most 7 values

If 'Some other program' is selected in T1_PAX4 the next question asks which program the public assistance was received from.

T1_PAW5

? [F1]

What was the name of the other program?

- ♦ Specify other source of cash assistance
- ♦ Enter "Cash" if the answer is "Don't Know"

APPENDIX B. Median Income for the SOC Major Groups for All Workers

Table 46. Median Earnings for All Workers by SOC major groups for all Respondents – Version 1 vs Version 2

Occupation Category	Version 1	Version 2	Difference†	P-value
Management occupations	83,180 (2,976)	81,710 (2,179)	1,465 (3,375)	0.98
Business and financial operations occupations	71,090 (840)	76,770 (2,783)	-5,676 (2,841)	0.98
Computer and mathematical occupations	91,060 (3,639)	90,040 (4,681)	1,018 (5,976)	0.98
Architecture and engineering occupations	86,310 (4,440)	95,990 (4,766)	-9,679 (6,725)	0.98
Life, physical, and social science occupations	65,920 (4,481)	75,770 (7,752)	-9,845 (9,226)	0.98
Community and social services occupations	47,270 (2,372)	48,960 (1,682)	-1,693 (2,998)	0.98
Legal occupations	101,300 (18,610)	88,850 (9,262)	12,410 (21,690)	0.98
Education, training, and library occupations	47,540 (3,305)	46,180 (1,187)	1,352 (3,574)	0.98
Arts, design, entertainment, sports, and media	36,710 (5,886)	42,200 (3,540)	-5,491 (6,869)	0.98
Healthcare practitioner and technical occupations	70,000 (2,593)	69,580 (3,194)	418 (4,153)	0.98
Healthcare support occupations	26,270 (1,650)	25,590 (1,137)	679 (1,876)	0.98
Protective service occupations	48,630 (3,604)	54,450 (7,761)	-3,828 (9,015)	0.98
Food preparation and serving related occupations	14,160 (1,601)	14,770 (1,922)	-617 (2,532)	0.98
Building and grounds cleaning and maintenance	26,720 (1,860)	21,130 (1,876)	5,586 (2,569)	0.68
Personal care and service occupations	19,760 (3,098)	20,410 (1,765)	-647 (3,682)	0.98
Sales and related occupations	37,340 (2,150)	37,480 (2,436)	-135 (2,956)	0.98
Office and administrative support occupations	36,720 (692)	36,700 (869)	24 (1,067)	0.98
Farming, fishing, and forestry occupations	27,250 (6,171)	20,200 (3,269)	7,055 (7,275)	0.98
Construction and extraction occupations	43,790 (3,184)	45,940 (1,996)	-2,147 (3,686)	0.98
Installation, maintenance, and repair occupations	52,440 (4,213)	50,060 (3,126)	2,379 (5,637)	0.98
Production occupations	40,750 (912)	40,040 (2,834)	711 (3,028)	0.98
Transportation and material moving occupations	32,530 (1,991)	35,100 (2,526)	-2,571 (3,428)	0.98
Military specific occupations	61,485 (2,751)	60,670 (7,507)	814 (8,523)	0.98

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: †Discrepancies in difference values are due to rounding. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 47. Median Earnings for All Workers by SOC major groups for Internet Respondents – Version 1 vs Version 2

Occupation Category	Version 1	Version 2	Difference†	P-value
Management occupations	85,030 (3,776)	89,660 (3,838)	-4,636 (5,085)	0.99
Business and financial operations occupations	71,120 (884)	81,030 (2,118)	-9,916 (2,223)	<0.01*
Computer and mathematical occupations	92,410 (3,122)	90,250 (4,456)	2,160 (5,271)	0.99
Architecture and engineering occupations	92,260 (5,654)	96,560 (5,804)	-4,295 (8,003)	0.99
Life, physical, and social science occupations	70,830 (3,030)	85,910 (11,330)	-15,080 (12,182)	0.99
Community and social services occupations	48,160 (2,320)	47,970 (3,110)	193 (4,067)	0.99
Legal occupations	96,970 (22,750)	97,190 (8,546)	-220 (25,810)	0.99
Education, training, and library occupations	49,430 (2,932)	47,880 (2,576)	1,552 (3,932)	0.99
Arts, design, entertainment, sports, and media	39,850 (4,567)	46,890 (4,254)	-7,039 (6,418)	0.99
Healthcare practitioner and technical occupations	70,640 (2,888)	71,760 (2,076)	-1,120 (3,557)	0.99
Healthcare support occupations	24,210 (3,556)	25,540 (1,833)	-1,326 (4,040)	0.99
Protective service occupations	50,090 (7,576)	51,920 (10,560)	-1,836 (13,040)	0.99
Food preparation and serving related occupations	12,140 (921)	11,720 (1,001)	424 (1,444)	0.99
Building and grounds cleaning and maintenance	24,050 (5,213)	22,390 (4,538)	1,660 (6,246)	0.99
Personal care and service occupations	17,430 (2,987)	18,260 (4,500)	-828 (5,328)	0.99
Sales and related occupations	40,730 (2,339)	39,464 (2,980)	1,270 (3,514)	0.99
Office and administrative support occupations	37,020 (925)	37,170 (1,622)	-153 (1,737)	0.99
Farming, fishing, and forestry occupations	27,020 (17,920)	11,910 (9,434)	15,106 (19,870)	0.99
Construction and extraction occupations	50,690 (3,963)	50,800 (1,399)	-106 (3,992)	0.99
Installation, maintenance, and repair occupations	51,330 (2,982)	49,890 (4,385)	1,439 (5,837)	0.99
Production occupations	41,050 (803)	42,280 (2,478)	-1,234 (2,738)	0.99
Transportation and material moving occupations	31,271 (1,254)	35,540 (2,338)	-4,180 (2,712)	0.99
Military specific occupations	61,480 (2,708)	73,540 (60,680)	-12,060 (60,900)	0.99

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: † Discrepancies in difference values are due to rounding. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 48. Median Earnings for All Workers by SOC major groups for Mail Respondents – Version 1 vs Version 2

Occupation Category	Version 1	Version 2	Difference†	P-value
Management occupations	91,990 (5,357)	76,830 (4,587)	15,158 (7,140)	0.71
Business and financial operations occupations	72,830 (14,020)	66,030 (10,890)	6,798 (16,130)	0.98
Computer and mathematical occupations	87,270 (36,730)	88,290 (19,610)	-1,021 (44,440)	0.98
Architecture and engineering occupations	70,870 (2,069)	95,280 (16,270)	-24,410 (16,470)	0.98
Life, physical, and social science occupations	21,970 (32,560)	41,350 (5,380)	-19,380 (33,010)	0.98
Community and social services occupations	40,860 (6,121)	47,860 (11,340)	-7,000 (11,460)	0.98
Legal occupations	91,110 (20,506)	47,400 (11,600)	43,700 (24,990)	0.98
Education, training, and library occupations	40,020 (12,220)	38,500 (7,893)	1,523 (13,460)	0.98
Arts, design, entertainment, sports, and media	31,440 (14,540)	14,990 (6,542)	16,454 (16,250)	0.98
Healthcare practitioner and technical occupations	65,910 (5,782)	60,450 (5,840)	5,458 (8,192)	0.98
Healthcare support occupations	23,580 (3,923)	24,470 (4,537)	-890 (5,721)	0.98
Protective service occupations	43,230 (22,120)	46,340 (21,480)	-3,117 (29,490)	0.98
Food preparation and serving related occupations	9,309 (4,518)	10,550 (1,425)	-1,237 (4,704)	0.98
Building and grounds cleaning and maintenance	16,150 (3,967)	17,160 (3,192)	-1,014 (3,956)	0.98
Personal care and service occupations	11,570 (1,600)	21,310 (4,494)	-9,739 (4,743)	0.98
Sales and related occupations	36,890 (4,002)	30,990 (11,010)	5,904 (12,070)	0.98
Office and administrative support occupations	36,050 (1,747)	32,020 (2,328)	4,035 (3,177)	0.98
Farming, fishing, and forestry occupations	29,380 (16,880)	6,460 (36,340)	22,910 (38,270)	0.98
Construction and extraction occupations	31,190 (5,718)	46,280 (4,056)	-15,080 (6,795)	0.98
Installation, maintenance, and repair occupations	52,300 (16,450)	47,380 (3,068)	4,925 (16,290)	0.98
Production occupations	41,660 (4,213)	35,960 (2,771)	5,700 (4,974)	0.98
Transportation and material moving occupations	26,660 (4,066)	30,070 (2,965)	-3,405 (5,589)	0.98
Military specific occupations	-	-	-	-

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: †Discrepancies in difference values are due to rounding. An entry of '-' in a cell indicates too few observations were available to meet statistical standards. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 49. Median Earnings for All Workers by SOC major groups for CAPI Respondents – Version 1 vs Version 2

Occupation Category	Version 1	Version 2	Difference†	P-value
Management occupations	78,880 (12,725)	65,860 (4,634)	13,022 (12,980)	0.99
Business and financial operations occupations	70,610 (14,620)	70,780 (9,262)	-172 (16,546)	0.99
Computer and mathematical occupations	81,000 (8,833)	82,150 (33,3560)	-1,150 (35,390)	0.99
Architecture and engineering occupations	83,610 (20,330)	92,090 (18,260)	-8,475 (30,590)	0.99
Life, physical, and social science occupations	43,680 (10,340)	49,720 (17,860)	-6,042 (20,530)	0.99
Community and social services occupations	51,000 (19,747)	50,590 (2,146)	407 (19,602)	0.99
Legal occupations	127,300 (157,900)	49,732 (105,800)	77,610 (151,300)	0.99
Education, training, and library occupations	44,280 (12,980)	41,990 (5,150)	2,287 (14,010)	0.99
Arts, design, entertainment, sports, and media	11,960 (20,540)	41,150 (5,997)	-29,187 (22,020)	0.99
Healthcare practitioner and technical occupations	76,590 (15,819)	61,820 (6,791)	14,760 (17,370)	0.99
Healthcare support occupations	30,230 (3,270)	26,180 (2,770)	4,046 (4,167)	0.99
Protective service occupations	47,230 (4,575)	55,430 (8,475)	-8,19 (10,590)	0.99
Food preparation and serving related occupations	21,850 (1,609)	22,060 (2,712)	-218 (3,313)	0.99
Building and grounds cleaning and maintenance	29,530 (2,794)	21,930 (4,412)	7,596 (5,398)	0.99
Personal care and service occupations	30,110 (5,416)	21,280 (4,314)	8,830 (7,458)	0.99
Sales and related occupations	35,390 (3,194)	36,690 (2,441)	-1,300 (3,603)	0.99
Office and administrative support occupations	36,050 (3,592)	37,300 (1,828)	-1,253 (4,324)	0.99
Farming, fishing, and forestry occupations	26,950 (8,665)	22,030 (5,021)	4,919 (9,928)	0.99
Construction and extraction occupations	41,620 (3,037)	37,770 (3,381)	3,853 (4,455)	0.99
Installation, maintenance, and repair occupations	56,080 (2,140)	50,850 (6,041)	5,230 (6,484)	0.99
Production occupations	39,160 (2,683)	36,460 (1,747)	2,697 (3,067)	0.99
Transportation and material moving occupations	36,420 (1,165)	35,580 (2,268)	833 (2,672)	0.99
Military specific occupations	-	-	-	-

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: †Discrepancies in difference values are due to rounding. An entry of '-' in a cell indicates too few observations were available to meet statistical standards. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 50. Median Earnings for All Workers by SOC major groups for all Respondents – Version 2 vs Control

Occupation Category	Version 2	Control	Difference†	P-value
Management occupations	81,600 (1,983)	85,500 (2,898)	-3,904 (3,638)	0.99
Business and financial operations occupations	76,890 (2,833)	75,750 (3,329)	1,040 (4,683)	0.99
Computer and mathematical occupations	90,090 (4,615)	97,190 (6,257)	-7,103 (7,709)	0.99
Architecture and engineering occupations	95,640 (4,994)	90,970 (1,511)	4,674 (5,098)	0.99
Life, physical, and social science occupations	73,350 (7,001)	67,740 (7,157)	5,607 (9,319)	0.99
Community and social services occupations	48,930 (1,690)	46,570 (3,391)	2,354 (4,107)	0.99
Legal occupations	88,850 (9,263)	81,940 (4,811)	6,918 (9,818)	0.99
Education, training, and library occupations	46,320 (1,141)	42,600 (2,812)	3,720 (3,123)	0.99
Arts, design, entertainment, sports, and media	42,320 (3,796)	44,740 (5,927)	-2,415 (6,735)	0.99
Healthcare practitioner and technical occupations	69,880 (3,067)	61,350 (1,805)	8,536 (3,551)	0.37
Healthcare support occupations	25,600 (1,107)	22,460 (2,217)	3,136 (2,472)	0.99
Protective service occupations	53,040 (7,890)	47,380 (3,993)	5,663 (9,030)	0.99
Food preparation and serving related occupations	14,550 (1,905)	14,430 (1,510)	120 (2,313)	0.99
Building and grounds cleaning and maintenance	21,260 (1,910)	25,340 (2,760)	-4,086 (3,094)	0.99
Personal care and service occupations	20,370 (1,866)	18,420 (2,919)	1,949 (3,558)	0.99
Sales and related occupations	37,680 (2,441)	36,650 (1,884)	1,030 (3,071)	0.99
Office and administrative support occupations	36,730 (858)	36,710 (1,108)	14 (1,498)	0.99
Farming, fishing, and forestry occupations	20,200 (3,269)	19,510 (3,731)	687 (5,044)	0.99
Construction and extraction occupations	45,780 (2,194)	43,690 (2,952)	2,090 (3,547)	0.99
Installation, maintenance, and repair occupations	49,900 (3,092)	55,020 (3,362)	-5,094 (4,279)	0.99
Production occupations	40,140 (2,614)	38,440 (1,923)	1,697 (3,128)	0.99
Transportation and material moving occupations	35,050 (2,629)	31,880 (1,013)	3,171 (2,943)	0.99
Military specific occupations	60,670 (7,507)	39,390 (16,429)	21,280 (18,890)	0.99

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: †Discrepancies in difference values are due to rounding. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 51. Median Earnings for All Workers by SOC major groups for Internet Respondents – Version 2 vs Control

Occupation Category	Version 2	Control	Difference†	P-value
Management occupations	89,000 (3,749)	92,070 (4,070)	-3,067 (5,929)	0.94
Business and financial operations occupations	81,070 (2,109)	75,780 (3,133)	5,298 (4,272)	0.94
Computer and mathematical occupations	90,160 (4,553)	100,260 (4,185)	-10,110 (6,018)	0.94
Architecture and engineering occupations	95,960 (5,925)	92,450 (4,698)	3,513 (7,814)	0.94
Life, physical, and social science occupations	83,270 (10,660)	65,330 (6,377)	17,940 (11,170)	0.94
Community and social services occupations	47,970 (3,110)	44,650 (3,222)	3,319 (4,592)	0.94
Legal occupations	97,190 (8,546)	89,540 (6,930)	7,644 (10,290)	0.94
Education, training, and library occupations	47,820 (2,536)	45,510 (2,669)	2,315 (3,675)	0.94
Arts, design, entertainment, sports, and media	47,140 (4,267)	46,530 (6,294)	615 (7,630)	0.94
Healthcare practitioner and technical occupations	71,550 (2,055)	65,030 (4,070)	6,522 (4,413)	0.94
Healthcare support occupations	25,500 (1,722)	21,913 (1,578)	3,586 (2,404)	0.94
Protective service occupations	52,810 (10,510)	50,530 (3,834)	2,283 (10,920)	0.94
Food preparation and serving related occupations	11,670 (990)	13,240 (1,647)	-1,573 (1,987)	0.94
Building and grounds cleaning and maintenance	22,410 (4,557)	27,430 (2,394)	-5,021 (4,797)	0.94
Personal care and service occupations	18,260 (4,500)	16,150 (2,431)	2,104 (5,333)	0.94
Sales and related occupations	39,950 (2,870)	37,280 (2,854)	2,672 (4,295)	0.94
Office and administrative support occupations	37,140 (1,559)	36,800 (1,207)	346 (1,929)	0.94
Farming, fishing, and forestry occupations	11,910 (9,434)	13,400 (5,949)	-1,489 (10,680)	0.94
Construction and extraction occupations	50,710 (1,553)	43,590 (3,291)	7,130 (3,236)	0.63
Installation, maintenance, and repair occupations	49,890 (4,385)	55,780 (2,730)	-5,686 (5,161)	0.94
Production occupations	42,280 (2,478)	39,490 (1,700)	2,787 (2,907)	0.94
Transportation and material moving occupations	35,390 (2,431)	30,260 (2,361)	5,128 (3,305)	0.94
Military specific occupations	73,540 (60,680)	32,400 (19,880)	41,140 (56,810)	0.94

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: †Discrepancies in difference values are due to rounding. An entry of '-' in a cell indicates too few observations were available to meet statistical standards. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 52. Median Earnings for All Workers by SOC major groups for Mail Respondents – Version 2 vs Control

Occupation Category	Version 2	Control	Difference†	P-value
Management occupations	76,650 (4,602)	85,100 (5,787)	-8,447 (7,553)	0.96
Business and financial operations occupations	65,860 (11,130)	83,610 (10,410)	-17,750 (16,060)	0.96
Computer and mathematical occupations	91,300 (18,460)	70,800 (36,600)	20,490 (36,460)	0.96
Architecture and engineering occupations	95,280 (16,270)	76,860 (7,371)	18,410 (17,630)	0.96
Life, physical, and social science occupations	41,400 (5,379)	70,310 (60,060)	-28,910 (59,800)	0.96
Community and social services occupations	44,940 (11,030)	61,440 (3,687)	-16,500 (11,840)	0.96
Legal occupations	47,400 (11,600)	80,810 (55,430)	-33,410 (56,730)	0.96
Education, training, and library occupations	39,770 (7,105)	28,620 (3,964)	11,150 (8,309)	0.96
Arts, design, entertainment, sports, and media	17,590 (6,351)	43,320 (15,150)	-25,730 (14,160)	0.96
Healthcare practitioner and technical occupations	61,940 (5,155)	51,470 (10,040)	10,470 (11,040)	0.96
Healthcare support occupations	24,830 (4,166)	31,430 (2,253)	-6,601 (4,707)	0.96
Protective service occupations	46,340 (21,480)	39,340 (11,520)	7,001 (22,370)	0.96
Food preparation and serving related occupations	10,550 (1,434)	13,710 (5,503)	-3,164 (5,545)	0.96
Building and grounds cleaning and maintenance	17,800 (3,341)	18,820 (2,357)	-1,023 (4,215)	0.96
Personal care and service occupations	21,150 (4,429)	20,720 (7,263)	439 (9,020)	0.96
Sales and related occupations	30,680 (9,646)	31,400 (6,740)	-714 (11,970)	0.96
Office and administrative support occupations	32,201 (2,585)	37,350 (3,481)	-5,144 (4,368)	0.96
Farming, fishing, and forestry occupations	6,460 (36,340)	130,500 (110,400)	-124,000 (126,200)	0.96
Construction and extraction occupations	45,970 (3,065)	40,100 (4,667)	5,870 (5,463)	0.96
Installation, maintenance, and repair occupations	47,110 (2,661)	41,070 (6,898)	6,038 (7,589)	0.96
Production occupations	36,570 (3,561)	36,910 (3,243)	-344 (4,908)	0.96
Transportation and material moving occupations	29,950 (3,121)	26,390 (4,895)	3,554 (5,899)	0.96
Military specific occupations	-	-	-	-

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note: †Discrepancies in difference values are due to rounding. An entry of '-' in a cell indicates too few observations were available to meet statistical standards. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 53. Median Earnings for All Workers by SOC major groups for CAPI Respondents – Version 2 vs Control

Occupation Category	Version 2	Control	Difference†	P-value
Management occupations	65,860 (4,634)	66,520 (4,490)	-666 (6,891)	0.95
Business and financial operations occupations	70,780 (9,262)	62,150 (15,100)	8,636 (19,500)	0.95
Computer and mathematical occupations	82,150 (33,560)	66,640 (25,920)	15,510 (38,740)	0.95
Architecture and engineering occupations	92,090 (18,260)	78,700 (16,810)	13,390 (27,870)	0.95
Life, physical, and social science occupations	49,720 (17,860)	120,500 (51,090)	-70,740 (54,320)	0.95
Community and social services occupations	50,590 (2,147)	48,030 (20,130)	2,559 (20,270)	0.95
Legal occupations	49,730 (105,800)	70,040 (15,190)	-20,310 (110,900)	0.95
Education, training, and library occupations	42,000 (5,150)	31,360 (12,360)	10,630 (13,680)	0.95
Arts, design, entertainment, sports, and media	41,150 (6,000)	36,110 (16,540)	5,044 (16,770)	0.95
Healthcare practitioner and technical occupations	61,820 (6,791)	45,910 (3,260)	15,920 (7,575)	0.78
Healthcare support occupations	26,180 (2,772)	21,990 (3,512)	4,195 (4,672)	0.95
Protective service occupations	55,430 (8,475)	36,990 (8,207)	18,440 (12,440)	0.95
Food preparation and serving related occupations	22,060 (2,712)	16,420 (2,495)	5,645 (3,524)	0.95
Building and grounds cleaning and maintenance	21,930 (4,412)	23,050 (3,093)	-1,118 (5,018)	0.95
Personal care and service occupations	21,280 (4,314)	25,090 (5,869)	-3,811 (7,583)	0.95
Sales and related occupations	36,690 (2,442)	36,290 (5,235)	396 (6,007)	0.95
Office and administrative support occupations	37,300 (1,828)	36,050 (3,284)	1,254 (3,871)	0.95
Farming, fishing, and forestry occupations	22,030 (5,021)	19,810 (2,244)	2,215 (5,009)	0.95
Construction and extraction occupations	37,770 (3,381)	46,790 (4,023)	-9,022 (5,531)	0.95
Installation, maintenance, and repair occupations	80,850 (6,041)	60,610 (6,022)	-9,757 (8,142)	0.95
Production occupations	36,500 (1,745)	36,840 (3,770)	-340 (4,123)	0.95
Transportation and material moving occupations	35,580 (2,268)	40,150 (3,581)	-4,567 (3,996)	0.95
Military specific occupations	-	-	-	-

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note:†Discrepancies in difference values are due to rounding. An entry of '-' in a cell indicates too few observations were available to meet statistical standards. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

APPENDIX C. Median Income for the SOC Major Groups for Full-Time Year-Round Workers

Table 54. Median Earnings for Full-Time Year-Round Workers by SOC major groups for all Respondents – Version 1 vs Version 2

Occupation Category	Version 1	Version 2	Difference†	P-value
Management occupations	91,120 (3,623)	90,810 (3,469)	413 (4,542)	1.00
Business and financial operations occupations	75,630 (2,213)	87,240 (3,732)	-11,610 (4,134)	0.11
Computer and mathematical occupations	97,389 (3,976)	99,950 (5,125)	-2,559 (6,238)	1.00
Architecture and engineering occupations	96,600 (3,629)	101,100 (2,051)	-4,493 (4,094)	1.00
Life, physical, and social science occupations	72,550 (3,818)	89,490 (12,790)	-16,940 (14,160)	1.00
Community and social services occupations	51,470 (3,275)	53,700 (3,232)	-2,228 (4,646)	1.00
Legal occupations	121,800 (9,962)	100,200 (5,165)	21,563 (12,030)	1.00
Education, training, and library occupations	59,310 (2,166)	56,640 (1,788)	2,670 (2,642)	1.00
Arts, design, entertainment, sports, and media	66,360 (7,677)	66,400 (3,008)	-40 (7,993)	1.00
Healthcare practitioner and technical occupations	81,650 (2,004)	76,540 (3,011)	5,112 (3,879)	1.00
Healthcare support occupations	36,080 (1,568)	36,410 (1,455)	-337 (2,236)	1.00
Protective service occupations	70,400 (12,930)	64,450 (4,741)	5,944 (13,430)	1.00
Food preparation and serving related occupations	28,180 (2,859)	33,510 (2,926)	-5,328 (4,006)	1.00
Building and grounds cleaning and maintenance	36,340 (2,507)	36,280 (1,427)	65 (2,809)	1.00
Personal care and service occupations	35,250 (3,481)	37,820 (4,559)	-2,567 (6,158)	1.00
Sales and related occupations	55,920 (3,431)	59,480 (3,137)	-3,565 (4,077)	1.00
Office and administrative support occupations	45,210 (1,375)	44,070 (1,483)	1,144 (2,012)	1.00
Farming, fishing, and forestry occupations	42,000 (5,138)	29,440 (4,218)	12,550 (6,727)	1.00
Construction and extraction occupations	51,760 (3,166)	52,390 (3,771)	-635 (4,609)	1.00
Installation, maintenance, and repair occupations	56,900 (3,439)	57,550 (4,070)	-653 (5,839)	1.00
Production occupations	45,090 (3,157)	45,400 (2,335)	-318 (3,551)	1.00
Transportation and material moving occupations	42,240 (2,831)	43,760 (2,537)	-1,420 (3,845)	1.00
Military specific occupations	61,960 (4,894)	60,470 (7,856)	1,494 (10,710)	1.00

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note:†Discrepancies in difference values are due to rounding. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 55. Median Earnings for Full-Time Year-Round Workers by SOC major groups for Internet Respondents – Version 1 vs Version 2

Occupation Category	Version 1	Version 2	Difference†	P-value
Management occupations	94,560 (4,078)	100,600 (1,438)	-6,079 (4,031)	1.00
Business and financial operations occupations	75,770 (2,875)	90,740 (3,065)	-14,970 (3,846)	<0.01*
Computer and mathematical occupations	101,100 (4,590)	100,200 (4,914)	926 (6,630)	1.00
Architecture and engineering occupations	101,000 (2,002)	101,900 (4,836)	-839 (5,165)	1.00
Life, physical, and social science occupations	75,760 (4,798)	97,960 (20,900)	-22,200 (22,080)	1.00
Community and social services occupations	51,683 (3,696)	55,600 (3,999)	-3,915 (5,671)	1.00
Legal occupations	118,000 (15,550)	102,500 (8,548)	15,560 (19,970)	1.00
Education, training, and library occupations	57,960 (2,357)	57,130 (2,272)	834 (2,870)	1.00
Arts, design, entertainment, sports, and media	62,480 (8,320)	70,410 (4,450)	-7,926 (9,326)	1.00
Healthcare practitioner and technical occupations	82,500 (3,864)	77,740 (2,955)	4,757 (4,488)	1.00
Healthcare support occupations	36,800 (2,144)	36,560 (1,417)	246 (2,526)	1.00
Protective service occupations	76,120 (6,496)	70,400 (5,023)	5,717 (8,737)	1.00
Food preparation and serving related occupations	28,550 (2,757)	30,980 (3,312)	-2,436 (4,164)	1.00
Building and grounds cleaning and maintenance	40,470 (3,095)	40,620 (2,839)	-158 (3,965)	1.00
Personal care and service occupations	32,140 (3,303)	36,800 (3,933)	-4,663 (5,116)	1.00
Sales and related occupations	62,190 (4,357)	60,490 (3,043)	1,699 (5,039)	1.00
Office and administrative support occupations	45,900 (1,204)	45,240 (1,464)	664 (1,755)	1.00
Farming, fishing, and forestry occupations	50,340 (7,663)	71,040 (6,993)	-20,700 (9,253)	0.56
Construction and extraction occupations	60,930 (4,240)	60,520 (4,311)	407 (5,803)	1.00
Installation, maintenance, and repair occupations	60,020 (7,623)	59,360 (1,850)	660 (7,910)	1.00
Production occupations	46,200 (3,235)	49,220 (3,843)	-3,015 (5,010)	1.00
Transportation and material moving occupations	42,270 (3,575)	44,410 (2,558)	-2,137 (4,411)	1.00
Military specific occupations	61,960 (4,901)	62,440 (82,210)	-476 (81,760)	1.00

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note:†Discrepancies in difference values are due to rounding. Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 56. Median Earnings for Full-Time Year-Round Workers by SOC major groups for Mail Respondents – Version 1 vs Version 2

Occupation Category	Version 1	Version 2	Difference†	P-value
Management occupations	92,260 (13,590)	81,500 (4,169)	10,759 (14,330)	0.98
Business and financial operations occupations	74,610 (7,781)	66,710 (10,210)	7,899 (12,186)	0.98
Computer and mathematical occupations	97,890 (45,730)	88,650 (15,210)	9,232 (50,410)	0.98
Architecture and engineering occupations	70,780 (3,904)	95,480 (15,350)	-24,710 (16,160)	0.98
Life, physical, and social science occupations	82,290 (45,320)	41,730 (2,853)	40,560 (44,760)	0.98
Community and social services occupations	44,840 (5,382)	51,980 (9,456)	-7,138 (10,520)	0.98
Legal occupations	101,300 (47,550)	60,430 (15,810)	40,820 (51,550)	0.98
Education, training, and library occupations	61,320 (6,263)	55,730 (9,557)	5,595 (12,730)	0.98
Arts, design, entertainment, sports, and media	67,840 (23,540)	56,660 (8,712)	11,180 (24,310)	0.98
Healthcare practitioner and technical occupations	72,040 (8,634)	71,540 (8,709)	501 (12,930)	0.98
Healthcare support occupations	33,840 (3,797)	36,840 (7,314)	-2,999 (8,309)	0.98
Protective service occupations	72,330 (26,590)	65,810 (17,880)	6,521 (34,220)	0.98
Food preparation and serving related occupations	22,300 (3,051)	30,660 (22,730)	-8,361 (22,640)	0.98
Building and grounds cleaning and maintenance	31,030 (1,546)	32,580 (7,306)	-1,551 (7,352)	0.98
Personal care and service occupations	-	-	-	-
Sales and related occupations	50,570 (7,114)	59,020 (5,243)	-8,451 (9,137)	0.98
Office and administrative support occupations	40,160 (1,323)	40,860 (1,521)	-691 (2,120)	0.98
Farming, fishing, and forestry occupations	-	-	-	-
Construction and extraction occupations	47,280 (9,699)	46,960 (6,753)	320 (11,371)	0.98
Installation, maintenance, and repair occupations	51,070 (17,990)	48,320 (3,812)	2,747 (18,620)	0.98
Production occupations	47,570 (4,869)	55,410 (8,645)	-7,840 (9,842)	0.98
Transportation and material moving occupations	41,040 (6,486)	42,740 (4,024)	-1,703 (8,141)	0.98
Military specific occupations	-	-	-	-

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note:†Discrepancies in difference values are due to rounding. Minor additive discrepancies are due to rounding. An entry of '-' in a cell indicates too few observations were available to meet statistical standards. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 57. Median Earnings for Full-Time Year-Round Workers by SOC major groups for CAPI Respondents – Version 1 vs Version 2

Occupation Category	Version 1	Version 2	Difference†	P-value
Management occupations	80,940 (5,963)	66,820 (6,439)	14,120 (8,001)	1.00
Business and financial operations occupations	75,510 (9,574)	75,430 (12,920)	81 (17,480)	1.00
Computer and mathematical occupations	81,400 (9,784)	99,540 (33,430)	-18,136 (37,340)	1.00
Architecture and engineering occupations	90,320 (7,904)	100,700 (18,500)	-10,390 (20,530)	1.00
Life, physical, and social science occupations	55,470 (13,490)	50,920 (43,480)	4,547 (49,180)	1.00
Community and social services occupations	60,170 (17,550)	51,530 (4,853)	8,633 (18,590)	1.00
Legal occupations	202,100 (209,400)	49,730 (105,800)	152,400 (201,500)	1.00
Education, training, and library occupations	61,220 (4,952)	47,180 (12,310)	14,040 (12,790)	1.00
Arts, design, entertainment, sports, and media	76,100 (27,070)	51,540 (4,371)	24,550 (27,430)	1.00
Healthcare practitioner and technical occupations	80,590 (19,960)	65,460 (10,520)	15,130 (22,790)	1.00
Healthcare support occupations	36,110 (6,662)	32,110 (8,515)	4,000 (10,980)	1.00
Protective service occupations	51,690 (5,964)	56,103 (7,733)	-4,417 (9,769)	1.00
Food preparation and serving related occupations	30,460 (3,435)	36,080 (2,927)	-5,627 (4,271)	1.00
Building and grounds cleaning and maintenance	35,650 (3,826)	31,850 (2,957)	3,801 (4,792)	1.00
Personal care and service occupations	35,790 (9,659)	38,250 (24,480)	-2,454 (27,310)	1.00
Sales and related occupations	45,410 (5,293)	51,950 (7,177)	-6,542 (9,064)	1.00
Office and administrative support occupations	45,970 (2,111)	43,550 (3,769)	2,414 (4,587)	1.00
Farming, fishing, and forestry occupations	39,530 (4,239)	22,120 (4,204)	17,410 (6,330)	0.14
Construction and extraction occupations	46,430 (3,633)	46,740 (6,728)	-307 (7,379)	1.00
Installation, maintenance, and repair occupations	56,800 (3,234)	52,100 (9,347)	4,701 (9,939)	1.00
Production occupations	41,740 (4,225)	40,730 (1,844)	1,007 (4,410)	1.00
Transportation and material moving occupations	43,120 (4,168)	41,790 (5,623)	1,326 (7,067)	1.00
Military specific occupations	-	-	-	-

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note:†Discrepancies in difference values are due to rounding. An entry of '-' in a cell indicates too few observations were available to meet statistical standards. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 58. Median Earnings for Full-Time Year-Round Workers by SOC major groups for all Respondents – Version 2 vs Control

Occupation Category	Version 2	Control	Difference†	P-value
Management occupations	90,810 (3,469)	92,180 (4,1440)	-1,368 (5,391)	0.99
Business and financial operations occupations	87,240 (3,732)	85,310 (2,441)	1,927 (4,659)	0.99
Computer and mathematical occupations	99,950 (5,125)	101,600 (1,736)	-1,606 (5,464)	0.99
Architecture and engineering occupations	101,090 (2,051)	96,930 (5,287)	4,164 (5,653)	0.99
Life, physical, and social science occupations	89,490 (12,790)	86,470 (8,743)	3,023 (14,670)	0.99
Community and social services occupations	53,700 (3,233)	60,960 (2,281)	-7,161 (4,000)	0.99
Legal occupations	100,200 (5,165)	96,580 (7,219)	3,621 (8,335)	0.99
Education, training, and library occupations	56,640 (1,788)	57,080 (2,147)	-435 (3,061)	0.99
Arts, design, entertainment, sports, and media	66,400 (3,008)	69,490 (5,151)	-3,091 (5,925)	0.99
Healthcare practitioner and technical occupations	76,540 (3,011)	75,110 (2,770)	1,433 (4,220)	0.99
Healthcare support occupations	36,410 (1,455)	34,770 (2,155)	1,646 (2,695)	0.99
Protective service occupations	64,450 (4,741)	57,500 (5,034)	6,955 (7,700)	0.99
Food preparation and serving related occupations	33,510 (2,926)	29,610 (1,874)	3,894 (3,562)	0.99
Building and grounds cleaning and maintenance	36,280 (1,427)	32,320 (3,144)	3,955 (3,445)	0.99
Personal care and service occupations	37,820 (4,559)	41,240 (2,068)	-3,419 (4,750)	0.99
Sales and related occupations	59,480 (3,137)	60,310 (3,441)	-833 (4,783)	0.99
Office and administrative support occupations	44,070 (1,483)	45,130 (1,523)	-1,060 (2,032)	0.99
Farming, fishing, and forestry occupations	29,440 (4,218)	29,760 (19,350)	-311 (19,490)	0.99
Construction and extraction occupations	52,390 (3,771)	51,151 (1,205)	1,243 (3,667)	0.99
Installation, maintenance, and repair occupations	57,550 (4,070)	57,390 (3,719)	159 (5,469)	0.99
Production occupations	45,400 (2,335)	41,970 (1,494)	3,438 (2,560)	0.99
Transportation and material moving occupations	43,760 (2,537)	41,610 (702)	2,149 (2,661)	0.99
Military specific occupations	60,470 (7,856)	32,370 (20,395)	28,100 (23,240)	0.99

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note:†Discrepancies in difference values are due to rounding. Minor additive discrepancies are due to rounding. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 59. Median Earnings for Full-Time Year-Round Workers by SOC major groups for Internet Respondents – Version 2 vs Control

Occupation Category	Version 2	Control	Difference†	P-value
Management occupations	100,600 (1,438)	100,800 (1,194)	-125 (1,980)	0.97
Business and financial operations occupations	90,735 (3,065)	85,840 (3,954)	4,896 (5,369)	0.97
Computer and mathematical occupations	100,200 (4,914)	101,600 (1,312)	-1,434 (5,117)	0.97
Architecture and engineering occupations	101,900 (4,836)	100,700 (2,809)	1,222 (5,993)	0.97
Life, physical, and social science occupations	97,960 (20,900)	78,910 (8,674)	19,050 (21,570)	0.97
Community and social services occupations	55,600 (3,999)	57,130 (7,766)	-1,534 (8,712)	0.97
Legal occupations	102,500 (8,548)	103,600 (9,902)	-1,139 (11,060)	0.97
Education, training, and library occupations	57,130 (2,272)	58,560 (2,852)	-1,431 (4,029)	0.97
Arts, design, entertainment, sports, and media	70,410 (4,450)	70,620 (3,025)	-211 (5,261)	0.97
Healthcare practitioner and technical occupations	77,740 (2,955)	76,330 (1,539)	1,410 (3,326)	0.97
Healthcare support occupations	36,560 (1,417)	31,650 (2,886)	4,904 (3,465)	0.97
Protective service occupations	70,400 (5,023)	64,950 (4,931)	5,450 (7,101)	0.97
Food preparation and serving related occupations	30,980 (3,312)	29,300 (2,095)	1,680 (3,716)	0.97
Building and grounds cleaning and maintenance	40,620 (2,839)	35,820 (2,570)	4,804 (3,913)	0.97
Personal care and service occupations	36,800 (3,933)	41,120 (3,443)	-4,315 (4,843)	0.97
Sales and related occupations	60,490 (3,043)	62,620 (3,712)	-2,129 (5,330)	0.97
Office and administrative support occupations	45,240 (1,464)	45,080 (1,967)	155 (2,346)	0.97
Farming, fishing, and forestry occupations	71,040 (6,993)	28,634 (5,247)	42,405 (9,240)	<0.01*
Construction and extraction occupations	60,520 (4,311)	51,940 (3,710)	8,579 (5,652)	0.97
Installation, maintenance, and repair occupations	59,360 (1,850)	59,960 (3,659)	-598 (4,244)	0.97
Production occupations	49,220 (3,843)	42,420 (3,718)	6,794 (5,477)	0.97
Transportation and material moving occupations	44,410 (2,558)	42,030 (1,984)	2,378 (3,457)	0.97
Military specific occupations	62,440 (82,210)	32,270 (20,140)	30,170 (76,600)	0.97

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note:†Discrepancies in difference values are due to rounding. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 60. Median Earnings for Full-Time Year-Round Workers by SOC major groups for Mail Respondents – Version 2 vs Control

Occupation Category	Version 2	Control	Difference†	P-value
Management occupations	81,500 (4,169)	92,700 (7,985)	-11,200 (8,829)	0.98
Business and financial operations occupations	66,710 (10,210)	101,100 (12,630)	-34,360 (17,677)	0.98
Computer and mathematical occupations	88,650 (15,210)	95,600 (38,080)	-6,944 (40,150)	0.98
Architecture and engineering occupations	95,480 (15,350)	80,180 (6,608)	15,300 (16,710)	0.98
Life, physical, and social science occupations	41,730 (2,853)	205,200 (42,290)	-163,473 (42,600)	0.98
Community and social services occupations	51,980 (9,456)	61,850 (4,975)	-9,874 (10,589)	0.98
Legal occupations	60,430 (15,810)	175,700 (123,300)	-115,200 (123,700)	0.98
Education, training, and library occupations	55,730 (9,557)	50,910 (8,255)	4,817 (12,470)	0.98
Arts, design, entertainment, sports, and media	56,660 (8,712)	60,470 (9,602)	-3,810 (13,770)	0.98
Healthcare practitioner and technical occupations	71,540 (8,709)	76,030 (4,743)	-4,493 (10,740)	0.98
Healthcare support occupations	36,840 (7,314)	36,680 (4,198)	157 (7,852)	0.98
Protective service occupations	65,810 (17,880)	51,400 (12,020)	14,410 (22,280)	0.98
Food preparation and serving related occupations	30,660 (22,730)	27,160 (3,077)	3,505 (22,610)	0.98
Building and grounds cleaning and maintenance	32,580 (7,306)	31,360 (2,263)	1,214 (7,932)	0.98
Personal care and service occupations	43,960 (16,880)	41,900 (8,871)	2,061 (18,210)	0.98
Sales and related occupations	59,020 (5,243)	65,150 (7,846)	-6,130 (9,588)	0.98
Office and administrative support occupations	40,860 (1,521)	44,530 (3,712)	-3,670 (4,260)	0.98
Farming, fishing, and forestry occupations	-	-	-	-
Construction and extraction occupations	46,960 (6,753)	56,460 (11,650)	-9,493 (12,720)	0.98
Installation, maintenance, and repair occupations	48,320 (3,812)	47,000 (5,447)	1,322 (6,903)	0.98
Production occupations	55,410 (8,645)	43,930 (6,820)	11,480 (10,550)	0.98
Transportation and material moving occupations	42,740 (4,024)	36,500 (2,304)	6,244 (4,771)	0.98
Military specific occupations	-	-	-	-

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note:†Discrepancies in difference values are due to rounding. An entry of '-' in a cell indicates too few observations were available to meet statistical standards. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.

Table 61. Median Earnings for Full-Time Year-Round Workers by SOC major groups for CAPI Respondents – Version 2 vs Control

Occupation Category	Version 2	Control	Difference†	P-value
Management occupations	66,820 (6,440)	79,090 (6,557)	-9,275 (9,392)	0.98
Business and financial operations occupations	75,430 (12,920)	69,060 (17,660)	6,372 (20,540)	0.98
Computer and mathematical occupations	99,540 (33,430)	92,440 (28,390)	7,100 (46,860)	0.98
Architecture and engineering occupations	100,700 (18,500)	91,240 (11,630)	9,474 (23,430)	0.98
Life, physical, and social science occupations	50,920 (43,480)	120,800 (25,490)	-69,880 (54,450)	0.98
Community and social services occupations	51,530 (4,853)	72,530 (18,190)	-21,000 (19,690)	0.98
Legal occupations	49,730 (105,800)	59,390 (15,490)	-9,653 (103,100)	0.98
Education, training, and library occupations	47,180 (12,310)	52,110 (10,200)	-4,932 (14,340)	0.98
Arts, design, entertainment, sports, and media	51,540 (4,371)	50,580 (22,030)	962 (22,440)	0.98
Healthcare practitioner and technical occupations	65,460 (10,520)	47,320 (17,190)	18,140 (20,120)	0.98
Healthcare support occupations	32,110 (8,515)	36,310 (2,681)	-4,206 (8,715)	0.98
Protective service occupations	56,100 (7,733)	47,780 (11,500)	8,321 (12,630)	0.98
Food preparation and serving related occupations	36,090 (2,927)	30,540 (3,735)	5,548 (5,118)	0.98
Building and grounds cleaning and maintenance	31,850 (2,957)	31,480 (1,840)	367 (3,498)	0.98
Personal care and service occupations	38,250 (24,480)	41,290 (14,270)	-3,046 (27,720)	0.98
Sales and related occupations	51,950 (7,177)	41,880 (5,461)	10,070 (8,583)	0.98
Office and administrative support occupations	43,550 (3,769)	45,260 (4,072)	-1,710 (5,630)	0.98
Farming, fishing, and forestry occupations	22,120 (4,204)	25,110 (3,140)	-2,991 (5,132)	0.98
Construction and extraction occupations	46,740 (6,728)	50,180 (1,603)	-3,444 (6,864)	0.98
Installation, maintenance, and repair occupations	52,100 (9,347)	61,880 (5,476)	-9,774 (10,810)	0.98
Production occupations	40,730 (1,844)	41,160 (1,520)	-426 (2,221)	0.98
Transportation and material moving occupations	41,790 (5,623)	41,960 (2,719)	-169 (6,330)	0.98
Military specific occupations	-	-	-	-

Source: U.S. Census Bureau, 2022 American Community Survey Content Test | DRB No. CBDRB-FY23-ACSO003-B0068

Note:†Discrepancies in difference values are due to rounding. An entry of '-' in a cell indicates too few observations were available to meet statistical standards. Standard errors are in parentheses. Significance was tested using a chi-square test at the $\alpha=0.1$ level. An asterisk (*) indicates a statistically significant result. P-values have been adjusted for multiple comparisons using the Hochberg method.