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Review of the Potential for Nonresponse Bias in FoodAPS 2012

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Maitland, A., and Li, L. (2016). *Review of the Completeness and Accuracy of FoodAPS 2012 Data*. Prepared for the Economic Research Service, U.S. Department of Agriculture. Washington, D.C.

Yan, T., and Maitland, A. (2016). *Review of the FoodAPS 2012 Instrument Design, Response Burden, Use of Incentives, and Response Rates*. Prepared for the Economic Research Service, U.S. Department of Agriculture. Washington, D.C.

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Executive Summary

The 2012 National Household Food Acquisition and Purchase Survey (hereafter referred to as "FoodAPS-1") is a household survey fielded primarily in 2012 and designed to capture detailed information on the food acquisitions of U.S. households. FoodAPS-1 was sponsored by the U.S. Department of Agriculture and managed by its Economic Research Service (ERS). In 2015, ERS contracted with Westat to conduct an independent assessment of the quality of the FoodAPS-1 sample design, instrumentation, data collection procedures, and resulting data. This report is part of a series of five reports that constitute that assessment.

One potential source of bias in survey estimates is due to unit nonresponse, which occurs when a sampled unit is not contacted or refuses to participate in the survey. Nonresponse bias can be substantial when two conditions hold: (1) the response rate is relatively low and (2) the difference between the characteristics of respondents and those of nonrespondents is relatively large. Weighting adjustments can help reduce nonresponse bias, but they are only effective to the extent that the weighting variables are correlated with response propensity and the outcome of interest. Even after weighting adjustments are made, some bias could remain.

This report summarizes the analysis of potential nonresponse bias due to unit-level (household) nonresponse to FoodAPS-1. In FoodAPS-1, nonresponse could occur at four stages: the screener, initial agreement to participate in the study, Initial Interview, and Final Interview. A total of 19,237 dwelling units were released for data collection. Of these, 12,300 were found to be occupied and completed the screener. Of those completing the screener, 7,650 were classified into one of the four Supplemental Nutrition Assistance Program (SNAP) participation status/income domains (quota groups) and selected to continue on with the main study.[1] A total of 6,373 initially agreed to do so. Of these participating households, 5,012 completed the Initial Interview. Finally, 4,826 households went on to complete all the data collection components, including the Final Interview. The overall weighted response rate was 41.5 percent.

A basic nonresponse bias analysis was performed for each data collection stage (screener, initial agreement, Initial Interview, and Final Interview) to compare those who responded to those who did not using auxiliary variables known for both respondents and nonrespondents. The auxiliary

[1] The count of 7,650 includes 80 cases that were supposed to be excluded by the quota group subsampling, but nonetheless completed the study. An adjustment was made to the weights to account for these cases.

variables included external data on the household's census tract, such as median income, and sampling frame information, such as whether the address was sampled from the list of SNAP households. To evaluate nonresponse bias after the screener stage, screener data (e.g., household size) and interviewer observations (e.g., race of the screener respondent) were also available and included in the analysis. In addition, Initial Interview data were used to analyze differences between respondents and nonrespondents for the Final Interview. The analysis methods consisted of the following:

- Computing response rates by subgroup;
- Performing Rao-Scott tests of independence between response status and each auxiliary variable; and
- Running classification trees to identify the subgroups of households with the most differential response rates.

These results show that there are several variables that are both correlated with low response rates and key outcomes, creating the potential for bias. The analyses suggest that nonresponse is most problematic among non-SNAP households, especially higher-income non-SNAP households. Several other auxiliary characteristics were found to be significantly related to response status. For example, households in the poorest and least-educated census tracts were more likely to respond to the screener and agree to participate but more likely to fail to complete the Initial and/or Final Interviews. The SNAP status of the household and the percentage of residents in the census tract with less than a high school diploma were also found to have a moderate correlation (between 0.2 and 0.4) with food insecurity, one of the key outcome measures from FoodAPS-1. This indicates potential bias in food insecurity estimates prior to weighting adjustments.

More extensive analyses were then performed to better assess the effect of weighting adjustments and the nonresponse bias in the final outcome statistics for four key variables: food insecurity, food at home (FAH) expenditures, food away from home (FAFH) expenditures, and the number of free events. The analysis methods included:

- Computing estimates of auxiliary variables before and after the nonresponse weighting adjustments to determine if the adjustments were effective in decreasing nonresponse bias (measured as the difference between the estimate for the respondents and the estimate for the eligible sample);
- Calculating correlations between the weighting variables and outcomes of interest for Final Interview respondents;

- Calibrating the final weights to an additional control total not used in the original weighting adjustment, and comparing estimates of the outcome variables before and after the re-calibration. Specifically, the weights were calibrated to the Current Population Survey (CPS) distribution of households with one or more child(ren) 11 years old or younger to evaluate whether reducing bias in this auxiliary variable through calibration would impact the bias in the outcome estimates;

- Comparing outcome estimates by the level of effort (number of screener contact attempts) to assess if hard-to-reach respondents differ from other respondents. Differences could indicate nonresponse bias if hard-to-reach respondents are similar to nonrespondents;

- Performing a sensitivity analysis by "simulating" nonrespondents' responses and testing their impact on outcomes if they were from the low or high ranges of observed values; and

- Imputing outcome values for nonrespondents, and calculating the fraction of missing information (FMI) as an indicator of potential non-ignorable nonresponse.

The extended analysis provided an indication that the weighting adjustments were effective at reducing nonresponse bias. We found significant differences in 25 (23.6%) of the 106 subgroups, defined by categories of auxiliary variables, between the eligible sample and the base-weighted screener respondents. However, after adjusting the weights for screener nonresponse, only 10 (9.4%) subgroups were significantly different, and the number decreased further after the main study nonresponse adjustment. In addition, the overall correlations between the weighting variables and the four key outcome variables are at a moderate level: all are between about 0.35 and 0.45, indicating that the cumulative effect of the weighting adjustments likely does reduce nonresponse bias in the outcome estimates to a certain extent.

The calibration and level-of-effort analyses also provided no evidence of bias in the outcome estimates. Although the weighted percentage of households with at least one child 11 years old or younger is 24.1 percent in FoodAPS-1, compared to a 2013 CPS estimate of 28.9 percent of households nationally, re-calibrating the weights to match the CPS distribution does not cause substantial changes in the outcome estimates. For example, the mean FAH expenditure increased by just over $2 (2%) after re-calibration. The level-of-effort analysis showed no substantial differences between hard-to-reach respondents and other respondents.

The final two analyses were less conclusive. First, the sensitivity analysis indicated that the potential nonresponse bias could be considerable if nonrespondents are very different from the average respondents within a weighting cell. Second, the FMI analysis showed that the FMI was below the nonresponse rate when imputing for nonrespondents at all stages, providing no evidence of non-

ignorable nonresponse. However, the value of the FMI varied considerably depending on the number of imputations performed, so there is some uncertainty in the results.

In conclusion, the magnitude of nonresponse bias in a survey estimate depends on the response rate and the extent to which the respondents and nonrespondents differ on the outcome of interest. The relatively low response rate of 42 percent in FoodAPS-1 suggests a higher potential for nonresponse bias. In addition, the respondents to FoodAPS-1 differed significantly from nonrespondents on several socio-economic characteristics. A main difference was that higher response rates were found to be associated with SNAP participation and lower income. However, these differences were largely reduced through the weighting process. In addition, the weighting variables were correlated with food insecurity, total amount spent on FAH events, total amount spent on FAFH events, and number of free events, suggesting that the weighting adjustments should also have reduced bias in these outcome estimates. Overall, the analysis did not indicate that nonresponse bias is a concern, although the extent of bias remaining after weighting adjustments is unknown. It should be noted that nonresponse bias can differ for different estimates of interest, and the results of the analysis are limited to the four outcome variables examined in this report.

1 Introduction

The 2012 National Household Food Acquisition and Purchase Survey (hereafter referred to as "FoodAPS-1") gathered detailed information about household food acquisitions from April 2012 to mid-January 2013. The survey was sponsored by the U.S. Department of Agriculture (USDA) and developed and fielded by Mathematica Policy Research (Mathematica). The nationally representative sample consisted of nearly 5,000 households that completed the FoodAPS-1 Final Interview. FoodAPS-1 collected comprehensive data on American households' food acquisition, factors influencing food choices, and household well-being. In 2015, the Economic Research Service (ERS) contracted with Westat to conduct an independent assessment of the quality of the FoodAPS-1 sample design, instrumentation, data collection procedures, and resulting data. This report is part of a series of five reports that constitute that assessment. This report documents Westat's nonresponse bias analysis (NRBA).

One potential source of bias in survey estimates is unit nonresponse, which occurs when a sampled unit is not contacted or refuses to participate in the survey. Nonresponse bias can be substantial when two conditions hold: (1) the response rate is relatively low, and (2) the difference between the characteristics of respondents and those of nonrespondents is relatively large. This is reflected in the following deterministic nonresponse bias formula:

$$Bias(\bar{y}_R) = (1 - W_R)(\bar{Y}_R - \bar{Y}_{NR}),$$

where W_R is the proportion of respondents, $\bar{Y}_R$ is the mean outcome for respondents, and $\bar{Y}_{NR}$ is the mean outcome for nonrespondents. An alternative model of nonresponse assumes each sampled unit has a certain propensity to respond, and nonresponse bias in a characteristic is a function of the covariance between the response propensity and the characteristic:

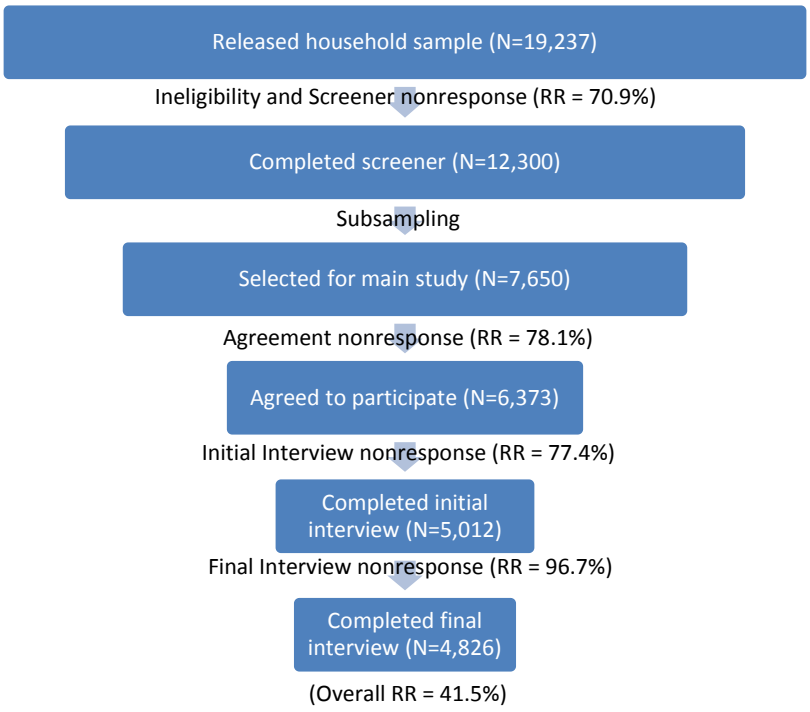
$$Bias(\bar{y}_R) = \frac{\sigma_{yp}}{\bar{p}},$$

where σ_{yp} is the covariance between the outcome variable and response propensity, and $\bar{p}$ is the mean response propensity.

As evident in the above formula and demonstrated in Groves (2008), nonresponse bias is not solely dependent on the response rate. In addition, the level of nonresponse bias can differ for different outcome variables. Weighting adjustments can help reduce nonresponse bias but are only effective to the extent that the weighting variables are correlated with response propensity and the outcome of interest. Even after weighting adjustments are made, some bias could remain.

This report summarizes the analysis of potential nonresponse bias due to unit-level (household) nonresponse to the FoodAPS-1 survey. In FoodAPS-1, nonresponse could occur at four stages: the screener, initial agreement, Initial Interview, and Final Interview. The stages are illustrated in Figure 1-1. A total of 19,237 dwelling units were released for data collection. Of these, 12,300 were found to be occupied and completed the screener. Of those completing the screener, 7,650 were classified into one of the four quota groups and selected to continue on with the main study. A total of 6,373 initially agreed to do so. Of those households providing their initial agreement, 5,012 completed the Initial Interview. Finally, 4,826 households went on to complete the full survey, including the Final Interview. The overall weighted response rate was 41.5 percent.

Figure 1-1. Stages of nonresponse in FoodAPS-1



Note: "N" is the sample size and "RR" is the weighted American Association for Public Opinion Research (AAPOR) response rate computation 3 (RR3). The RR3 response rate allocates cases of unknown eligibility as follows:

RR3=eligible respondents/(eligible respondents + eligible nonrespondents + e*(unknown eligibility status)),
where e is the proportion of eligible households among households with known eligibility status, and is used as an estimate of the proportion of cases with unknown eligibility that are actually eligible nonrespondents in the denominator

In FoodAPS-1, an initial nonresponse bias analysis was performed as part of the process to select weighting variables. Mathematica conducted an initial analysis of the risk of nonresponse bias in FoodAPS-1, and this analysis is summarized in Chapter 2. Chapter 3 describes the analysis methods and results of the present NRBA. Finally, Chapter 4 presents the conclusions of the analysis.

In March 2016, the FoodAPS-1 base weights were revised (along with minor changes to disposition codes), and final weights were recreated under an alternative weighting process. The analyses described in Chapter 2 made use of the original weights, whereas the analyses in Chapter 3 reflect the revised weights. Chapter 4 reflects conclusions about nonresponse bias in estimates produced using the final revised weights.

Background 2

Prior to the evaluation reported in this document, analyses were performed by the previous contractor and ERS that provide some insight into potential nonresponse bias. The analyses were performed using the original weights. Therefore, some of the conclusions may no longer hold.

An initial NRBA was done by Mathematica to evaluate the relationship of over 53 auxiliary variables to response status and outcome measures. The auxiliary variables included area-level characteristics from the American Community Survey (ACS) and Census "hard-to-reach" file as well as household-level variables from the sampling frame, screener, and interviewer observations. To evaluate the relationship to response status, a classification tree and logistic regression analysis were processed. Separate models were fit for whether the household status (i.e., occupancy) was determined, the screener was completed, and the main study was completed. To evaluate the relationship of the auxiliary variables to outcome variables, a regression analysis was run. A separate model was fit for each of four key outcomes: whether the household reported any food acquisitions, number of food acquisitions (total), number of free acquisitions, and total paid for food.

Based on these analyses, 25 of the auxiliary variables were associated with both response status and one or more of the key outcome variables. The results suggest a risk of nonresponse bias prior to weighting adjustments. Section 6.3 of the FoodAPS User's Guide provides further information on the analysis, and a list of some of the variables that were found to be significantly related to both response status and key outcomes. The report does not give the resulting classification trees and regression parameter estimates, and does not include details on the methodology such as significance levels or whether weights were used. The classification tree analysis determined the cells used for the screener and main study weighting nonresponse adjustments.

Under the revised weighting process, an additional adjustment was done to account for those who were selected for the main study but did not give their initial agreement to continue. A classification tree analysis was also used to determine the cells for this adjustment. The analysis used the same method as the one described in this guide in Section 3.1.3, except target group weights (QG_ADJ_WGT scaled to sum to the sample size) were used instead of base weights.

As described in the FoodAPS Survey Design Report,[2] an additional regression analysis was performed by the previous contractor when selecting the original raking variables, with household characteristics as predictors and the following four dependent variables: total spent on food-at-home (FAH) food items, total spent on food-away-from-home (FAFH) purchases, number of FAFH acquisitions, and number of FAFH acquisitions that were paid for. They found the following to be significantly related to one or more of the dependent variables: whether respondent was Hispanic, income, receipt of Supplemental Nutrition Assistance Program (SNAP) benefits, household size, number of children in the household, and presence of a member age 60 or older. In addition, in the original weighting process, weighted estimates of the raking variables prior to raking were compared to control totals, and the following groups were determined to be underrepresented: Black and non-Hispanic households, households with no children, and households in the highest income category. This indicates potential nonresponse or undercoverage bias prior to weighting adjustments. The final raking adjustments for the revised weights calibrated the weights to Current Population Survey (CPS) control totals for race/ethnicity, income, SNAP participation, household size, number of children in the household, and presence of a person age 60 or over in the household.

A further benchmarking study has been performed by ERS in which final weighted estimates from FoodAPS-1 (using the original weights) are compared to estimates from other national-level surveys. The analysis is described in the bulletin: *Comparing National Food Acquisition and Purchase Survey (FoodAPS) Data With Other National Food Surveys' Data* (Clay, 2016). Differences between FoodAPS-1 estimates and reliable external estimates could provide an indication of nonresponse bias in the FoodAPS-1 estimates, although the differences could also be attributed to different ways of asking the questions, context effects, undercoverage bias, or other sources of error. The ERS report evaluates estimates related to general demographics and socio-economic characteristics, food expenditures, food security, SNAP participation and income, and diet behavior and health.

[2] This internal report, titled "The National Household Food Acquisition And Purchase Survey – Survey Design," was prepared by Cole et al. from Mathematica in 2015.

3 Analysis Methods and Results

The NRBA expands on the previous analysis described in Chapter 2 by separately analyzing nonresponse at each data collection stage and further evaluating nonresponse bias after weighting adjustments. It also makes use of the revised weights. Section 3.1 describes a basic analysis that evaluated the relationship of response status to auxiliary variables. The basic analysis gives an indication of potential nonresponse bias prior to weighting adjustments, to the extent that the auxiliary variables are related to the outcome of interest. Section 3.2 details a more extensive analysis that evaluated the relationship of the auxiliary variables to selected outcomes, analyzed the effect of the weighting adjustments, and attempted to assess the extent of nonresponse bias in the final estimates.

3.1 Basic Analysis

The basic NRBA compares those who responded to the survey with those who did not on auxiliary variables known for both respondents and nonrespondents. In FoodAPS-1, there are multiple stages of nonresponse, as described in Chapter 1. A sampled household could fail to respond to the screener (screener nonresponse), or the household could respond to the screener and be selected for the main study but not agree to participate in the study (agreement nonresponse). A household could also give agreement but fail to complete the Initial Interview (Initial Interview nonresponse), and a household that completed the Initial Interview may not complete the Final Interview (Final Interview nonresponse). These four stages are used in the basic analyses described below and are also referred to in some of the extended analyses. Note that the nonresponse is evaluated at each stage and is not cumulative: For example, the only households counted as nonrespondents at the Final Interview stage are the 186 households that completed the Initial Interview but did not complete the Final Interview. These 186 households are then compared to the 4,826 households that did complete the Final Interview for all Final Interview NRBAs.

Bivariate and multivariate analyses were performed. The bivariate basic analyses (response rate analysis and chi-square tests) assess the relationships between each selected auxiliary variable and the response status, looking at only one auxiliary variable at a time. This is useful information but does not account for potential relationships between auxiliary variables. The multivariate basic analyses

(classification trees) use all auxiliary variables available to identify the domains with the most differential response rates, as defined by combinations of the auxiliary variables.

3.1.1 Analysis Variables

Table 3-1 lists all variables used in the household-level NRBA by stage. A detailed table, including the variable name, a brief description of the variable, possible non-missing numeric values, and a list of the stage(s) at which the variable was used, is available in the Appendix (Table A-1). The auxiliary variables for the analysis of screener, agreement, and Initial Interview nonresponse are similar to those used in the previous analysis described in Chapter 2, as their list was fairly comprehensive, although we included two additional county-level variables related to food access. Table 3-1 also indicates whether the variable is similar to one used in the weighting adjustments.[3] If bias is found in an auxiliary variable not used in weighting, and that variable is not related to the weighting variables but is related to the outcome, then that could indicate bias in the outcome estimate. For the analysis of nonresponse between the Initial and Final Interview, a richer set of auxiliary data are available from the Initial Interview. We selected a subset of variables that we believed might be related to response status and food purchases.

All ACS variables are tract-level variables from the ACS 2009–13. The FoodAPS-1 data files have Census 2000 geography while the ACS 2009–13 is based on Census 2010 geography, so the census relationship file was used to determine the Census 2010 tract that best corresponds with the Census 2000 tract. All ACS variables are categorical variables identifying which quartile the household's census tract falls into. For example, a household with C_AVGHHSZE=1 is located in a census tract with average household size in the lowest 25 percent of all census tracts in the sample. Metropolitan statistical area (MeSA) status was taken from the February 2013 Census Core Based Statistical Area (CBSA) definition file, and county-level food access variables were obtained from ERS' Food Environment Atlas.

[3] The exact variables used in the screener and main study nonresponse adjustments were not available, nor was the exact definition of the nonresponse adjustment cells. Some of the variables may only have been used in a small number of cells as part of a high-level interaction.

Table 3-1. FoodAPS-1 variables used in household-level NRBA

Stage(s) used	Variable description
All stages	Sampling frame*, Source of address information*, Type of address**, Percent with low access to store (quartiles), ACS average household size (quartiles), ACS median age (quartiles), ACS median household income* (quartiles), ACS percent of households with children under 18 years old (quartiles), ACS percent of households with earnings* (quartiles), ACS percent of population 25 years and older with bachelor's degree or higher (quartiles), ACS percent of households linguistically isolated* (quartiles), ACS percent of population 25 years and older with less than a high school diploma**** (quartiles), ACS percent of housing units with multiple units**** (quartiles), ACS percent of population non-Hispanic Asian alone (quartiles), ACS percent of population non-Hispanic Black alone**** (quartiles), ACS percent of population non-Hispanic White alone**** (quartiles), ACS percent of households receiving public assistance income**** (quartiles), ACS percent of population 1 year old and older in poverty* (quartiles), ACS percent of housing units that are renter-occupied**** (quartiles), ACS percent of households receiving SNAP in last 12 months* (quartiles), ACS percent of households receiving Social Security income**** (quartiles), ACS percent of population unemployed**** (quartiles), ACS percent of housing units vacant**** (quartiles), ACS percent of population married* (quartiles), Percent with low income and low access to store (quartiles), Metropolitan Statistical Area****, Food and Nutrition Service Region**
Agreement and Initial Interview	How many people live in your household?**, Any income from wages, Income category, Currently receive SNAP?***, Gender of screener respondent (interviewer observation)***, Age group of screener respondent (interviewer observation)***, Screener respondent race=White (interviewer observation)***, Screener respondent race=Black /African American (interviewer observation)***, Screener respondent race=Hispanic (interviewer observation), English is primary household language***
Agreement, Initial Interview, and Final Interview	Quota group based on screener responses**
Final Interview only	Anyone in household is receiving benefits from WIC, Any child's school serves school breakfasts, Household has access to a car when one is needed, Average number of times household goes out for dinner during the week, Number of people at residence excluding guests, Anyone in household is receiving SNAP benefits, Number of males in household, Number of females in household, Number of kids in household, Any children age 0 to 5 in household, Any children age 6 to 12 in household, Any children age 13 to 17 in household, Any persons 65+ in household, Households with Hispanics

* A similar variable was used in the screener nonresponse adjustment.

**The variable was used in the initial agreement adjustment.

***A similar variable was used in the main study nonresponse adjustment.

****The variable (or a similar variable) was used in multiple nonresponse adjustments.

The screener and main study nonresponse adjustments used ACS variables at both the county and the census tract level, while all ACS variables used in this NRBA are at the census tract level. A variable is counted as "similar" if it was used at either the county or the tract level.

3.1.2 Bivariate Analysis

The basic bivariate NRBA, an analysis of response rates by subgroup (weighted and unweighted) and a weighted Rao-Scott chi-square test of independence between the distribution of respondents and nonrespondents for selected auxiliary variables, was performed for each of the four stages described in the introduction to Section 3.1: Screener, agreement, Initial Interview, and Final Interview. Response rates were calculated as the weighted American Association for Public Opinion Research (AAPOR) response rate computation 3 (RR3), which allocates cases with unknown eligibility by estimating the proportion of eligible cases in the following way:

$$RR3 = \frac{\text{eligible respondents}}{(\text{eligible respondents} + \text{eligible nonrespondents} + \text{e} * (\text{unknown eligibility status})}$$

In the formula above, e is the proportion of eligible households among households with known eligibility status, and is used as an estimate of the proportion of cases with unknown eligibility that are actually eligible nonrespondents in the denominator. In FoodAPS-1, 86% of households with known eligibility status were eligible, so e= 0.86 in the screener RR3 calculation. This assumes that if the eligibility status of all households were known, 86% of the unknown status households would be eligible, and would be classified as nonrespondents since they did not complete the screener. (This adjustment is only relevant at the screener stage, since eligibility status is known for all screener respondents.) The p-value of the chi-square test indicates whether or not the respondents and nonrespondents are significantly different with respect to that auxiliary variable.

Two weight variables were constructed. The weight used in the screener NRBA is the screener base weight with an adjustment for households with unknown eligibility. Housing units with unknown eligibility (i.e., unknown occupancy status) are treated as nonrespondents for this analysis, but their base weights were adjusted downward so they represent the proportion that is expected to be eligible. Ineligible housing units were excluded. The weight used for the agreement, Initial Interview, and Final Interview stages is the product of the screener base weight (CUM_ADDR_SAM_WGT), the estimated inverse probability that a household that completed the screener was selected for the main study (QG_ADJ), an adjustment for unknown target group (SCR_COMP_ADJ2), and an adjustment to account for 80 cases that were supposed to be excluded by the quota group subsampling but which nonetheless completed the study (NONSAMPLE_ADJ).

Standard errors were estimated via Taylor Series, with the revised variance strata and primary sampling units (PSUs) from March 2016. The revised strata and units were designed to take into account the implicit stratification from sorting the noncertainty PSUs.

For the response rate analysis, missing values were assigned the value 9 and response rates were calculated as for any other subgroup; for the comparisons of respondents to nonrespondents, including the chi-squared test, observations with missing values were excluded.

Results

A general summary of results at each stage is provided below; for details of the full NRBA results, see Tables A-2 – A-5 in the Appendix.

At the screener level (Table A-2), the weighted response rate was 71 percent. The chi-square tests show that screener respondents tend to live in census tracts that have a poorer and less educated population, with a higher proportion of White residents. Respondents are also more likely to live in a single-family home and be outside of a metro area than households that refused the screener or were unable to be contacted. In addition, households sampled from the SNAP sampling frame have a significantly higher response rate than those on the non-SNAP sampling frame.

The agreement stage analyses (Table A-3) show an overall weighted response rate of 78 percent. This means that of households that completed the screener and were selected for the main study, 78 percent agreed to participate in the main study. Significant differences were found between households that agreed to participate and households that refused on most auxiliary variables tested; notable exceptions are MeSA status and proportion low income/low access, which were significant at the screener level. In general, households that gave agreement were located in census tracts with higher levels of unemployment, more renters, more residents on SNAP, and areas with greater poverty and lower education. The effect of race is somewhat reversed from the screener stage: Households are more likely to agree to participate if the screener respondent was Black, as are households located in census tracts with larger proportions of Black residents. Finally, non-SNAP households with the highest income levels were much less likely to agree, while households in the SNAP quota group had a high agreement rate (over 91%).

Approximately 77 percent of households that agreed to participate in the study completed the Initial Interview (Table A-4). Households that received SNAP benefits were more likely to respond, as

were households in which the screener respondent was observed to be female, age 50 to 69, or White. Households in the SNAP quota group were again more likely to complete the Initial Interview, at a rate of 82 percent vs. approximately 76 percent for the non-SNAP quota groups. Relationships between response status and the ACS tract-level variables were largely not significant; however, households in census tracts with the largest percentages of persons with less than a high school diploma are significantly less likely to respond, as are households in census tracts where a low percentage of the population is White. Households in tracts in the lowest and highest quartiles of low income/low access population are also less likely to complete the Initial Interview after having given initial agreement.

There was very little nonresponse at the Final Interview stage: Approximately 97 percent of households that completed the Initial Interview also completed the Final Interview (Table A-5). Households in the SNAP sampling frame were significantly less likely to complete the Final Interview, with households in census tracts in the highest quartiles for percent of households with children and percent of population with less than a high school diploma somewhat less likely to respond. Households with 3 or more males or at least one Hispanic resident were also less likely to respond; however, even these groups maintain response rates around 94-95 percent.

These results suggest that nonresponse is most problematic among non-SNAP households, especially high-income non-SNAP households, because at each of the first three stages (which account for nearly all of the nonresponse) SNAP households had significantly higher response rates. Households in the poorest and least educated areas were more likely to respond to the screener and agree to participate but more likely to fail to complete the Initial and/or Final Interviews after agreement. Losing these households may be a concern for nonresponse bias if they are different on unmeasured factors: perhaps the incentives are more attractive to households in the poorest census tracts, but the households that fail to complete the Initial Interview after agreement tend to be busier (more children in the household, work longer hours, longer commutes), which could also affect their food acquisition habits. The analysis in Section 3.2.2 found that some of these auxiliary variables are related to outcome measures for FoodAPS-1. The SNAP status of the household and the area-level percent with less than a high school diploma have a moderate correlation (between 0.2 and 0.4) with food insecurity. However, weighting adjustments can help reduce this bias. The effect of the weighting adjustments is discussed in Section 3.2.1.

3.1.3 Multivariate Analysis

Multivariate NRBA was done via classification trees at the same four stages, using the rpart package in R. Classification trees determine combinations of auxiliary variables that can be used to separate cases into response status domains. These domains can be used to identify which multivariate subgroups have the lowest response rates and are, thus, at the highest risk for nonresponse bias. The response status variables used for the trees are identical to those in the basic analyses. Within each stage, the weights used were the weights used for the basic analyses scaled to the total sample size. Scaling was necessary so that significance levels would not be overstated; the classification algorithm does not correct for the complex sample design. For each tree, the minimum cell size was set to 50, and the complexity parameter threshold was specified as 0.001.

Missing values in categorical or ordinal auxiliary variables were treated as a separate category; however, the classification algorithm used tended to split off missing values separately, even when the subgroup formed was very small. If this occurred, the variable was treated as continuous (all affected variables were ordinal or binary). In the case of missing values on continuous auxiliary variables, the algorithm identified a non-missing proxy variable to use for classification.[4]

Results

In general, the classification trees are consistent with the bivariate results presented in the previous section. The complete trees can be found in Appendix A (Figures A-4 – A-6). The Final Interview tree is not provided because no tree was created; nonresponse at this stage was so low that the algorithm was unable to select any suitable classification variables. Although the focus of this analysis was to identify the subgroups with the lowest response rates, it is standard practice to report error rates associated with the trees. For 10 cross validations, the cross-validated error rates were 28.8 percent, 23.0 percent, and 23.2 percent, respectively for the screener, initial agreement, and Initial Interview trees.

At the screener level (Figure A-4), 21 cells were formed with response rates ranging from 85.7 percent to 26.4 percent. We found that census tract income quartile was the primary indicator

[4] For more information, in-depth documentation on the rpart R package used is accessible under: http://cran.r-project.org/web/packages/rpart/vignettes/longintro.pdf. A reference manual is also available at http://cran.r-project.org/web/packages/rpart/rpart.pdf.

of response status: Households in census tracts in the highest income category were less likely to respond (62% response rate vs. 74% over all other income categories). The lowest response rate was for the group in census tracts with the following characteristics:

- ACS median income not in the highest quartile;
- ACS percent married in the lowest two quartiles;
- Low income/low access population not in the highest quartile;
- ACS average household size in the lowest quartile;
- ACS percent of households linguistically isolated in the highest quartile; and
- In the Mid-Atlantic or Midwest Food and Nutrition Service (FNS) region.

At the agreement stage (Figure A-5), 12 cells were formed with response rates ranging from 85.0 percent to 31.9 percent. The interviewer observation of the screener respondent's age was the most important predictor of study agreement among households selected for the main study, with the highest response rate achieved when the respondent's age was known and less than 70. The lowest response rate was for the group with the following characteristics:

- Screener respondent age missing or 70 or older;
- ACS tract-level percent non-Hispanic White population in highest quartile;
- ACS tract-level percent receiving Social Security income, not in highest quartile;
- In the Mid-Atlantic, Midwest, or Mountains/Plains FNS region;
- Household size less than 4 or missing;
- ACS tract-level percent vacant in highest two quartiles.

Among households that agreed to participate in the main study (Figure A-6), the interviewer observation of the gender of the screener respondent is the primary predictor for completing the Initial Interview: 79 percent of households with a female respondent completed the Initial Interview, but only 74 percent of households in which a male completed the screener. Nine cells were formed with response rates ranging from 84.0 percent to 38.2 percent. The lowest response rate was found when the screener respondent was a White male, the household contained 5 or more members, and the household was in the Mid-Atlantic, Midwest, Northeast, Southeast, or Southwest FNS regions.

The very low nonresponse between the Initial Interview and Final Interview (97% response rate) meant that no informative classification tree could be developed at this stage.

These results are consistent with the findings in the bivariate analyses. We find again that households in the highest income census tracts are less likely to respond to the screener, and households are most likely to participate in the study when a female member completes the screener. Region appears as a predictor in all trees, but the effect varies by stage.

3.2 Extended Analysis

The basic analyses simply examine relationships between auxiliary variables and response status. Ideally, we would like to examine the relationship between the outcome variables and response status, but by definition we do not have outcomes from nonrespondents. The extended analyses are intended to essentially perform sensitivity testing on the outcome measures as a proxy for directly looking at that relationship. We look at the effect of each stage of nonresponse adjustment, check the correlations between the weighting variables and the outcomes, and assess whether incorporating an additional auxiliary variable might improve the weighting adjustments. Finally, we look at how the estimates change with additional contact attempts, estimate the potential range of nonresponse bias, and compute the fraction of missing information (FMI) as an indicator for the risk of non-ignorable nonresponse.

3.2.1 Comparison of Survey Estimates Before and After Weighting Adjustments

If weighting is effective in reducing nonresponse bias, one would expect that the weighted distribution of respondents after weighting adjustments would be similar to the distribution of the full eligible sample on auxiliary variables correlated with the outcomes of interest. The correlations between the auxiliary variables and the study outcomes are examined in the next section; this analysis only assesses whether the nonresponse adjustments are successfully reducing differences between the distribution of auxiliary variables for respondents and all eligible cases, including nonrespondents. If the adjustments are successful, we should see few variables with significant differences. Significant differences alone are not necessarily concerning, but differences on auxiliary variables that are *also* correlated with outcomes indicate potential problems with nonresponse bias.

We use a t-test to compare households eligible for screening to respondents on each auxiliary variable, using weights at five different stages. Estimates for eligible households are computed using the base weight adjusted for households with unknown eligibility (ELIG_DET_ADJ_WGT). This is compared to the following:

- Estimates for screener respondents using the unknown eligibility adjusted weight (ELIG_DET_ADJ_WGT);
- Estimates for screener respondents using the screener nonresponse adjusted weight (SCR_COMP_ADJ_WGT);
- Estimates for households selected for the main study using the main study selection-adjusted weight (QG_ADJ_WGT);
- Estimates for households giving initial agreement using the weight adjusted for households that did not give agreement (AGR_COMP_ADJ_WGT); and
- Estimates for final main study respondents using the main study nonresponse adjusted weight (STUDY_COMP_ADJ_WGT).

The third comparison (households selected for the main study) does not directly assess nonresponse bias since households are selected probabilistically at this stage, but it will allow us to distinguish whether any differences at the later stages are more likely to be due to nonresponse bias or to the sampling procedure. Because we are comparing to all eligible households, the only auxiliary variables available are those used in the screener stage for the basic NRBA; we cannot use auxiliary variables from screener responses or the main study.

Results

Results are summarized in Table 3-2. The full results are available in Tables A-6 – A-10 in the Appendix. There are differences on a relatively large proportion of subgroups before the screener nonresponse adjustment: Out of the 106 total subgroups defined by categories of auxiliary variables, significant differences were found in 25 (23.6%) before the screener nonresponse adjustment. However, after adjusting for screener nonresponse, only 10 (9.4%) subgroups are significantly different. This drops to 9 (8.5%) after adjusting for households that did not agree to the main study, and only 5 (4.7%) after the adjustment for study nonresponse, which is about what would be expected by chance when testing significance at the 5 percent level. This is also comparable to the 6 subgroup differences (5.7%) found at the selection stage. It seems that after accounting for all

stages of nonresponse, including main study nonresponse, the weights are quite effective at correcting differences between respondents and nonrespondents on the auxiliary variables tested.

At each stage, a higher percentage of respondents came from the SNAP frame than among all eligible cases. For the census tract-level characteristics, there were significant differences between the respondents and eligible sample in percentage on: SNAP, married, and non-Hispanic Asian population at four out of five stages of comparison, including after the main study adjustment. This suggests a potential for nonresponse bias to the extent that these variables are related to the outcome of interest. (Median income and percentage low income/low access showed significant differences at all stages except for the main study stage, indicating that the final weighting adjustment was likely effective for these variables). However, SNAP participation and race were used in the raking adjustments, which could help correct for this bias. In addition, the analysis in the next section indicates a relatively low (less than 0.2) correlation of these variables with four key outcome variables. The one exception is for the percentage on SNAP, which has a correlation of 0.31 with food insecurity.

Table 3-2. NRBA results, comparison before and after weighting adjustments

Subgroup	Significant difference between the eligible sample and…				
	Scr Resp before Scr NR adj	Scr Resp after Scr NR adj	Sel for MS after QG Sel adj	Initial Agr after Agr NR adj	MS Resp after MS NR adj
Sampling frame	✓	✓	*	✓	✓
Source of address information	✓	✓		✓	*
Type of address					
Percent with low access to store			✓		
ACS average household size			✓	✓	✓
ACS median age	✓	✓			
ACS median household income	✓	✓	*	✓	
ACS pct of households with children under 18 years old					
ACS pct of households with earnings					
ACS pct of population 25 years and older with bachelor's degree or higher	✓				
ACS pct of households linguistically isolated	✓				
ACS pct of population 25 years and older with less than a high school diploma		✓			
ACS pct of housing units with multiple units		✓			
ACS pct of population non-Hispanic Asian alone	✓	*		✓	✓
ACS pct of population non-Hispanic Black alone					✓
ACS pct of population non-Hispanic White alone					
ACS pct of households receiving public assistance income					
ACS pct of population 1 year old and older in poverty	✓	*		*	
ACS pct of housing units renter-occupied					
ACS pct of households receiving SNAP in last 12 months	✓		✓	✓	*
ACS pct of households receiving Social Security					
ACS pct of population unemployed		✓			
ACS pct of housing units vacant	✓	*	✓		
ACS pct of population married	✓	✓	*		*
Percent with low income & low access to store	✓	✓	✓	✓	
Metropolitan Statistical Area (MeSA)	✓				
FNS region			✓	✓	*
Total number of subgroups with a significant or marginally significant difference	25 sig, 3 marg	10 sig, 4 marg	6 sig, 4 marg	9 sig, 3 marg	5 sig, 4 marg

Note: ✓ denotes a variable with the t-test for at least one subgroup significant at 5 percent confidence level (after Bonferroni adjustment for multiple comparisons).

* denotes a variable with the t-test for at least one subgroup marginally significant at 10 percent confidence level (after Bonferroni adjustment for multiple comparisons), and no subgroups significant at the 5 percent level.

"Scr Resp before Scr NR adj" stands for screener respondents before the screener nonresponse adjustment; "Scr Resp after Scr NR adj" stands for screener respondents after the nonresponse adjustment; "Sel for MS after QG Sel adj" stands for households selected for main study after the quota group selection adjustment; "Initial Agr after Agr NR adj" stands for households giving initial agreement after the agreement nonresponse adjustment; and "MS Resp after MS NR adj" stands for main study respondents after the main study nonresponse adjustment.

3.2.2 Correlations of Auxiliary Variables and Outcome Variables

Because we have outcome data only for respondents, we cannot directly compare respondents and nonrespondents on outcome variables, nor can we make adjustments based on the outcomes. However, if the auxiliary variables used in weighting adjustments are correlated with the outcomes, it is reasonable to believe that reducing bias in such auxiliary variables will also reduce bias in the final estimates. This NRBA method involves running a weighted ANOVA model in SAS's PROC GLM to calculate the correlations between the auxiliary variables used in weighting and outcomes of interest for Final Interview respondents. High correlations indicate that the weighting adjustments potentially result in a high reduction of nonresponse bias; conversely, low correlations raise the concern that the variables used in weighting did not reduce nonresponse bias much. A caveat of this method is that we can only look at correlations within respondents: the correlation structure between the auxiliary variables and the (unobserved) outcomes among nonrespondents may be different.

The main auxiliary variables of interest include the raking dimensions (Race/ethnicity, Household size, SNAP status, Number of children in household, Age 60+ in household, and Income). The screener nonresponse adjustment factor (SCR_COMP_ADJ), the initial agreement adjustment factor (AGR_COMP_ADJ), and the study nonresponse adjustment factor (STUDY_COMP_ADJ) were also included and treated as class variables, serving as proxies for the adjustment cells that were not available for the screener and main study stages. The outcomes of interest were an indicator for food insecurity (defined as having low or very low food security, derived from ADLTFSCAT), total amount spent on food consumed at home events (derived from TOTALPAID for FAH), total spent on food away from home events (derived from TOTALPAID for FAFH), and total number of free events (derived from FREE for FAH and FAFH).

Additionally, we reviewed the correlations between the outcomes of interest and each of the auxiliary variables in Section 3.1.1, including those not used in weighting. As previously mentioned, if the auxiliary variables are related to response status and outcome, and not related to the other weighting variables, then this could be an indication of nonresponse bias. This could inform weighting decisions for future rounds of FoodAPS.

Results

The overall correlations in Table 3-3 between the weighting variables and the outcome variables are at a moderate level: all are between about 0.35 and 0.45, indicating that the cumulative effect of the weighting adjustments likely does reduce nonresponse bias to a certain extent. The nonresponse adjustment factors are moderately correlated (0.16 to 0.37) with outcomes, meaning that making these adjustments is important to reduce bias. Not surprisingly, the correlations between the raking variable for household size/number of children and the food total outcomes (FAH, FAFH, and Free) are among the largest. Income's correlations are at a moderate level with food security and FAFH, and at a low level with FAH and free events. SNAP status is the auxiliary variable most strongly correlated with food security status, while household size and number of children in household are the most relevant raking dimensions for FAH and free events. Number of children is particularly highly correlated with the number of free events; perhaps this is due in part to children who receive free school breakfasts and lunches.

Table 3-3. Correlations of weighting variables and outcome variables

Auxiliary variable	Food security	FAH	FAFH	Free events
Raking dimension: Race/Ethnicity	0.1826	0.1359	0.0733	0.0264
Raking dimension: Household size	0.0357	0.2822	0.1884	0.2668
Raking dimension: SNAP	0.3151	0.0409	0.1516	0.0959
Raking dimension: Number of children in household	0.0956	0.2157	0.0855	0.3430
Raking dimension: Age 60+ in household	0.1259	0.0524	0.0748	0.1756
Raking dimension: Income	0.1781	0.0887	0.1685	0.0211
Screener nonresponse adjustment cell	0.2446	0.2458	0.2239	0.1847
Initial agreement nonresponse adjustment cell	0.3746	0.1816	0.2278	0.1059
Main study nonresponse adjustment cell	0.1621	0.2175	0.1914	0.1697
OVERALL	**0.4071**	**0.4028**	**0.3469**	**0.4455**

Table 3-4 shows only the 12 auxiliary variables (out of the 53 tested) that had a correlation of 0.2 or higher with one or more outcome variables. The variables were all either used in weighting or are related to a variable used in weighting.

Table 3-4. Correlations of auxiliary variables and outcome variables

Auxiliary variable	Food security	FAH	FAFH	Free events
How many people live in your household?	0.0650	0.2951	0.1663	0.3143
Income category	0.3973	0.1431	0.2153	0.0431
Currently receive SNAP?	0.3096	0.0615	0.1575	0.085
Quota group	0.3965	0.1561	0.2197	0.0866
ACS percent of population 25 years and older with less than high school diploma	0.2016	0.0917	0.0985	0.0018
Number of people at residence, excluding guests	0.0585	0.3097	0.1951	0.3117
Anyone in household is receiving SNAP benefits	0.3152	0.041	0.1518	0.096
Number of males in household	0.0479	0.2283	0.1581	0.2097
Number of females in household	0.0652	0.2491	0.1271	0.2827
Number of kids in household	0.0821	0.2102	0.095	0.3298
Any children age 6 to 12 in household	0.0629	0.1614	0.0579	0.2502
Any children age 13 to 17 in household	0.0676	0.1429	0.1171	0.2515

Note: Correlations of 0.2 or higher are highlighted.

3.2.3 Comparison of Estimates from Alternative Weighting Adjustments

Although we have evidence that the current weighting adjustments reduce nonresponse bias reasonably well, we may be able to improve the adjustment even more by incorporating other available information. In this NRBA method, we select an auxiliary variable not used in weighting that may be related to the outcome(s) and re-calibrate the weights to known control totals for that variable. For FoodAPS-1, the relevant control totals are 2013 CPS household-level estimates.

Given ERS's concern that the distribution of children in the FoodAPS-1 sample may not reflect the distribution in the population, the new auxiliary variable used was an indicator for the presence of one or more child(ren) 11 years old or younger in the household. Although the number of children is already accounted for in the raking adjustments, the age of the children was not, and 11 years old is an important cutpoint because children 12 and older were asked to fill out their own food diaries while an adult filled out the diary for younger children. Control totals were taken from Table H2 of the household-level 2013 CPS estimates.[5]

[5] The table is available online at https://www.census.gov/hhes/families/data/cps2013H.html.

Results

For all four outcomes, the adjusted estimate was greater than the original weighted estimate, and the difference was significant, based on a *t*-test where the standard error of the difference accounts for covariance due to overlapping samples. Among FoodAPS-1 households, the weighted percentage of households with at least one child 11 years old or younger was 24.1 percent, compared to a CPS estimate of 28.9 percent of households nationally. This implies that the FoodAPS-1 sample has undercoverage of households with young children, or that such households are responding at a lower rate, which can contribute to bias in the FoodAPS-1 estimates. However, all differences were still quite small: just over $2 for FAH and less than 65 cents for FAFH. Number of free events had the largest relative change, but the increase was only a little over 0.1 free event. Including an indicator for presence of a child 11 years old or younger in the weighting adjustments may reduce bias slightly but does not dramatically change the final survey estimates.

Table 3-5. Comparison of original estimates with adjusted estimates (HH weight adjusted by presence of child 11 years old and younger)

Outcome	Original		Adjusted		Estimated difference	t-test p-value
	Mean	SE	Mean	SE		
Total paid on FAH events	105.724	2.9031	108.140	3.0049	-2.415	<0.0001
Total paid on FAFH events	56.518	1.6146	57.162	1.5983	-0.644	0.0007
Total number of free events	3.020	0.1354	3.146	0.1416	-0.126	<0.0001
Indicator for low or very low food security	0.160	0.0095	0.161	0.0096	-0.002	0.0713

3.2.4 Level of Effort

A strategy often used to evaluate nonresponse bias is to assume that late or hard-to-reach respondents are similar to nonrespondents. If the survey estimates for respondents who required many contact attempts are very different from those for households who responded on the first attempt, then we would be concerned that the nonrespondents may be very different from respondents. Conversely, if estimates do not change much across contact attempts, it may be possible to assume that response status is not related to the outcome and the amount of nonresponse bias is small.

We looked at the same four outcomes (FAH, FAFH, free events, and food security) by number of screener contact attempts overall, by quota group, and by Special Supplemental Nutrition Program

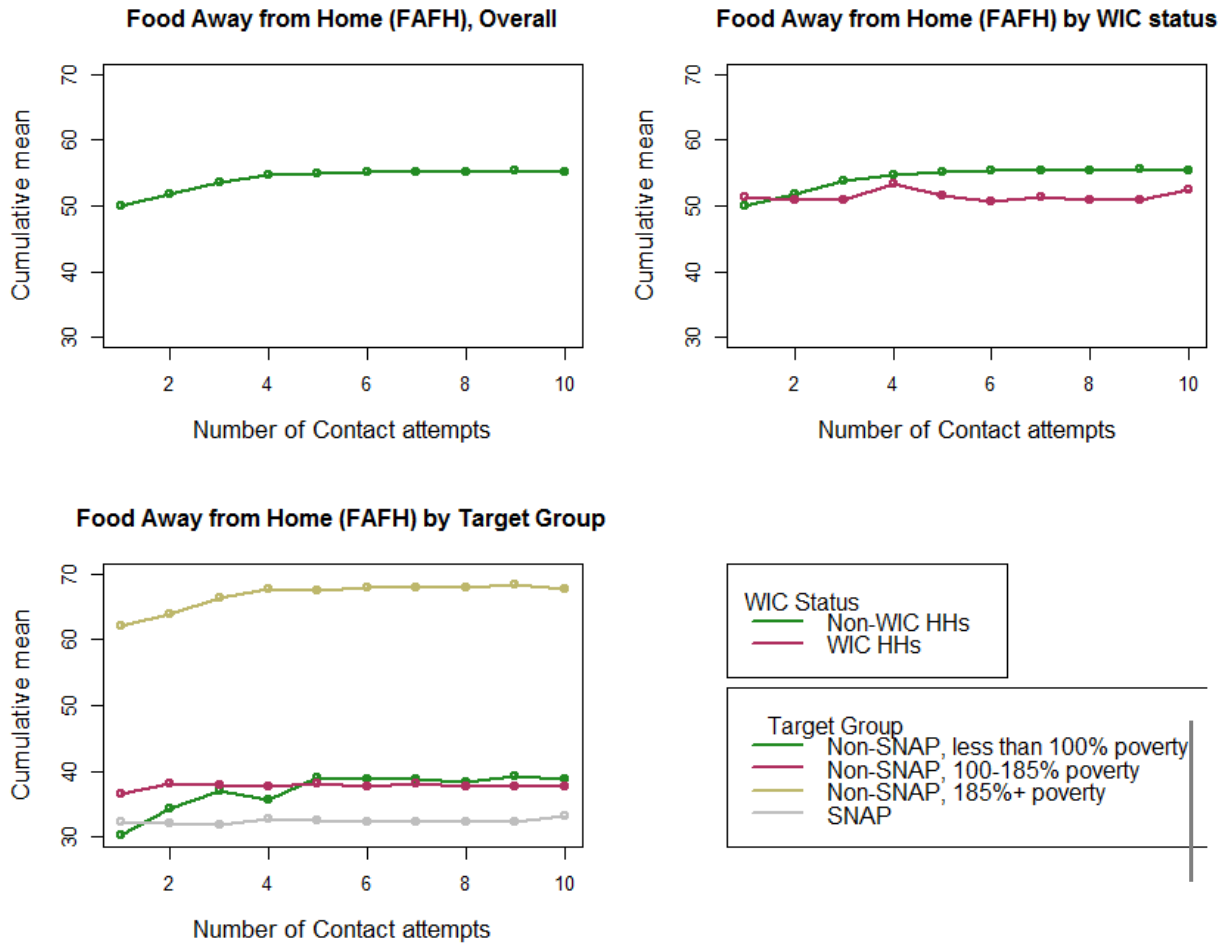
for Women, Infants, and Children (WIC) status (is anyone in the household receiving WIC?). All cases with 10 or more attempts were grouped into a single category due to small counts.

Results

The plots generated by this analysis show the change in the cumulative mean of each outcome by number of screener contact attempts; that is, it shows what the final survey estimate would have been if study protocol was to stop after that number of contact attempts. The ideal pattern is a relatively flat line, indicating that hard-to-reach households were similar to households that responded on the first attempt with respect to the outcome measure. Another typical pattern is to see substantial changes with the first few contact attempts, but the change levels off with more contact attempts. This is also acceptable because it indicates that there were likely enough contact attempts made. A trend at the maximum number of contact attempts, however, may indicate a problem with nonresponse bias. The plots for FAFH are shown in Figure 3-1, and the plots for the other three outcome measures are summarized here and available in the Appendix (Figures A-1 – A-3).

Both overall and by subgroups, this analysis does not reveal any serious problems with nonresponse bias. The plots of FAH have a slight downward trend, and FAFH tends to increase slightly with number of contact attempts, but the changes are relatively small. The estimates are more variable before six contact attempts, especially for the subgroups, suggesting that multiple contact attempts are important to reduce bias.

Figure 3-1. Level-of-effort plots, Food Away from Home



3.2.5 Range of Bias

The effectiveness of the nonresponse adjustments made in weighting depends on the assumption that the means of the outcome measures are similar between respondents and nonrespondents in each weighting cell. If this is true, then no bias is introduced by letting the respondents represent the nonrespondents in the final estimates. However, when nonrespondents differ from respondents in a way that is not accounted for within the weighting cells (perhaps FoodAPS-1 nonrespondents work longer hours, so they are both less likely to have time for the study and spend more on FAFH), nonresponse bias is introduced.

This analysis makes the assumption that nonrespondents and respondents are different within weighting cells, and compares the potential effects of various differences on the final estimates. If

varying the assumption has little impact on the estimates, then nonresponse bias is not as much of a concern; if the estimates change dramatically, then there is a high potential that any nonresponse bias could seriously impact the final estimates. We compare households that completed the final survey (respondents) to households that did not complete the final survey (nonrespondents). Weighting cells are defined by unique values of the main study nonresponse adjustment factor (STUDY_COMP_ADJ), resulting in a total of 37 cells.[6]

For the continuous outcomes (FAH, FAFH, and free events), we compare the final weighted means to the hypothetical estimates under the assumptions that the mean of the distribution for nonrespondents is only at the first quartile (25th percentile) of that for respondents, that it is at the median, and that it is at the third quartile (75th percentile), within each weighting cell. This approximates nonrespondents being at the low range of respondents, approximately equivalent, and at the high range. For the binary food insecurity indicator, we assume that the rate of food insecurity for nonrespondents is 0.75 times, equal to, or 1.25 times the rate for respondents within each weighting cell.

Results

The estimates show considerable changes for all four outcomes, indicating that the degree of nonresponse bias assumed could have a significant impact on the final estimates. The food security indicator is the least affected. Nonrespondents at the low range of respondents are much more problematic than at the high range, since the low range estimates (1st quartile/ 0.75) differ more from the current estimate than the high range estimates (3rd quartile/1.25). For example, if we assume a low number of free events for nonrespondents (at the 1st quartile of the values for respondents within the same weighting cell), then the overall mean number of free events would be 1.40 as opposed to the estimate of 3.02 using the FoodAPS-1 weights, indicating a potential bias of 1.62 in the FoodAPS-1 estimate.

The relevance of this analysis depends on how reasonable these assumptions are. If it is very likely that households that agreed to participate but never completed the Final Interview spend much less on FAH and FAFH than households that completed the Final Interview in the same weighting cell,

[6] The main study weighting cells of the screener and initial agreement nonrespondents are unknown, so they are assumed to be distributed evenly over the cells.

have far fewer free events, and/or are only 0.75 times as likely to be food insecure, then nonresponse bias is a major concern. If there is high confidence that the survey nonresponse adjustment factors group together households with very similar outcomes, then it is unlikely that respondents and nonrespondents are this different, and, therefore, the bias is probably small. We found a moderate amount of variation within the main study weighting cells for each outcome variable (which is consistent with the moderate correlations in Table 3-3), meaning that the low and high range estimates may be quite far from the cell mean and, therefore, may not represent reasonable values for the mean of nonrespondents.

Table 3-6. Sensitivity analysis

		Mean assuming the value for nonrespondents is at the specified quartile of that for respondents within the same cell		
Variable	Weighted mean	1st quartile	Median	3rd quartile
Total paid on FAH events	105.72	68.86	112.37	139.76
Total paid on FAFH events	56.52	29.94	57.05	72.43
Total number of free events	3.02	1.40	3.32	4.22
		Mean assuming the rate of food insecurity for nonrespondents is x times that for respondents within the same weighting cell, where x is...		
Variable	Weighted mean	0.75	1.00	1.25
Food insecurity indicator	18.92%	16.02%	18.84%	21.66%

3.2.6 Fraction of Missing Information

Nishimura, Wagner, and Elliott (2015) evaluated the use of the FMI as an indicator for the risk of nonresponse bias. The FMI is the proportion of the total variance of an estimate explained by the between-imputation variability. It can be used in the context of assessing unit nonresponse bias by imputing values of the key outcome variables for survey nonrespondents. The authors concluded that the FMI does not provide a good indication of the extent of nonresponse bias. However, the FMI can be biased when the missing at random (MAR) assumption is violated, so it may give some indication as to the mechanism of nonresponse (whether it is MAR or is non-ignorable). Specifically, if the FMI is greater than the nonresponse rate, this could indicate non-ignorable nonresponse. Typical weighting adjustments assume an MAR mechanism, meaning that the outcome is uncorrelated with response status after accounting for the auxiliary variables. If this assumption does not hold, there is non-ignorable nonresponse and the weighting adjustments will not be effective in reducing nonresponse bias in the outcome.

We focused on two key outcome variables for this analysis: FAH expenditures and food insecurity, as defined in the previous analyses. We first evaluated main study nonresponse by multiply-imputing values of the outcome for cases that gave initial agreement but did not complete the full survey. This was implemented in the SAS survey impute procedure with approximate Bayesian bootstrap hot-deck imputation using the main study nonresponse adjustment cells (as defined by STUDY_COMP_ADJ) as imputation cells and final respondents as donors. We then computed the mean and standard error of the outcome for each imputation using the SAS survey means procedure, with main study base weights (equal to CUM_ADDR_SAM_WGT * SCR_COMP_ADJ2 * NONSAMPLE_ADJ * QG_ADJ), and revised variance strata and variance units. The FMI was then estimated as:

$$FMI = \frac{\left(1+\frac{1}{M}\right)Var_B(\hat{\theta})}{Var(\hat{\theta})},$$

Where M is the number of imputations, $Var_B(\hat{\theta})$ is the between-imputation variance, and $Var(\hat{\theta}) = Var_W(\hat{\theta}) + (M+1)M^{-1}Var_B(\hat{\theta})$, where $Var_W(\hat{\theta})$ is the within-imputation variance. This was calculated using 100 imputations and then the process repeated with 10 imputations.

To evaluate nonresponse to the survey as a whole, this same process was repeated to perform multiple imputation for households that were nonrespondents to the screener or did not give their initial agreement. Final respondents again served as donors, but with the screener nonresponse adjustment cells (as defined by SCR_COMP_ADJ) as imputation cells for the screener nonrespondents and with initial agreement nonresponse adjustment cells (as defined by AGR_COMP_ADJ) as imputation cells for screener respondents that did not give their initial agreement. The imputed values were combined with those from the first imputation, and means and variances of the outcome variables were computed for the combined sample (screener nonrespondents, initial agreement nonrespondents, Initial Interview nonrespondents, Final Interview nonrespondents, and final respondents), along with the resulting FMI. Screener base weights were used for the screener nonrespondents and main study base weights for the other cases.

Results

The results of the analysis are shown in Table 3-7 and Table 3-8. When analyzing nonresponse over all stages, the FMI is consistently below the nonresponse rate, providing no evidence of non-

ignorable nonresponse. Looking at the main study only, the FMI exceeds the nonresponse rate for 100 imputations but is below the nonresponse rate for 10 imputations. The correlation analysis in Section 3.2.2 showed that the main study nonresponse adjustment cells were not as highly correlated with food insecurity and FAH expenditures as some of the other weighting variables. This analysis does not take into account the impact of the raking adjustment. In addition, it is unclear whether the results based on 100 imputations or 10 imputations provide a more reliable estimate of the FMI. Nishimura, Wagner, and Elliott (2015) states that a large number of imputations, perhaps as many as 200, may be needed to reliably estimate the FMI. However, the number of donors was an issue in imputing for screener nonresponse, where the number of nonrespondents greatly exceeded the number of donors in some cells. Therefore, with 100 imputations, the same donors are used repeatedly in our hotdeck imputation.

Table 3-7. FMI Results with 100 imputations

			Variance component				
Nonresponse	Outcome variable	Estimate	Between	Within	Total	FMI	Nonresponse rate
Main Study	Food insecurity	0.2066	3.30E-05	8.97E-05	1.23E-04	0.271	0.252
All	Food insecurity	0.2006	2.45E-05	6.21E-05	8.68E-05	0.284	0.585
Main Study	FAH	110.01	1.820	5.138	6.976	0.263	0.252
All	FAH	110.42	2.201	4.931	7.154	0.311	0.585

Table 3-8. FMI Results with 10 imputations

			Variance component				
Nonresponse	Outcome variable	Estimate	Between	Within	Total	FMI	Nonresponse rate
Main Study	Food insecurity	0.2097	1.38E-05	9.65E-05	1.12E-04	0.136	0.252
All	Food insecurity	0.2027	1.37E-05	5.92E-05	7.43E-05	0.203	0.585
Main Study	FAH	110.30	1.403	4.704	6.247	0.247	0.252
All	FAH	110.35	3.670	4.518	8.555	0.472	0.585

Conclusion 4

The magnitude of nonresponse bias in a survey estimate depends on the response rate and the extent to which the respondents and nonrespondents differ on the outcome of interest. The relatively low response rate of 42 percent in FoodAPS-1 suggests a higher potential for nonresponse bias. In addition, the respondents to FoodAPS-1 differed significantly from nonrespondents on several socio-economic characteristics. A main difference was that higher response rates were found to be associated with SNAP participation and lower income. However, these differences were largely reduced through the weighting process, especially in the nonresponse adjustments. In addition, the weighting variables were correlated with food insecurity, total amount spent on FAH events, total amount spent on FAFH events, and number of free events (correlations between approximately 0.35 and 0.45), suggesting that the weighting adjustments should also have reduced bias in these outcome estimates.

During the nonresponse adjustments, weighting classes are formed using characteristics that are known for both respondents and nonrespondents. The characteristics are related to the survey outcomes, and the weighting classes are formed such that the response rates vary between the classes. Within the classes, the assumption is that the nonrespondents are like the respondents in terms of the survey outcomes, and, therefore, the weights of the nonrespondents are transferred to the respondents. During the nonresponse adjustments, the weighting process is faced with a trade-off between bias reduction and limiting the variation in the weights. If the response rate varies across the classes, then the adjustment reduces the potential for bias; however, the variation of the weights increases among the respondents.

The FoodAPS-1 weighting process tended to focus more on reducing bias while allowing more variation in the weights. If the focus was more toward limiting the weight variation, then weighting classes would be combined whenever the adjustment factor for a particular class was larger than a maximum value. A separate report in this series (Krenzke and Kali, 2016) provides an evaluation of the different causes of weight variation, including nonresponse adjustments.

In general, no nonresponse bias analysis can rule out the possibility of nonresponse bias: the true extent of nonresponse bias is always unknown, since outcomes for nonrespondents are not available. The conclusions drawn in the extended analysis are also limited only to the four outcome variables examined; other outcomes of interest may have a greater potential for nonresponse bias. Subject to these caveats, the analysis did not indicate that nonresponse bias is a concern. There is relatively strong evidence that the weighting adjustments are effective in reducing the potential for bias in the four outcome variables examined in this report.

References

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Appendix A

Detailed Tables

Note: In the table below, the note "Recoded" means that missing values have been assigned the missing code 9; "truncated" means that the variable has been truncated at the maximum value given in the table.

Table A-1. FoodAPS-1 variables used in household-level NRBA

Variable name	Description	Values	Stage(s) used
FRAME	Sampling frame	1=SNAP 2=non-SNAP	All stages
ADDSOURCE	Source of address information	1=SNAP list 2=ABS list 3=Both sources 4=Field listed	All stages
ADDTYPE	Type of address	1=Single unit 2=Multi-unit	All stages
ACCESS	Percent with low access to store (quartiles)	1, 2, 3, 4	All stages
C_AVGHHSIZE	ACS average household size (quartiles)	1, 2, 3, 4	All stages
C_MED_AGE	ACS median age (quartiles)	1, 2, 3, 4	All stages
C_MED_INC	ACS median household income (quartiles)	1, 2, 3, 4	All stages
C_PCTCHILD	ACS percent of households with children under 18 years old (quartiles)	1, 2, 3, 4	All stages
C_PCTEARN	ACS percent of households with earnings (quartiles)	1, 2, 3, 4	All stages
C_PCTGEBA	ACS percent of population 25 years and older with bachelor's degree or higher (quartiles)	1, 2, 3, 4	All stages
C_PCTHH_LINGUISO	ACS percent of households linguistically isolated (quartiles)	1, 2, 3, 4	All stages
C_PCTLTHS	ACS percent of population 25 years and older with less than a high school diploma (quartiles)	1, 2, 3, 4	All stages
C_PCTMULTUNIT	ACS percent of housing units with multiple units (quartiles)	1, 2, 3, 4	All stages
C_PCTNHASI	ACS percent of population non-Hispanic Asian alone (quartiles)	1, 2, 3, 4	All stages
C_PCTNHBLK	ACS percent of population non-Hispanic Black alone (quartiles)	1, 2, 3, 4	All stages
C_PCTNHWHT	ACS percent of population non-Hispanic White alone (quartiles)	1, 2, 3, 4	All stages
C_PCTPAINC	ACS percent of households receiving public assistance income (quartiles)	1, 2, 3, 4	All stages
C_PCTPOV	ACS percent of population 1 year old and older in poverty (quartiles)	1, 2, 3, 4	All stages
C_PCTRENT	ACS percent of housing units that are renter-occupied (quartiles)	1, 2, 3, 4	All stages
C_PCTSNAP	ACS percent of households receiving SNAP in last 12 months (quartiles)	1, 2, 3, 4	All stages
C_PCTSSINC	ACS percent of households receiving Social Security income (quartiles)	1, 2, 3, 4	All stages
C_PCTUNEMP	ACS percent of population unemployed (quartiles)	1, 2, 3, 4	All stages
C_PCTVACANT	ACS percent of housing units vacant (quartiles)	1, 2, 3, 4	All stages

Table A-1. FoodAPS-1 variables used in household-level NRBA (continued)

Variable name	Description	Values	Stage(s) used
C_PCTWED	ACS percent of population married (quartiles)	1, 2, 3, 4	All stages
LI_ACCESS	Percent with low income and low access to store (quartiles)	1, 2, 3, 4	All stages
MESA_R	Metropolitan Statistical Area	1=Metro 2=Micro 3=non-Mesa	All stages
REGION	Food and Nutrition Service Region	1 = Mid-Atlantic 2 = Midwest 3 = Mountains/Plains 4 = Northeast 5 = Southeast 6 = Southwest 7 = West	All stages
Q7_R	How many people live in your household? (recoded, truncated)	1-6	Agreement, Initial Interview
Q9_1_R	Any income from wages (recoded)	1 = Yes, 0 = No	Agreement, Initial Interview
Q10_R	Income category (recoded)	1, 2, 3	Agreement, Initial Interview
Q11_R	Currently receive SNAP? (recoded, y/n)	1, 0	Agreement, Initial Interview
I1_R	Gender of screener respondent (recoded) – interviewer observation	1=Male, 2=Female	Agreement, Initial Interview
I2_R	Age group of screener respondent (recoded) – interviewer observation	1= 18-29 2= 30-49 3= 50-69 4= 70+	Agreement, Initial Interview
I3_1_R	Screener respondent race=White (recoded) – interviewer observation	1 = Yes, 0 = No	Agreement, Initial Interview
I3_2_R	Screener respondent race=Black / African American (recoded) – interviewer observation	1 = Yes, 0 = No	Agreement, Initial Interview
I3_3_R	Screener respondent race=Hispanic (recoded) – interviewer observation	1 = Yes, 0 = No	Agreement, Initial Interview
RLANGUAGE_R	English is primary household language (recoded)	1 = Yes, 0 = No	Agreement, Initial Interview

Table A-1. FoodAPS-1 variables used in household-level NRBA (continued)

Variable name	Description	Values	Stage(s) used
GROUP_R	Quota group based on screener responses (recoded)	1= NonSNAP HH, income <100% of the Federal Poverty Threshold (FPT) 2= NonSNAP HH, income 100-185% FPT 3= NonSNAP HH, income >=185% FPT 4= SNAP HH	Agreement, Initial Interview, and Final Interview
WICHH_R	Anyone in household receiving benefits from WIC (recoded)	1 = Yes, 2 = No	Final Interview
SCHSERVEBRKFST_R	Any child's school serves school breakfasts (recoded)	1 = Yes, 0 = No	Final Interview
CARACCESS_R	Household has access to a car when one is needed (recoded)	1 = Yes , 0 = No	Final Interview
NDINNERSOUTHH_R	Average number of times household goes out for dinner during the week (recoded, truncated)	0-4	Final Interview
HHSIZE_R	Number of people at residence, excluding guests (recoded)	1= 1 person 2= 2 people 3= 3-4 people 4= 5-6 people 5= 6+ people	Final Interview
SNAPNOWHH_R	Anyone in household is receiving SNAP benefits (recoded)	1 = Yes , 0 = No	Final Interview
MALE_CNT_R	Number of males in household (truncated)	0-3	Final Interview
FEMALE_CNT_R	Number of females in household (truncated)	0-3	Final Interview
KID_CNT_R	Number of kids in household (truncated)	0-2	Final Interview
KID0TO5_CNT_R	Any children age 0 to 5 in household	1 = Yes, 0 = No	Final Interview
KID6TO12_CNT_R	Any children age 6 to 12 in household	1 = Yes, 0 = No	Final Interview
KID13TO17_CNT_R	Any children age 13 to 17 in household	1 = Yes, 0 = No	Final Interview
ELDER_CNT_R	Any persons 65+ in household	1 = Yes, 0 = No	Final Interview
HISP_FLG	Households with Hispanics	1 = Yes, 0 = No	Final Interview

Table A-2. Basic bivariate NRBA results, screener stage

Variable	Subgroups	n	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
Overall		16,845	70.94	73.62	-	-	-	-	
Sampling frame									<.0001
	SNAP	3,174	79.99	80.40	8.60	0.90	5.29	0.67	
	non-SNAP	13,671	70.20	72.05	91.40	0.90	94.71	0.67	
Source of address information									0.0804
	SNAP list	385	80.76	80.69	1.16	0.16	0.72	0.14	
	ABS list	13,219	70.33	71.94	88.97	1.12	91.43	1.34	
	Both SNAP and ABS	2,790	79.77	80.30	7.44	0.82	4.59	0.59	
	Field listed	451	66.59	75.74	2.43	0.80	3.27	1.43	
Type of address									0.0023
	Single	12,444	72.47	74.74	78.40	2.07	72.36	3.63	
	Multi-unit	4,401	66.33	70.70	21.60	2.07	27.64	3.63	
Percent with low access to store									0.4526
	1st quartile	4,058	69.39	70.83	22.62	4.43	24.26	6.57	
	2nd quartile	5,676	70.25	73.98	33.65	6.51	34.84	8.35	
	3rd quartile	4,304	70.35	73.50	26.30	5.51	27.03	5.91	
	4th quartile	2,807	75.48	77.03	17.44	4.88	13.87	4.82	
ACS average household size									0.1429
	1st quartile	4,141	68.66	72.29	28.60	4.31	32.30	4.20	
	2nd quartile	4,273	74.11	76.00	26.01	2.32	22.18	2.88	
	3rd quartile	4,215	70.29	72.36	23.03	2.92	23.67	3.55	
	4th quartile	4,216	71.25	73.82	22.36	3.14	21.85	2.61	
ACS median age									0.6780
	1st quartile	4,195	73.45	77.14	20.11	2.56	18.05	2.85	
	2nd quartile	4,197	70.90	72.99	23.12	3.15	23.06	3.49	
	3rd quartile	4,245	70.37	73.13	26.41	2.69	27.04	3.41	
	4th quartile	4,208	69.97	71.32	30.36	4.13	31.84	4.23	
ACS median household income									<.0001
	1st quartile	3,954	76.65	78.30	22.26	2.67	17.12	2.46	
	2nd quartile	4,203	74.82	77.08	25.93	3.25	21.33	2.84	
	3rd quartile	4,302	72.65	74.78	27.06	2.34	24.75	3.13	
	4th quartile	4,386	61.79	65.00	24.76	2.88	36.80	3.92	

Table A-2. Basic bivariate NRBA results, screener stage (continued)

Variable	Subgroups	n	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
ACS percent of households with children under 18 years old									0.6725
	1st quartile	4,094	69.71	72.76	26.50	2.82	28.49	2.78	
	2nd quartile	4,200	71.47	73.54	27.80	2.54	27.09	3.12	
	3rd quartile	4,266	71.98	74.85	23.89	3.24	22.62	2.79	
	4th quartile	4,285	70.82	73.36	21.81	3.01	21.79	2.61	
ACS percent of households with earnings									0.3722
	1st quartile	4,021	73.63	76.59	27.78	3.09	24.75	3.29	
	2nd quartile	4,219	70.85	73.20	23.81	2.23	23.93	3.13	
	3rd quartile	4,310	70.59	73.03	25.24	2.01	25.49	2.30	
	4th quartile	4,295	68.41	71.82	23.17	3.16	25.82	3.94	
ACS percent of population 25 years and older with bachelor's degree or higher									<.0001
	1st quartile	4,122	76.68	78.87	27.49	2.79	20.73	2.99	
	2nd quartile	4,172	74.68	75.36	25.46	2.80	21.13	2.53	
	3rd quartile	4,301	69.99	72.43	23.25	2.97	24.15	3.12	
	4th quartile	4,250	62.88	67.98	23.80	2.94	33.99	4.32	
ACS percent of households linguistically isolated									0.1465
	1st quartile	4,168	73.16	75.68	29.22	5.23	26.27	4.94	
	2nd quartile	4,192	73.42	75.22	26.82	3.57	23.70	3.11	
	3rd quartile	4,231	67.32	71.38	24.41	3.41	28.85	3.72	
	4th quartile	4,254	69.23	72.21	19.55	3.43	21.18	3.65	
ACS percent of population 25 years and older with less than high school diploma									<.0001
	1st quartile	4,340	63.61	68.55	25.06	2.89	34.65	3.10	
	2nd quartile	4,292	73.92	74.89	27.25	2.87	23.34	2.68	
	3rd quartile	4,142	72.88	75.27	26.03	3.02	23.77	2.73	
	4th quartile	4,071	74.76	76.09	21.66	2.92	18.24	2.89	
ACS percent of housing units with multiple units									0.0159
	1st quartile	4,385	70.55	71.98	28.96	2.95	29.28	3.50	
	2nd quartile	4,269	72.82	76.89	26.78	3.15	24.33	4.05	
	3rd quartile	4,120	74.61	75.37	23.94	2.88	20.03	2.42	
	4th quartile	4,071	65.66	70.36	20.31	3.25	26.36	4.73	

Table A-2. Basic bivariate NRBA results, screener stage (continued)

Variable	Subgroups	n	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
ACS percent of population non-Hispanic Asian alone									<.0001
	1st quartile	4,087	77.18	78.57	27.76	3.39	20.24	2.95	
	2nd quartile	4,139	73.18	75.88	28.57	3.31	25.58	4.00	
	3rd quartile	4,286	70.50	74.37	22.98	2.11	23.39	2.45	
	4th quartile	4,333	61.84	65.86	20.69	3.00	30.79	4.57	
ACS percent of population non-Hispanic Black alone									0.0636
	1st quartile	4,297	73.76	74.94	33.19	3.14	28.78	3.37	
	2nd quartile	4,271	67.41	71.59	23.67	2.52	27.76	3.11	
	3rd quartile	4,205	70.61	74.81	23.04	2.50	23.39	2.95	
	4th quartile	4,072	71.27	73.20	20.10	2.86	20.07	2.86	
ACS percent of population non-Hispanic White alone									0.0210
	1st quartile	4,231	70.26	72.42	20.32	3.61	21.12	4.06	
	2nd quartile	4,207	67.62	71.15	21.99	2.61	25.74	3.18	
	3rd quartile	4,243	69.03	74.06	25.24	2.35	27.53	2.95	
	4th quartile	4,164	75.57	76.89	32.45	3.02	25.62	3.43	
ACS percent of households receiving public assistance income									0.2951
	1st quartile	4,255	68.07	71.65	24.63	2.39	28.10	3.62	
	2nd quartile	4,264	70.86	73.77	28.19	2.54	28.12	2.57	
	3rd quartile	4,301	72.94	74.04	25.60	2.30	23.24	2.76	
	4th quartile	4,025	72.27	75.19	21.58	2.94	20.53	3.14	
ACS percent of population 1 year old and older in poverty									0.0042
	1st quartile	4,448	64.96	67.90	26.86	3.60	34.97	4.02	
	2nd quartile	4,336	73.36	74.50	26.53	2.40	23.38	2.68	
	3rd quartile	4,155	72.54	75.35	25.62	3.37	23.81	3.23	
	4th quartile	3,906	74.80	77.51	20.99	2.36	17.85	2.37	

Table A-2. Basic bivariate NRBA results, screener stage (continued)

Variable	Subgroups	n	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
ACS percent of housing units that are renter-occupied									0.2892
	1st quartile	4,345	71.00	72.18	31.40	3.52	31.09	3.76	
	2nd quartile	4,311	71.73	75.09	27.11	2.44	26.05	2.83	
	3rd quartile	4,125	72.84	74.40	21.86	2.19	19.94	2.72	
	4th quartile	4,064	68.09	72.99	19.63	2.90	22.92	4.42	
ACS percent of households receiving SNAP in last 12 months									<.0001
	1st quartile	4,437	63.20	66.73	25.28	3.95	35.49	5.23	
	2nd quartile	4,280	73.05	74.19	26.72	2.77	23.92	3.72	
	3rd quartile	4,156	75.45	77.49	25.05	3.15	19.96	2.67	
	4th quartile	3,972	73.63	76.70	22.95	2.79	20.62	2.64	
ACS percent of households receiving Social Security income									0.0004
	1st quartile	4,258	65.84	70.62	20.87	2.80	26.33	4.10	
	2nd quartile	4,203	73.26	74.66	25.45	3.23	22.68	2.89	
	3rd quartile	4,271	68.78	72.01	24.34	3.14	26.85	3.59	
	4th quartile	4,113	74.92	77.31	29.34	3.12	24.15	3.45	
ACS percent of population unemployed									0.3206
	1st quartile	4,289	68.79	71.37	27.34	3.01	30.23	3.05	
	2nd quartile	4,192	70.56	73.42	25.13	2.31	25.55	2.32	
	3rd quartile	4,281	73.40	75.39	25.36	2.94	22.32	2.78	
	4th quartile	4,083	71.46	74.38	22.16	2.44	21.90	3.25	
ACS percent of housing units vacant									0.0103
	1st quartile	4,404	67.89	71.93	23.24	2.10	26.54	2.63	
	2nd quartile	4,421	67.14	70.63	23.90	3.04	28.27	2.81	
	3rd quartile	4,059	73.47	74.52	26.94	2.21	23.90	2.68	
	4th quartile	3,961	75.30	77.97	25.92	3.90	21.29	3.11	
ACS percent of population married									0.0976
	1st quartile	4,005	70.90	75.55	19.47	2.42	20.19	2.79	
	2nd quartile	4,264	68.35	72.49	21.45	2.60	24.19	3.27	
	3rd quartile	4,241	74.34	76.02	27.21	2.66	22.90	3.02	
	4th quartile	4,335	70.25	70.84	31.86	3.82	32.72	3.73	

Table A-2. Basic bivariate NRBA results, screener stage (continued)

Variable	Subgroups	n	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
Percent with low income and low access to store									0.0067
	1st quartile	5,881	65.47	67.72	32.19	5.38	41.16	6.70	
	2nd quartile	5,527	72.60	76.08	32.24	5.10	29.71	5.31	
	3rd quartile	4,411	72.95	75.74	27.32	5.49	24.75	5.79	
	4th quartile	1,026	82.72	84.47	8.25	1.94	4.38	1.31	
MeSA status									0.0050
	Metro	13,413	68.37	72.09	71.69	4.46	80.62	4.01	
	Micro	1,866	77.49	78.77	11.89	3.69	8.55	3.34	
	Non-MeSA	1,566	78.84	80.42	16.42	3.34	10.83	3.03	
FNS region									0.1147
	Mid-Atlantic	1,627	80.30	80.90	10.66	1.79	6.38	1.48	
	Midwest	3,121	69.76	71.46	25.61	4.69	27.15	4.57	
	Mountains/Plains	1,280	74.24	75.77	7.29	2.78	6.20	1.15	
	Northeast	1,787	67.34	71.77	8.97	1.44	10.58	2.60	
	Southeast	3,528	72.87	75.05	19.98	2.45	18.22	2.92	
	Southwest	1,878	75.44	77.35	11.12	2.42	8.96	2.95	
	West	3,624	63.65	69.01	16.37	2.13	22.50	3.51	

Table A-3. Basic bivariate NRBA results, agreement stage

Variable	Subgroups	n	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
Overall		7,650	78.14	83.31	-	-	-	-	
Sampling frame									<.0001
	SNAP	2,013	90.29	91.46	9.93	1.10	3.82	0.58	
	non-SNAP	5,637	77.00	80.40	90.07	1.10	96.18	0.58	
Source of address information									<.0001
	SNAP list	247	91.26	89.88	1.27	0.20	0.43	0.12	
	ABS list	5,440	76.75	80.09	87.45	1.36	94.70	0.89	
	Both SNAP and ABS	1,766	90.15	91.68	8.66	0.98	3.38	0.53	
	Field listed	197	86.39	88.83	2.62	0.81	1.48	0.72	
Type of address									<.0001
	Single	5,529	76.41	81.37	76.93	2.25	84.91	2.09	
	Multi-unit	2,121	84.53	88.35	23.07	2.25	15.09	2.09	
Percent with low access to store									0.4976
	1st quartile	1,805	76.51	82.60	21.37	4.32	23.46	4.92	
	2nd quartile	2,607	80.84	84.77	33.75	6.55	28.59	6.46	
	3rd quartile	1,958	77.02	83.76	27.72	5.59	29.56	7.65	
	4th quartile	1,280	76.94	80.63	17.16	5.13	18.39	5.60	
ACS average household size									0.1601
	1st quartile	1,839	80.03	83.85	28.47	4.23	25.38	3.47	
	2nd quartile	1,980	76.31	81.77	26.63	2.40	29.55	2.51	
	3rd quartile	1,806	75.44	81.17	21.80	2.91	25.37	3.73	
	4th quartile	2,025	80.75	86.22	23.10	3.49	19.69	3.39	
ACS median age									<.0001
	1st quartile	2,189	84.38	88.81	21.75	2.70	14.39	2.56	
	2nd quartile	1,956	82.40	86.20	24.20	3.07	18.47	4.00	
	3rd quartile	1,808	75.21	79.87	25.25	2.68	29.74	3.33	
	4th quartile	1,697	73.35	76.55	28.80	4.22	37.40	4.66	
ACS median household income									0.0002
	1st quartile	2,179	83.71	88.30	24.19	2.89	16.83	3.07	
	2nd quartile	2,034	80.79	84.56	25.52	3.12	21.68	3.09	
	3rd quartile	1,917	74.79	80.59	26.39	2.54	31.79	3.11	
	4th quartile	1,520	74.21	77.89	23.91	2.60	29.70	3.46	

Table A-3. Basic bivariate NRBA results, agreement stage (continued)

Variable	Subgroups	n	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
ACS percent of households with children under 18 years old									0.1908
	1st quartile	1,787	79.78	83.16	27.01	2.81	24.46	2.85	
	2nd quartile	1,922	75.24	79.86	27.15	2.54	31.93	3.54	
	3rd quartile	1,893	77.03	83.15	23.39	3.45	24.94	4.05	
	4th quartile	2,048	81.13	86.82	22.45	3.29	18.67	2.89	
ACS percent of households with earnings									0.5114
	1st quartile	1,934	79.95	84.07	27.46	3.10	24.61	3.41	
	2nd quartile	1,957	78.26	82.52	24.17	2.32	23.99	2.35	
	3rd quartile	1,900	76.18	82.58	25.32	2.10	28.29	3.14	
	4th quartile	1,859	78.11	84.08	23.06	3.24	23.11	4.15	
ACS percent of population 25 years and older with bachelor's degree or higher									0.2940
	1st quartile	2,283	81.10	85.98	28.68	2.79	23.89	3.48	
	2nd quartile	1,993	77.52	84.65	25.25	2.64	26.18	4.14	
	3rd quartile	1,842	76.49	80.67	22.61	2.85	24.85	3.71	
	4th quartile	1,532	76.98	80.74	23.46	2.77	25.08	3.74	
ACS percent of households linguistically isolated									0.0289
	1st quartile	1,856	76.24	81.47	28.39	4.93	31.64	7.58	
	2nd quartile	1,893	74.10	78.87	25.64	3.45	32.04	4.89	
	3rd quartile	1,790	79.91	83.69	24.43	3.35	21.96	4.38	
	4th quartile	2,111	84.27	88.58	21.54	4.10	14.37	2.77	
ACS percent of population 25 years and older with less than a high school diploma									0.0012
	1st quartile	1,626	77.15	80.38	24.44	2.88	25.87	2.77	
	2nd quartile	1,899	74.29	79.46	26.73	3.01	33.07	3.66	
	3rd quartile	1,906	77.10	82.84	24.71	3.08	26.24	3.11	
	4th quartile	2,219	85.34	89.14	24.12	3.28	14.81	3.48	
ACS percent of housing units with multiple units									<.0001
	1st quartile	1,763	71.55	77.94	26.43	2.86	37.56	4.33	
	2nd quartile	1,970	79.05	82.18	27.15	3.05	25.72	3.58	
	3rd quartile	1,978	81.85	85.54	24.80	2.86	19.66	2.81	
	4th quartile	1,939	81.92	87.06	21.62	3.39	17.06	3.77	

Table A-3. Basic bivariate NRBA results, agreement stage (continued)

Variable	Subgroups	n	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
ACS percent of population non-Hispanic Asian alone									0.0831
	1st quartile	2,094	80.77	84.34	28.92	3.44	24.61	3.77	
	2nd quartile	1,860	74.97	80.97	28.13	3.43	33.57	4.46	
	3rd quartile	1,991	79.45	84.08	23.33	2.21	21.58	2.92	
	4th quartile	1,705	77.60	83.70	19.62	3.14	20.24	3.24	
ACS percent of population non-Hispanic Black alone									0.0031
	1st quartile	1,860	74.32	78.28	30.98	3.70	38.27	3.97	
	2nd quartile	1,865	75.47	80.86	23.20	2.86	26.95	2.47	
	3rd quartile	1,946	79.55	84.94	23.36	2.57	21.46	3.19	
	4th quartile	1,979	85.77	88.73	22.45	3.45	13.31	2.17	
ACS percent of population non-Hispanic White alone									<.0001
	1st quartile	2,133	85.65	89.31	22.76	4.08	13.64	2.82	
	2nd quartile	1,865	81.72	85.52	23.45	2.61	18.75	2.62	
	3rd quartile	1,820	77.06	82.03	23.99	2.37	25.53	2.49	
	4th quartile	1,832	71.68	75.33	29.80	3.10	42.09	4.12	
ACS percent of households receiving public assistance income									0.0550
	1st quartile	1,783	79.52	84.07	25.52	2.88	23.49	2.92	
	2nd quartile	1,815	74.38	77.80	26.92	2.68	33.14	4.53	
	3rd quartile	2,032	76.92	84.06	24.68	2.43	26.47	3.04	
	4th quartile	2,020	82.87	86.83	22.87	3.32	16.90	3.04	
ACS percent of population 1 year old and older in poverty									0.0002
	1st quartile	1,559	72.71	75.50	24.23	3.30	32.50	4.25	
	2nd quartile	1,915	76.52	82.77	26.04	2.52	28.56	4.25	
	3rd quartile	2,048	78.33	82.91	26.52	3.62	26.22	3.89	
	4th quartile	2,128	86.71	89.90	23.21	2.51	12.72	2.28	

Table A-3. Basic bivariate NRBA results, agreement stage (continued)

Variable	Subgroups	n	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
ACS percent of housing units that are renter-occupied									<.0001
	1st quartile	1,735	70.57	75.39	28.23	3.42	42.08	5.00	
	2nd quartile	2,004	77.66	80.64	27.32	2.55	28.10	3.35	
	3rd quartile	1,872	83.66	86.97	23.19	2.31	16.19	2.39	
	4th quartile	2,039	84.80	89.31	21.26	3.10	13.62	3.15	
ACS percent of households receiving SNAP in last 12 months									<.0001
	1st quartile	1,566	75.62	79.50	23.45	3.70	27.02	4.63	
	2nd quartile	1,828	73.35	78.72	25.16	2.83	32.67	3.66	
	3rd quartile	2,108	79.54	84.44	26.28	2.99	24.16	3.60	
	4th quartile	2,148	84.75	88.87	25.12	2.85	16.15	2.71	
ACS percent of households receiving Social Security income									0.1505
	1st quartile	1,945	81.52	86.58	22.23	3.25	18.02	3.19	
	2nd quartile	1,964	80.21	85.34	25.45	2.98	22.44	4.29	
	3rd quartile	1,845	74.37	80.92	23.64	2.96	29.12	5.25	
	4th quartile	1,896	77.12	80.17	28.69	3.11	30.43	3.41	
ACS percent of population unemployed									0.0544
	1st quartile	1,704	75.27	78.64	26.35	3.17	30.95	4.97	
	2nd quartile	1,898	76.87	83.35	24.76	2.39	26.63	4.52	
	3rd quartile	1,967	77.75	82.51	25.28	2.92	25.86	3.05	
	4th quartile	2,081	83.59	87.84	23.61	2.70	16.57	2.63	
ACS percent of housing units vacant									0.0181
	1st quartile	1,828	77.35	82.06	22.06	2.26	23.09	2.91	
	2nd quartile	1,848	75.21	80.79	22.53	2.86	26.54	3.94	
	3rd quartile	1,966	77.08	84.33	28.34	2.35	30.12	3.09	
	4th quartile	2,008	82.70	85.76	27.07	3.42	20.24	4.06	
ACS percent of population married									0.0003
	1st quartile	2,027	84.96	88.80	21.48	2.69	13.60	2.45	
	2nd quartile	1,921	81.54	85.79	21.95	2.70	17.76	2.85	
	3rd quartile	2,040	77.68	82.11	27.87	2.63	28.62	4.37	
	4th quartile	1,662	71.94	75.21	28.70	3.75	40.02	5.18	

Table A-3. Basic bivariate NRBA results, agreement stage (continued)

Variable	Subgroups	n	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
Percent with low income and low access to store									0.5742
	1st quartile	2,416	78.77	83.36	31.22	5.29	30.08	6.09	
	2nd quartile	2,583	78.47	82.81	32.29	5.18	31.67	6.41	
	3rd quartile	2,055	76.09	82.97	27.72	5.43	31.14	7.01	
	4th quartile	596	81.52	86.41	8.77	2.07	7.11	1.79	
MeSA Status									0.3107
	Metro	5,966	78.25	83.49	72.69	4.47	72.23	5.28	
	Micro	889	81.96	84.93	11.85	3.93	9.32	3.54	
	Non-MeSA	795	74.98	80.13	15.46	3.35	18.44	3.80	
FNS region									0.0491
	Mid-Atlantic	808	71.81	75.50	10.31	1.74	14.47	3.13	
	Midwest	1,296	73.99	79.01	23.75	4.14	29.84	8.03	
	Plains	604	73.47	81.46	6.50	2.32	8.39	4.25	
	Northwest	684	76.73	79.82	8.32	1.55	9.02	1.61	
	Southeast	1,715	81.51	85.95	22.03	2.65	17.87	3.03	
	Southwest	1,025	86.34	90.24	13.16	2.59	7.44	2.34	
	West	1,518	81.43	85.77	15.91	2.33	12.97	2.20	
How many people live in your household?									0.0013
	1	1,516	75.82	77.37	20.02	0.87	22.75	1.54	
	2	2,170	75.69	80.78	32.07	0.97	36.71	2.19	
	3	1,352	81.71	86.61	18.61	0.79	14.84	1.35	
	4	1,239	76.20	84.34	15.64	0.79	17.40	2.13	
	5	704	84.42	89.49	7.70	0.50	5.06	0.85	
	6+	530	86.80	90.94	5.97	0.48	3.23	0.66	
	Missing	139	81.01	85.61	-	-	-	-	
Any income from wages									0.0289
	No	2,257	75.32	80.77	25.03	0.89	29.38	2.36	
	Yes	5,050	79.18	84.53	74.97	0.89	70.62	2.36	
	Missing	343	77.39	81.92	-	-	-	-	

Table A-3. Basic bivariate NRBA results, agreement stage (continued)

Variable	Subgroups	n	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
Income category									<.0001
	$0 to $14,999	2,307	86.73	87.95	20.70	1.52	11.32	1.13	
	$15,000 to $49,999	2,801	82.77	85.33	26.72	0.75	19.88	1.21	
	$50,000 and over	2,024	73.20	74.95	52.58	1.77	68.80	1.60	
	Missing	518	78.17	84.36	-	-	-	-	
Currently receive SNAP?									<.0001
	No	5,612	76.11	80.29	83.86	1.04	94.53	0.92	
	Yes	1,779	91.37	93.14	16.15	1.04	5.47	0.92	
	Missing	259	75.86	81.08	-	-	-	-	
Gender of screener respondent									0.0003
	Male	2,355	75.24	80.25	34.40	0.91	42.75	2.06	
	Female	4,667	81.23	85.77	65.60	0.91	57.25	2.06	
	Missing	628	68.93	76.43	-	-	-	-	
Age group of screener respondent									<.0001
	18-29	1,050	88.50	92.48	16.48	1.01	11.23	1.87	
	30-49	2,115	86.92	90.73	40.19	1.49	31.70	2.88	
	50-69	1,626	81.24	84.62	33.52	1.37	40.58	2.94	
	70+	559	75.73	75.31	9.82	0.62	16.50	2.05	
	Missing	2,300	66.29	73.30	-	-	-	-	
Screener respondent race=White									0.0288
	No	1,676	87.74	91.11	25.54	2.44	18.87	2.89	
	Yes	3,620	82.92	86.22	74.46	2.44	81.13	2.89	
	Missing	2,354	66.24	73.28	-	-	-	-	
Screener respondent race=Black									0.0017
	No	4,522	83.10	86.73	87.95	1.83	94.58	1.15	
	Yes	774	92.15	93.80	12.05	1.83	5.42	1.15	
	Missing	2,354	66.24	73.28	-	-	-	-	
Screener respondent race=Hispanic									0.1093
	No	4,295	83.17	86.64	84.30	4.04	90.20	2.51	
	Yes	1,001	89.44	92.61	15.70	4.04	9.80	2.51	
	Missing	2,354	66.24	73.28	-	-	-	-	

Table A-3. Basic bivariate NRBA results, agreement stage (continued)

Variable	Subgroups	n	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
English is primary household language									0.0686
	No	587	89.07	92.67	7.38	2.10	3.85	1.36	
	Yes	5,726	80.41	84.79	92.62	2.10	96.15	1.36	
	Missing	1,337	64.55	72.85	-	-	-	-	
Quota group based on screener responses									<.0001
	Non-SNAP HH, income <100% of Federal Poverty Threshold (FPT)	1,289	81.32	83.17	10.31	0.81	8.47	0.58	
	Non-SNAP HH, income 100%-185% of FPT	2,498	81.61	83.87	22.28	0.74	17.95	0.99	
	Non-SNAP HH, income 185%+ of FPT	2,062	72.95	74.10	51.51	1.80	68.29	1.67	
	SNAP HH (any income)	1,801	91.47	93.17	15.90	1.02	5.30	0.91	

Table A-4. Basic bivariate NRBA results, Initial Interview stage

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
Overall		6,373	77.38	78.64	-	-	-	-	
Sampling frame									0.1169
	SNAP	1,841	79.60	80.77	10.21	1.09	8.96	1.29	
	non-SNAP	4,532	77.14	77.78	89.79	1.09	91.04	1.29	
Source of address information									0.4533
	SNAP list	222	83.53	81.98	1.37	0.23	0.92	0.26	
	ABS list	4,357	76.90	77.67	86.91	1.51	89.30	1.35	
	Both SNAP and ABS	1,619	79.02	80.61	8.84	0.98	8.03	1.15	
	Field listed	175	84.99	80.57	2.88	1.09	1.74	1.01	
Type of address									0.6628
	Single	4,499	77.57	78.42	77.11	2.13	76.29	3.09	
	Multi-unit	1,874	76.76	79.19	22.89	2.13	23.71	3.09	
Percent with low access to store									0.2158
	1st quartile	1,491	75.86	76.46	20.95	4.20	22.81	5.15	
	2nd quartile	2,210	77.00	79.82	33.58	6.57	34.32	6.99	
	3rd quartile	1,640	76.16	77.50	27.29	5.63	29.22	5.94	
	4th quartile	1,032	81.99	81.10	18.18	5.33	13.66	4.52	
ACS average household size									0.0073
	1st quartile	1,542	76.35	79.96	28.09	4.10	29.76	5.15	
	2nd quartile	1,619	82.40	81.53	28.36	2.22	20.73	3.33	
	3rd quartile	1,466	75.19	77.08	21.18	3.02	23.91	3.00	
	4th quartile	1,746	74.93	76.12	22.37	3.36	25.60	4.21	
ACS median age									0.0431
	1st quartile	1,944	76.90	77.88	21.62	2.65	22.22	3.35	
	2nd quartile	1,686	76.35	78.59	23.87	3.12	25.30	3.60	
	3rd quartile	1,444	74.65	78.05	24.36	2.49	28.30	3.69	
	4th quartile	1,299	81.01	80.52	30.15	4.33	24.18	4.12	
ACS median household income									0.9181
	1st quartile	1,924	77.02	78.79	24.08	2.61	24.57	4.28	
	2nd quartile	1,720	77.13	78.43	25.43	3.19	25.80	3.92	
	3rd quartile	1,545	78.57	78.77	26.79	2.64	25.00	3.12	
	4th quartile	1,184	76.70	78.55	23.70	2.77	24.63	2.86	

Table A-4. Basic bivariate NRBA results, Initial Interview stage (continued)

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
ACS percent of households with children under 18 years old									0.2938
	1st quartile	1,486	78.98	80.96	27.57	2.77	25.10	3.83	
	2nd quartile	1,535	77.06	79.15	27.04	2.37	27.53	3.58	
	3rd quartile	1,574	78.65	79.54	23.78	3.43	22.08	4.03	
	4th quartile	1,778	74.52	75.48	21.62	3.20	25.29	3.78	
ACS percent of households with earnings									0.4032
	1st quartile	1,626	79.04	79.89	28.05	3.15	25.44	3.60	
	2nd quartile	1,615	78.74	80.74	24.59	2.37	22.72	2.71	
	3rd quartile	1,569	75.21	76.16	24.61	1.97	27.74	3.42	
	4th quartile	1,563	76.37	77.67	22.76	3.34	24.10	3.60	
ACS percent of population 25 years and older with bachelor's degree or higher									0.0753
	1st quartile	1,963	74.97	77.43	27.79	2.77	31.74	3.87	
	2nd quartile	1,687	78.75	78.42	25.69	2.80	23.72	2.89	
	3rd quartile	1,486	81.10	80.42	23.70	2.90	18.89	3.08	
	4th quartile	1,237	75.27	78.74	22.82	2.82	25.65	3.19	
ACS percent of households linguistically isolated									0.4789
	1st quartile	1,512	78.60	81.35	28.84	5.02	26.86	5.13	
	2nd quartile	1,493	77.63	79.04	25.72	3.54	25.36	3.77	
	3rd quartile	1,498	78.09	78.77	24.65	3.38	23.67	3.63	
	4th quartile	1,870	74.67	76.04	20.78	3.82	24.12	5.38	
ACS percent of population 25 years and older with less than high school diploma									0.0089
	1st quartile	1,307	77.13	79.34	24.36	2.94	24.70	3.27	
	2nd quartile	1,509	78.44	80.45	27.09	3.18	25.47	3.05	
	3rd quartile	1,579	81.14	81.57	25.92	3.45	20.60	2.38	
	4th quartile	1,978	72.60	74.47	22.63	3.29	29.22	3.51	
ACS percent of housing units with multiple units									0.6427
	1st quartile	1,374	79.08	78.09	27.01	2.96	24.44	3.19	
	2nd quartile	1,619	77.15	78.20	27.07	3.11	27.42	3.14	
	3rd quartile	1,692	76.43	79.20	24.49	3.11	25.84	2.96	
	4th quartile	1,688	76.68	78.97	21.42	3.26	22.29	4.16	

Table A-4. Basic bivariate NRBA results, Initial Interview stage (continued)

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
ACS percent of population non-Hispanic Asian alone									0.0995
	1st quartile	1,766	75.97	79.78	28.39	3.70	30.72	3.81	
	2nd quartile	1,506	81.32	80.94	29.57	3.68	23.23	3.27	
	3rd quartile	1,674	76.82	76.58	23.16	2.25	23.91	2.61	
	4th quartile	1,427	74.47	77.22	18.88	3.04	22.14	3.70	
ACS percent of population non-Hispanic Black alone									0.0287
	1st quartile	1,456	80.11	79.60	32.08	3.56	27.24	4.46	
	2nd quartile	1,508	73.33	76.06	21.99	2.81	27.36	3.51	
	3rd quartile	1,653	78.90	79.31	23.82	2.58	21.79	3.03	
	4th quartile	1,756	76.22	79.44	22.12	3.16	23.61	4.80	
ACS percent of population non-Hispanic White alone									0.0154
	1st quartile	1,905	72.77	75.12	21.40	3.66	27.40	5.75	
	2nd quartile	1,595	80.14	80.69	24.29	2.48	20.59	3.54	
	3rd quartile	1,493	75.61	78.77	23.44	2.38	25.87	2.76	
	4th quartile	1,380	80.16	81.01	30.87	3.04	26.13	3.79	
ACS percent of households receiving public assistance income									0.9977
	1st quartile	1,499	77.47	78.32	25.56	2.97	25.42	3.27	
	2nd quartile	1,412	77.57	78.68	26.99	2.59	26.70	3.65	
	3rd quartile	1,708	77.26	78.40	24.65	2.49	24.82	3.11	
	4th quartile	1,754	77.18	79.13	22.81	3.26	23.07	3.84	
ACS percent of population 1 year old and older in poverty									0.2519
	1st quartile	1,177	78.70	78.84	24.64	3.45	22.81	3.25	
	2nd quartile	1,585	75.87	78.30	25.53	2.49	27.78	2.96	
	3rd quartile	1,698	79.15	78.39	27.13	3.70	24.45	3.70	
	4th quartile	1,913	75.68	79.04	22.70	2.30	24.96	3.66	

Table A-4. Basic bivariate NRBA results, Initial Interview stage (continued)

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
ACS percent of housing units that are renter-occupied									0.2804
	1st quartile	1,308	80.18	79.43	29.25	3.51	24.74	3.52	
	2nd quartile	1,616	75.17	76.98	26.54	2.49	29.99	3.73	
	3rd quartile	1,628	77.13	80.10	23.12	2.25	23.45	3.38	
	4th quartile	1,821	76.78	78.25	21.10	2.96	21.82	3.98	
ACS percent of households receiving SNAP in last 12 months									0.5184
	1st quartile	1,245	78.29	79.20	23.72	3.85	22.50	3.55	
	2nd quartile	1,439	78.25	78.25	25.44	2.85	24.18	3.37	
	3rd quartile	1,780	78.07	78.93	26.51	2.91	25.48	4.01	
	4th quartile	1,909	74.93	78.31	24.32	2.70	27.84	4.00	
ACS percent of households receiving Social Security income									0.1365
	1st quartile	1,684	75.51	78.80	21.69	3.22	24.07	3.79	
	2nd quartile	1,676	76.12	76.67	25.03	2.80	26.87	4.12	
	3rd quartile	1,493	76.30	77.76	23.31	2.98	24.76	3.42	
	4th quartile	1,520	80.84	81.51	29.97	3.23	24.30	3.52	
ACS percent of population unemployed									0.9107
	1st quartile	1,340	76.81	77.61	26.16	3.27	27.02	3.53	
	2nd quartile	1,582	78.69	80.03	25.18	2.42	23.32	3.37	
	3rd quartile	1,623	76.98	78.37	25.14	2.73	25.72	4.27	
	4th quartile	1,828	77.08	78.45	23.52	2.63	23.93	3.93	
ACS percent of housing units vacant									0.2590
	1st quartile	1,500	77.78	77.60	22.18	2.29	21.68	2.75	
	2nd quartile	1,493	80.31	80.58	23.38	3.04	19.61	2.99	
	3rd quartile	1,658	74.34	77.74	27.22	2.37	32.15	3.23	
	4th quartile	1,722	77.81	78.75	27.22	3.50	26.56	4.31	
ACS percent of population married									0.7145
	1st quartile	1,800	76.79	80.50	21.32	2.51	22.04	3.95	
	2nd quartile	1,648	78.13	77.61	22.16	2.67	21.21	3.08	
	3rd quartile	1,675	76.17	77.13	27.44	2.73	29.37	3.00	
	4th quartile	1,250	78.43	79.36	29.09	3.55	27.37	4.90	

Table A-4. Basic bivariate NRBA results, Initial Interview stage (continued)

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
Percent with low income and low access to store									0.0419
	1st quartile	2,014	73.91	75.72	29.82	5.04	36.01	6.32	
	2nd quartile	2,139	80.83	82.37	33.73	5.27	27.37	5.34	
	3rd quartile	1,705	78.47	78.71	28.11	5.49	26.38	5.55	
	4th quartile	515	73.58	74.37	8.34	1.96	10.25	2.96	
MeSA status									0.5448
	Metro	4,981	77.40	78.94	72.71	4.63	72.63	4.88	
	Micro	755	79.99	79.87	12.25	4.03	10.48	3.83	
	Non-MeSA	637	75.29	74.88	15.04	3.08	16.89	4.78	
FNS region									0.8390
	Mid-Atlantic	610	80.71	80.33	10.76	2.00	8.80	2.48	
	Midwest	1,024	77.88	78.61	23.90	4.07	23.23	5.14	
	Mountains/Plains	492	79.59	80.49	6.69	2.46	5.87	1.92	
	Northeast	546	75.51	77.66	8.12	1.83	9.00	2.04	
	Southeast	1,474	77.32	79.65	22.02	2.33	22.09	4.50	
	Southwest	925	73.44	75.89	12.49	2.64	15.46	3.19	
	West	1,302	77.90	78.42	16.02	2.48	15.55	2.34	
How many people live in your household?									0.2355
	1	1,173	80.08	82.27	20.52	0.95	18.24	2.15	
	2	1,753	79.08	79.81	32.46	0.96	30.69	2.15	
	3	1,171	79.38	79.68	18.90	0.92	17.55	1.65	
	4	1,045	75.24	77.42	15.06	0.81	17.71	1.36	
	5	630	73.26	76.51	7.22	0.56	9.42	1.06	
	6+	482	76.61	79.25	5.85	0.47	6.38	1.14	
	Missing	119	36.41	35.29	-	-	-	-	
Any income from wages									0.0003
	No	1,823	82.54	84.09	26.40	1.05	20.12	1.36	
	Yes	4,269	76.86	77.65	73.60	1.05	79.88	1.36	
	Missing	281	57.61	58.36	-	-	-	-	

Table A-4. Basic bivariate NRBA results, Initial Interview stage (continued)

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
Income category									0.0842
	$0 to $14,999	2,029	80.62	80.14	21.43	1.56	18.14	1.83	
	$15,000 to $49,999	2,390	76.19	78.41	26.14	0.75	28.77	1.66	
	$50,000 and over	1,517	77.67	78.25	52.43	1.85	53.09	2.50	
	Missing	437	69.45	74.37	-	-	-	-	
Currently receive SNAP?									0.0117
	No	4,506	77.25	77.30	83.00	0.95	86.88	1.89	
	Yes	1,657	82.16	85.15	17.00	0.95	13.12	1.89	
	Missing	210	56.53	56.19	-	-	-	-	
Gender of screener respondent									0.0001
	Male	1,890	73.90	75.13	32.32	0.87	42.02	2.43	
	Female	4,003	81.11	81.96	67.68	0.87	57.98	2.43	
	Missing	480	63.06	64.79	-	-	-	-	
Age group of screener respondent									<.0001
	18-29	971	82.37	84.14	15.57	0.98	22.71	2.74	
	30-49	1,919	86.49	86.97	39.85	1.55	42.44	3.45	
	50-69	1,376	92.12	90.99	35.41	1.35	20.64	2.97	
	70+	421	81.46	84.09	9.17	0.67	14.22	1.96	
	Missing	1,686	52.14	54.57	-	-	-	-	
Screener respondent race=White									0.0045
	No	1,527	81.29	83.82	23.82	2.09	37.28	5.80	
	Yes	3,121	89.21	88.91	76.18	2.09	62.72	5.80	
	Missing	1,725	52.53	55.48	-	-	-	-	
Screener respondent race=Black									0.7567
	No	3,922	87.32	86.64	88.09	1.79	87.04	3.75	
	Yes	726	86.21	90.50	11.91	1.79	12.96	3.75	
	Missing	1,725	52.53	55.48	-	-	-	-	
Screener respondent race=Hispanic									0.0133
	No	3,721	88.02	88.39	85.11	3.85	78.78	5.63	
	Yes	927	82.67	82.63	14.89	3.85	21.22	5.63	
	Missing	1,725	52.53	55.48	-	-	-	-	

Table A-4. Basic bivariate NRBA results, Initial Interview stage (continued)

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
English is primary household language									0.2662
	No	544	76.79	72.61	7.13	2.13	8.36	2.20	
	Yes	4,855	79.72	81.71	92.87	2.13	91.64	2.20	
	Missing	974	64.65	66.74	-	-	-	-	
Quota group based on screener responses									0.0553
	Non-SNAP HH, income <100% of Federal Poverty Threshold (FPT)	1,072	75.56	74.72	10.07	0.79	11.14	1.17	
	Non-SNAP HH, income 100%-185% of FPT	2,095	75.21	76.61	21.65	0.71	24.42	1.78	
	Non-SNAP HH, income 185%+ of FPT	1,528	77.41	77.62	51.53	1.83	51.44	2.78	
	SNAP HH (any income)	1,678	81.51	84.62	16.75	0.92	13.00	1.88	

Table A-5. Basic bivariate NRBA results, Final Interview stage

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
Overall		5,012	96.73	96.29	-	-	-	-	
Sampling frame									0.0005
	SNAP	1,487	94.20	95.70	9.95	1.09	18.12	2.56	
	non-SNAP	3,525	97.02	96.54	90.05	1.09	81.88	2.56	
Source of address information									0.2129
	SNAP list	182	97.34	97.25	1.38	0.24	1.11	0.54	
	ABS list	3,384	97.16	96.51	87.30	1.42	75.40	6.08	
	Both SNAP and ABS	1,305	93.71	95.48	8.57	0.98	17.01	2.44	
	Field listed	141	92.64	97.16	2.76	1.02	6.48	5.07	
Type of address									0.7603
	Single	3,528	96.78	96.26	77.15	2.11	75.88	5.00	
	Multi-unit	1,484	96.55	96.36	22.85	2.11	24.12	5.00	
Percent with low access to store									0.8080
	1st quartile	1,140	97.26	96.40	21.07	4.22	17.54	4.86	
	2nd quartile	1,764	96.38	95.63	33.46	6.56	37.13	9.04	
	3rd quartile	1,271	96.56	96.14	27.24	5.63	28.71	7.75	
	4th quartile	837	97.01	97.73	18.23	5.32	16.63	8.03	
ACS average household size									0.1377
	1st quartile	1,233	97.26	96.51	28.24	4.22	23.51	4.78	
	2nd quartile	1,320	97.23	97.27	28.51	2.24	24.05	4.95	
	3rd quartile	1,130	97.02	96.46	21.24	3.09	19.32	3.25	
	4th quartile	1,329	95.16	94.96	22.01	3.40	33.12	5.08	
ACS median age									0.2145
	1st quartile	1,514	95.38	95.31	21.32	2.66	30.58	4.89	
	2nd quartile	1,325	96.81	96.30	23.89	3.14	23.25	4.50	
	3rd quartile	1,127	97.00	96.27	24.43	2.52	22.33	4.49	
	4th quartile	1,046	97.41	97.71	30.36	4.43	23.84	6.04	
ACS median household income									0.4266
	1st quartile	1,516	95.81	95.38	23.85	2.60	30.85	4.95	
	2nd quartile	1,349	96.55	96.07	25.38	3.25	26.87	4.75	
	3rd quartile	1,217	97.10	96.80	26.89	2.68	23.79	5.57	
	4th quartile	930	97.45	97.42	23.87	2.78	18.49	5.24	

Table A-5. Basic bivariate NRBA results, Final Interview stage (continued)

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
ACS percent of households with children under 18 years old									0.0611
	1st quartile	1,203	97.12	97.09	27.68	2.78	24.24	5.15	
	2nd quartile	1,215	97.43	97.12	27.23	2.32	21.29	5.73	
	3rd quartile	1,252	97.02	96.57	23.85	3.43	21.69	5.29	
	4th quartile	1,342	95.04	94.56	21.25	3.20	32.79	5.50	
ACS percent of households with earnings									0.7960
	1st quartile	1,299	97.19	96.77	28.18	3.19	24.12	4.43	
	2nd quartile	1,304	96.67	96.09	24.57	2.35	25.03	5.09	
	3rd quartile	1,195	96.61	95.56	24.58	1.97	25.48	4.35	
	4th quartile	1,214	96.35	96.71	22.67	3.32	25.37	6.36	
ACS percent of population 25 years and older with bachelor's degree or higher									0.3289
	1st quartile	1,520	95.86	95.26	27.54	2.79	35.18	5.52	
	2nd quartile	1,323	96.52	96.07	25.64	2.82	27.34	4.98	
	3rd quartile	1,195	97.54	96.74	23.90	2.92	17.84	4.33	
	4th quartile	974	97.19	97.64	22.93	2.79	19.65	5.97	
ACS percent of households linguistically isolated									0.0719
	1st quartile	1,230	98.07	97.24	29.24	5.08	17.04	4.51	
	2nd quartile	1,180	96.70	96.27	25.72	3.54	25.93	6.36	
	3rd quartile	1,180	97.07	96.78	24.74	3.46	22.12	5.85	
	4th quartile	1,422	94.51	95.08	20.30	3.65	34.90	9.61	
ACS percent of population 25 years and older with less than high school diploma									0.0638
	1st quartile	1,037	98.17	98.17	24.72	2.95	13.64	4.25	
	2nd quartile	1,214	96.49	96.21	27.03	3.17	29.11	6.42	
	3rd quartile	1,288	97.37	96.35	26.09	3.44	20.81	5.31	
	4th quartile	1,473	94.74	94.98	22.16	3.16	36.44	9.18	
ACS percent of housing units with multiple units									0.3230
	1st quartile	1,073	96.56	95.62	26.97	2.99	28.45	5.83	
	2nd quartile	1,266	96.15	95.81	26.91	3.06	31.88	7.26	
	3rd quartile	1,340	97.86	97.31	24.78	3.16	16.01	3.12	
	4th quartile	1,333	96.39	96.25	21.35	3.26	23.66	5.27	

Table A-5. Basic bivariate NRBA results, Final Interview stage (continued)

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
ACS percent of population non-Hispanic Asian alone									0.2981
	1st quartile	1,409	96.41	96.24	28.29	3.69	31.21	7.40	
	2nd quartile	1,219	97.70	96.80	29.86	3.77	20.76	5.50	
	3rd quartile	1,282	95.82	95.94	22.95	2.28	29.59	4.47	
	4th quartile	1,102	96.81	96.19	18.90	3.05	18.44	4.25	
ACS percent of population non-Hispanic Black alone									0.8524
	1st quartile	1,159	96.89	96.46	32.13	3.60	30.54	7.23	
	2nd quartile	1,147	96.75	96.69	21.99	2.83	21.87	3.75	
	3rd quartile	1,311	96.98	95.88	23.88	2.62	22.03	4.70	
	4th quartile	1,395	96.22	96.20	22.00	3.13	25.55	6.56	
ACS percent of population non-Hispanic White alone									0.0260
	1st quartile	1,431	95.01	94.90	21.02	3.62	32.70	6.27	
	2nd quartile	1,287	95.90	96.04	24.08	2.52	30.42	5.88	
	3rd quartile	1,176	97.56	97.36	23.64	2.38	17.46	4.42	
	4th quartile	1,118	97.94	97.23	31.25	3.13	19.42	5.10	
ACS percent of households receiving public assistance income									0.4200
	1st quartile	1,174	96.02	96.17	25.37	2.94	31.14	6.76	
	2nd quartile	1,111	97.13	96.22	27.10	2.58	23.67	5.46	
	3rd quartile	1,339	97.39	96.94	24.81	2.53	19.67	3.84	
	4th quartile	1,388	96.34	95.82	22.72	3.25	25.52	5.59	
ACS percent of population 1 year old and older in poverty									0.3053
	1st quartile	928	97.66	97.09	24.88	3.48	17.60	4.70	
	2nd quartile	1,241	96.51	96.45	25.47	2.50	27.24	5.92	
	3rd quartile	1,331	96.87	96.54	27.17	3.73	25.94	5.59	
	4th quartile	1,512	95.79	95.44	22.48	2.29	29.22	4.28	

Table A-5. Basic bivariate NRBA results, Final Interview stage (continued)

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
ACS percent of housing units that are renter-occupied									0.7057
	1st quartile	1,039	97.14	97.21	29.37	3.59	25.54	5.52	
	2nd quartile	1,244	96.52	95.66	26.48	2.50	28.24	4.80	
	3rd quartile	1,304	96.96	96.47	23.17	2.27	21.51	4.19	
	4th quartile	1,425	96.17	96.00	20.97	2.95	24.72	5.11	
ACS percent of households receiving SNAP in last 12 months									0.1487
	1st quartile	986	97.55	97.36	23.92	3.87	17.77	5.55	
	2nd quartile	1,126	96.90	96.71	25.49	2.88	24.10	5.54	
	3rd quartile	1,405	97.13	96.58	26.62	2.94	23.23	4.59	
	4th quartile	1,495	95.31	94.98	23.97	2.74	34.89	4.94	
ACS percent of households receiving Social Security income									0.4079
	1st quartile	1,327	96.18	96.16	21.57	3.23	25.31	5.22	
	2nd quartile	1,285	96.16	95.88	24.89	2.80	29.39	5.00	
	3rd quartile	1,161	97.20	96.38	23.42	3.00	19.98	3.99	
	4th quartile	1,239	97.24	96.77	30.12	3.26	25.32	4.87	
ACS percent of population unemployed									0.5211
	1st quartile	1,040	97.50	97.12	26.37	3.33	19.99	4.21	
	2nd quartile	1,266	96.70	96.37	25.17	2.41	25.39	5.87	
	3rd quartile	1,272	96.12	95.99	24.99	2.76	29.85	5.72	
	4th quartile	1,434	96.56	95.89	23.48	2.61	24.76	4.76	
ACS percent of housing units vacant									0.8771
	1st quartile	1,164	96.51	96.05	22.13	2.32	23.64	4.71	
	2nd quartile	1,203	97.20	96.76	23.49	3.10	20.05	4.60	
	3rd quartile	1,289	96.56	96.43	27.18	2.41	28.62	4.33	
	4th quartile	1,356	96.67	95.94	27.20	3.54	27.70	6.03	
ACS percent of population married									0.2761
	1st quartile	1,449	96.34	96.07	21.23	2.52	23.83	4.07	
	2nd quartile	1,279	95.58	95.86	21.89	2.64	29.98	5.92	
	3rd quartile	1,292	97.23	96.44	27.58	2.81	23.22	4.72	
	4th quartile	992	97.42	96.98	29.30	3.61	22.97	6.43	

Table A-5. Basic bivariate NRBA results, Final Interview stage (continued)

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
Percent with low income and low access to store									0.2224
	1st quartile	1,525	97.31	96.59	30.00	5.09	24.54	5.92	
	2nd quartile	1,762	97.12	96.54	33.86	5.25	29.72	7.46	
	3rd quartile	1,342	95.56	95.45	27.77	5.50	38.20	7.55	
	4th quartile	383	97.05	96.87	8.37	1.93	7.54	3.81	
MeSA status									0.4006
	Metro	3,932	97.15	96.67	73.03	4.57	63.41	9.44	
	Micro	603	95.21	94.53	12.05	4.02	17.95	4.82	
	Non-MeSA	477	95.95	95.39	14.92	3.22	18.65	6.96	
FNS region									0.0713
	Mid-Atlantic	490	97.00	96.12	10.79	2.15	9.88	3.61	
	Midwest	805	98.80	97.76	24.42	4.17	8.77	3.18	
	Mountains/Plains	396	95.79	96.72	6.62	2.42	8.62	4.10	
	Northeast	424	97.43	97.88	8.18	1.91	6.37	1.64	
	Southeast	1,174	96.85	96.51	22.04	2.29	21.23	5.57	
	Southwest	702	92.90	94.30	12.00	2.48	27.13	8.96	
	West	1021	96.33	95.49	15.95	2.45	18.00	5.04	
Quota group based on screener responses									0.1125
	Non-SNAP HH, income <100% of Federal Poverty Threshold (FPT)	792	93.54	95.76	9.74	0.73	19.91	6.49	
	Non-SNAP HH, income 100%-185% of FPT	1,569	96.50	95.83	21.60	0.71	23.16	3.28	
	Non-SNAP HH, income 185%+ of FPT	1,160	97.69	97.55	52.04	1.79	36.44	6.07	
	SNAP HH (any income)	1,411	96.00	96.06	16.62	0.91	20.50	3.56	
Anyone in household receiving benefits from WIC?									0.8630
	Yes	474	96.90	97.26	5.86	0.45	5.56	1.68	
	No	4,536	96.73	96.21	94.14	0.45	94.44	1.68	
	Missing	2	75.96	50.00	-	-	-	-	

Table A-5. Basic bivariate NRBA results, Final Interview stage (continued)

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
Any child's school serves school breakfasts?									0.2239
	No	387	97.57	96.64	24.45	1.26	16.36	6.19	
	Yes	1,424	96.04	95.58	75.55	1.26	83.64	6.19	
	Missing	3,201	96.88	96.56	-	-	-	-	
Household has access to a car when one is needed									0.9179
	No	229	96.87	96.51	2.68	0.54	2.57	1.19	
	Yes	4,783	96.73	96.28	97.32	0.54	97.43	1.19	
Average number of times household goes out for dinner during the week									
	0	1,625	97.01	96.62	35.57	1.87	31.23	5.45	0.1090
	1	1,355	97.03	95.94	37.54	1.44	32.71	4.98	
	2	541	96.10	96.30	15.55	1.09	17.94	4.07	
	3	250	92.61	93.20	6.50	0.65	14.78	3.60	
	4+	198	97.63	96.97	4.84	0.53	3.34	1.50	
	Missing	1,043	97.18	96.84	-	-	-	-	
Number of people at residence, excluding guests									0.3832
	1 person	1,057	97.20	96.88	21.78	0.98	18.56	5.13	
	2 people	1,379	96.67	96.95	31.61	0.82	32.25	4.06	
	3-4 people	1,703	97.06	96.54	33.55	1.17	30.05	4.06	
	5-6 people	686	95.69	94.17	10.44	0.83	13.90	3.66	
	6+ people	187	93.65	93.58	2.61	0.34	5.24	1.60	
Anyone in household receiving SNAP benefits									0.2383
	No	3,368	96.87	96.29	81.06	1.16	77.44	3.41	
	Yes	1,642	96.13	96.29	18.94	1.16	22.56	3.41	
	Missing	2	100.00	100.00	-	-	-	-	
Number of males in household									0.0214
	0	907	98.32	97.46	16.77	0.96	8.47	1.98	
	1	2,199	96.56	96.77	50.03	1.41	52.73	3.66	
	2	1,156	96.63	95.59	21.56	0.81	22.26	3.34	
	3+	750	95.42	94.53	11.64	0.72	16.54	2.81	

Table A-5. Basic bivariate NRBA results, Final Interview stage (continued)

Variable	Subgroups	N	Response rate		Respondents		Nonrespondents		p-value
			Wtd	Unwtd	%	SE	%	SE	
Number of females in household									0.4666
	0	591	95.57	95.43	12.41	0.61	17.02	4.57	
	1	2,321	97.12	96.90	50.35	0.97	44.14	4.57	
	2	1,217	96.55	95.89	23.20	0.74	24.53	2.98	
	3+	883	96.67	95.81	14.04	0.65	14.31	3.09	
Number of children in household									0.6181
	0	2,751	96.81	96.55	60.21	1.32	58.70	4.04	
	1	884	96.18	96.15	16.55	0.86	19.46	2.57	
	2+	1,377	96.92	95.86	23.24	0.99	21.85	4.25	
Any children age 0 to 5 in household?									0.4228
	No	3,877	96.65	96.29	81.52	0.91	83.69	2.46	
	Yes	1,135	97.10	96.30	18.48	0.91	16.31	2.46	
Any children age 6 to 12 in household?									0.8641
	No	3,800	96.75	96.47	79.28	0.90	78.70	3.72	
	Yes	1,212	96.64	95.71	20.72	0.90	21.30	3.72	
Any children age 13 to 17 in household?									0.2408
	No	4,080	96.88	96.57	83.62	0.95	79.55	3.84	
	Yes	932	95.95	95.06	16.38	0.95	20.45	3.84	
Any persons 65+ in household?									0.3679
	No	3,971	96.95	96.40	77.41	1.11	72.05	6.11	
	Yes	1,041	95.98	95.87	22.59	1.11	27.95	6.11	
Households with Hispanics									0.0361
	No	3,855	97.33	96.71	82.52	3.11	66.87	9.18	
	Yes	1,157	93.98	94.90	17.48	3.11	33.13	9.18	

Table A-6. Comparison of survey estimates, eligible cases vs. screener respondents, with base weights only

Variable	Subgroups	All eligible cases %	All eligible cases SE	Screener respondents (before Scr NR adj) %	Screener respondents (before Scr NR adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
Sampling frame								
	SNAP	7.64	0.81	8.55	0.90	-0.91	<0.0001	0.0250
	non-SNAP	92.36	0.81	91.45	0.90	0.91	<0.0001	0.0250
Source of address information								
	SNAP list	1.03	0.14	1.14	0.16	-0.12	<0.0001	0.0125
	ABS list	89.80	1.02	88.97	1.12	0.83	0.0099	0.0125
	Both SNAP and ABS	6.62	0.73	7.41	0.81	-0.79	<0.0001	0.0125
	Field listed	2.56	0.82	2.48	0.80	0.08	0.7870	0.0125
Type of address								
	Single	77.28	2.39	77.41	2.24	-0.13	0.6767	0.0250
	Multi-unit	22.72	2.39	22.59	2.24	0.13	0.6767	0.0250
Percent with low access to store								
	1st quartile	23.26	5.02	23.00	4.61	0.26	0.6845	0.0125
	2nd quartile	33.66	6.92	33.31	6.52	0.35	0.6647	0.0125
	3rd quartile	26.50	5.53	26.51	5.47	-0.01	0.9797	0.0125
	4th quartile	16.58	4.86	17.18	4.86	-0.60	0.2648	0.0125
ACS average household size								
	1st quartile	29.40	4.12	29.15	4.25	0.24	0.6556	0.0125
	2nd quartile	25.03	2.36	25.57	2.33	-0.54	0.2476	0.0125
	3rd quartile	23.39	2.97	23.01	2.91	0.38	0.4226	0.0125
	4th quartile	22.18	2.93	22.27	3.10	-0.08	0.8096	0.0125
ACS median age								
	1st quartile	19.36	2.49	20.63	2.59	-1.27	0.0003	0.0125
	2nd quartile	23.15	3.16	23.20	3.13	-0.05	0.9036	0.0125
	3rd quartile	26.95	2.76	26.25	2.66	0.70	0.1678	0.0125
	4th quartile	30.54	3.97	29.93	4.05	0.61	0.3341	0.0125
ACS median household income								
	1st quartile	20.56	2.47	22.27	2.64	-1.71	0.0001	0.0125
	2nd quartile	24.43	3.00	25.68	3.19	-1.25	0.0012	0.0125
	3rd quartile	26.92	2.51	26.86	2.37	0.06	0.9067	0.0125
	4th quartile	28.08	3.16	25.19	2.96	2.90	0.0001	0.0125

Table A-6. Comparison of survey estimates, eligible cases vs. screener respondents, with base weights only (continued)

Variable	Subgroups	All eligible cases %	All eligible cases SE	Screener respondents (before Scr NR adj) %	Screener respondents (before Scr NR adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
ACS percent of households with children under 18 years old								
	1st quartile	26.83	2.69	27.12	2.79	-0.30	0.5329	0.0125
	2nd quartile	27.72	2.47	27.51	2.48	0.21	0.7072	0.0125
	3rd quartile	23.67	3.06	23.64	3.20	0.03	0.9228	0.0125
	4th quartile	21.78	2.83	21.72	2.98	0.06	0.8570	0.0125
ACS percent of households with earnings								
	1st quartile	26.64	2.91	27.62	3.06	-0.99	0.0920	0.0125
	2nd quartile	23.87	2.43	23.79	2.30	0.09	0.8370	0.0125
	3rd quartile	25.35	1.93	24.99	1.96	0.36	0.3646	0.0125
	4th quartile	24.14	3.26	23.60	3.23	0.54	0.3367	0.0125
ACS percent of population 25 years and older with bachelor's degree or higher								
	1st quartile	25.24	2.66	27.14	2.77	-1.90	0.0009	0.0125
	2nd quartile	24.21	2.63	25.03	2.71	-0.82	0.0440	0.0125
	3rd quartile	23.86	2.86	23.31	2.93	0.55	0.2647	0.0125
	4th quartile	26.69	3.28	24.51	3.02	2.18	0.0017	0.0125
ACS percent of households linguistically isolated								
	1st quartile	28.01	4.94	28.61	5.11	-0.60	0.3308	0.0125
	2nd quartile	26.18	3.22	26.59	3.47	-0.41	0.5512	0.0125
	3rd quartile	25.88	3.41	24.45	3.32	1.43	0.0023	0.0125
	4th quartile	19.92	3.31	20.34	3.48	-0.42	0.3910	0.0125
ACS percent of population 25 years and older with less than a high school diploma								
	1st quartile	27.75	2.90	25.41	2.88	2.34	<0.0001	0.0125
	2nd quartile	26.50	2.81	26.92	2.88	-0.43	0.2481	0.0125
	3rd quartile	25.19	2.91	25.80	2.97	-0.61	0.0787	0.0125
	4th quartile	20.56	2.73	21.87	2.95	-1.31	0.0197	0.0125

Table A-6. Comparison of survey estimates, eligible cases vs. screener respondents, with base weights only (continued)

Variable	Subgroups	All eligible cases		Screener respondents (before Scr NR adj)		Difference	p-value	Bonf alpha to compare, p=0.05
		%	SE	%	SE			
ACS percent of housing units with multiple units								
	1st quartile	29.08	2.99	28.33	2.94	0.75	0.0984	0.0125
	2nd quartile	26.01	3.24	26.30	3.17	-0.29	0.6144	0.0125
	3rd quartile	23.00	2.63	23.74	2.83	-0.74	0.1265	0.0125
	4th quartile	21.91	3.58	21.63	3.44	0.28	0.4667	0.0125
ACS percent of population non-Hispanic Asian alone								
	1st quartile	25.47	3.11	27.17	3.35	-1.71	0.0075	0.0125
	2nd quartile	27.62	3.43	28.10	3.31	-0.49	0.2993	0.0125
	3rd quartile	23.17	2.15	23.08	2.13	0.09	0.8427	0.0125
	4th quartile	23.75	3.34	21.64	3.18	2.11	0.0067	0.0125
ACS percent of population non-Hispanic Black alone								
	1st quartile	31.66	2.97	32.47	3.09	-0.81	0.0755	0.0125
	2nd quartile	24.88	2.57	23.87	2.60	1.01	0.0414	0.0125
	3rd quartile	23.35	2.57	23.19	2.52	0.16	0.7017	0.0125
	4th quartile	20.11	2.75	20.47	2.88	-0.36	0.3948	0.0125
ACS percent of population non-Hispanic White alone								
	1st quartile	20.39	3.57	21.02	3.70	-0.63	0.2098	0.0125
	2nd quartile	23.47	2.66	22.32	2.57	1.15	0.0434	0.0125
	3rd quartile	25.80	2.41	25.09	2.33	0.72	0.1143	0.0125
	4th quartile	30.33	2.92	31.57	3.04	-1.24	0.0333	0.0125
ACS percent of households receiving public assistance income								
	1st quartile	25.94	2.64	25.03	2.34	0.90	0.1163	0.0125
	2nd quartile	28.22	2.32	27.82	2.46	0.41	0.4496	0.0125
	3rd quartile	24.72	2.36	25.19	2.28	-0.47	0.1821	0.0125
	4th quartile	21.12	2.83	21.96	2.94	-0.84	0.0693	0.0125

Table A-6. Comparison of survey estimates, eligible cases vs. screener respondents, with base weights only (continued)

Variable	Subgroups	All eligible cases %	All eligible cases SE	Screener respondents (before Scr NR adj) %	Screener respondents (before Scr NR adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
ACS percent of population 1 year old and older in poverty								
	1st quartile	29.36	3.58	26.85	3.58	2.51	0.0017	0.0125
	2nd quartile	25.79	2.35	26.30	2.39	-0.52	0.3229	0.0125
	3rd quartile	25.03	3.20	25.62	3.31	-0.59	0.2743	0.0125
	4th quartile	19.82	2.16	21.23	2.36	-1.41	0.0016	0.0125
ACS percent of housing units that are renter-occupied								
	1st quartile	31.10	3.47	30.73	3.49	0.36	0.4674	0.0125
	2nd quartile	26.93	2.41	26.72	2.49	0.21	0.7086	0.0125
	3rd quartile	21.65	2.32	21.73	2.19	-0.08	0.8226	0.0125
	4th quartile	20.32	3.19	20.81	3.11	-0.49	0.2178	0.0125
ACS percent of households receiving SNAP in last 12 months								
	1st quartile	28.23	4.28	25.67	3.98	2.56	0.0008	0.0125
	2nd quartile	26.18	2.99	26.50	2.79	-0.32	0.5204	0.0125
	3rd quartile	23.68	2.85	24.77	3.09	-1.10	0.0263	0.0125
	4th quartile	21.91	2.60	23.05	2.78	-1.15	0.0095	0.0125
ACS percent of households receiving Social Security income								
	1st quartile	22.43	3.08	21.76	2.92	0.67	0.1690	0.0125
	2nd quartile	24.65	3.05	25.21	3.18	-0.56	0.2123	0.0125
	3rd quartile	25.12	3.23	24.03	3.12	1.09	0.0274	0.0125
	4th quartile	27.80	2.96	29.00	3.12	-1.20	0.0406	0.0125
ACS percent of population unemployed								
	1st quartile	28.52	2.72	27.58	2.92	0.93	0.1415	0.0125
	2nd quartile	25.12	2.18	25.04	2.27	0.09	0.8245	0.0125
	3rd quartile	24.42	2.72	25.09	2.88	-0.67	0.0678	0.0125
	4th quartile	21.94	2.56	22.29	2.51	-0.35	0.3902	0.0125

Table A-6. Comparison of survey estimates, eligible cases vs. screener respondents, with base weights only (continued)

Variable	Subgroups	All eligible cases		Screener respondents (before Scr NR adj)		Difference	p-value	Bonf alpha to compare, p=0.05
		%	SE	%	SE			
ACS percent of housing units vacant								
	1st quartile	24.50	2.04	23.11	2.06	1.39	0.0053	0.0125
	2nd quartile	25.18	2.83	24.06	2.97	1.12	0.0212	0.0125
	3rd quartile	26.17	2.20	26.95	2.21	-0.78	0.0500	0.0125
	4th quartile	24.16	3.50	25.88	3.77	-1.73	0.0009	0.0125
ACS percent of population married								
	1st quartile	19.40	2.34	20.36	2.46	-0.96	0.0081	0.0125
	2nd quartile	22.64	2.72	21.66	2.61	0.97	0.0600	0.0125
	3rd quartile	25.93	2.66	26.71	2.63	-0.78	0.1390	0.0125
	4th quartile	32.03	3.66	31.26	3.76	0.76	0.0513	0.0125
Percent with low income and low access to store								
	1st quartile	34.90	5.65	33.04	5.50	1.87	0.0139	0.0125
	2nd quartile	31.21	4.96	31.43	5.03	-0.22	0.7442	0.0125
	3rd quartile	26.84	5.51	27.38	5.47	-0.54	0.3073	0.0125
	4th quartile	7.04	1.60	8.15	1.92	-1.10	0.0049	0.0125
MeSA status								
	Metro	74.42	4.00	72.47	4.38	1.95	0.0134	0.0167
	Micro	10.78	3.44	11.61	3.62	-0.82	0.0499	0.0167
	Non-MeSA	14.80	2.98	15.92	3.27	-1.12	0.0651	0.0167
FNS region								
	Mid-Atlantic	9.57	1.26	10.60	1.62	-1.03	0.0374	0.0071
	Midwest	25.99	4.54	25.37	4.63	0.62	0.1746	0.0071
	Mountains/Plains	7.06	2.30	7.23	2.61	-0.17	0.5966	0.0071
	Northeast	9.40	1.55	9.14	1.47	0.26	0.5376	0.0071
	Southeast	19.56	2.27	19.82	2.38	-0.25	0.6794	0.0071
	Southwest	10.52	2.45	11.27	2.50	-0.75	0.0956	0.0071
	West	17.91	2.26	16.58	2.09	1.33	0.0434	0.0071

Table A-7. Comparison of survey estimates, eligible cases with base weight vs. screener respondents after screener nonresponse adjustment

Variable	Subgroups	All eligible cases %	All eligible cases SE	Screener respondents (after Scr NR adj) %	Screener respondents (after Scr NR adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
Sampling frame								
	SNAP	7.64	0.81	8.12	0.86	-0.48	<0.0001	0.0250
	non-SNAP	92.36	0.81	91.88	0.86	0.48	<0.0001	0.0250
Source of address information								
	SNAP list	1.03	0.14	1.12	0.17	-0.09	0.0128	0.0125
	ABS list	89.80	1.02	89.50	1.08	0.29	0.1995	0.0125
	Both SNAP and ABS	6.62	0.73	7.00	0.77	-0.38	0.0002	0.0125
	Field listed	2.56	0.82	2.38	0.75	0.18	0.4239	0.0125
Type of address								
	Single	77.28	2.39	77.08	2.30	0.20	0.4900	0.0250
	Multi-unit	22.72	2.39	22.92	2.30	-0.20	0.4900	0.0250
Percent with low access to store								
	1st quartile	23.26	5.02	23.49	4.97	-0.23	0.4971	0.0125
	2nd quartile	33.66	6.92	33.36	6.79	0.30	0.3968	0.0125
	3rd quartile	26.50	5.53	26.47	5.45	0.03	0.9190	0.0125
	4th quartile	16.58	4.86	16.68	4.84	-0.10	0.7063	0.0125
ACS average household size								
	1st quartile	29.40	4.12	28.62	4.04	0.77	0.0376	0.0125
	2nd quartile	25.03	2.36	25.50	2.42	-0.47	0.0999	0.0125
	3rd quartile	23.39	2.97	23.43	2.92	-0.03	0.8962	0.0125
	4th quartile	22.18	2.93	22.46	2.94	-0.27	0.3501	0.0125
ACS median age								
	1st quartile	19.36	2.49	20.07	2.48	-0.71	0.0005	0.0125
	2nd quartile	23.15	3.16	23.11	3.15	0.04	0.9079	0.0125
	3rd quartile	26.95	2.76	26.88	2.65	0.07	0.8233	0.0125
	4th quartile	30.54	3.97	29.95	3.93	0.59	0.0601	0.0125

Table A-7. Comparison of survey estimates, eligible cases with base weight vs. screener respondents after screener nonresponse adjustment (continued)

Variable	Subgroups	All eligible cases %	All eligible cases SE	Screener respondents (after Scr NR adj) %	Screener respondents (after Scr NR adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
ACS median household income								
	1st quartile	20.56	2.47	21.45	2.52	-0.88	0.0062	0.0125
	2nd quartile	24.43	3.00	24.66	3.06	-0.23	0.3000	0.0125
	3rd quartile	26.92	2.51	26.55	2.42	0.37	0.3333	0.0125
	4th quartile	28.08	3.16	27.34	3.19	0.74	0.1328	0.0125
ACS percent of households with children under 18 years old								
	1st quartile	26.83	2.69	26.85	2.69	-0.03	0.9335	0.0125
	2nd quartile	27.72	2.47	27.61	2.50	0.11	0.7940	0.0125
	3rd quartile	23.67	3.06	23.55	3.07	0.12	0.6181	0.0125
	4th quartile	21.78	2.83	21.98	2.90	-0.20	0.5276	0.0125
ACS percent of households with earnings								
	1st quartile	26.64	2.91	26.73	2.96	-0.10	0.7998	0.0125
	2nd quartile	23.87	2.43	23.77	2.43	0.10	0.7898	0.0125
	3rd quartile	25.35	1.93	25.70	1.94	-0.35	0.2389	0.0125
	4th quartile	24.14	3.26	23.80	3.22	0.35	0.4217	0.0125
ACS percent of population 25 years and older with bachelor's degree or higher								
	1st quartile	25.24	2.66	25.97	2.73	-0.73	0.0567	0.0125
	2nd quartile	24.21	2.63	24.54	2.66	-0.33	0.2438	0.0125
	3rd quartile	23.86	2.86	23.22	2.89	0.64	0.0749	0.0125
	4th quartile	26.69	3.28	26.27	3.15	0.41	0.3470	0.0125
ACS percent of households linguistically isolated								
	1st quartile	28.01	4.94	28.34	5.02	-0.32	0.3244	0.0125
	2nd quartile	26.18	3.22	26.33	3.33	-0.15	0.7374	0.0125
	3rd quartile	25.88	3.41	25.30	3.29	0.58	0.2005	0.0125
	4th quartile	19.92	3.31	20.04	3.32	-0.12	0.6721	0.0125
ACS percent of population 25 years and older with less than a high school diploma								
	1st quartile	27.75	2.90	26.85	2.87	0.90	0.0284	0.0125
	2nd quartile	26.50	2.81	26.36	2.83	0.14	0.6195	0.0125
	3rd quartile	25.19	2.91	25.80	2.87	-0.61	0.0114	0.0125
	4th quartile	20.56	2.73	21.00	2.76	-0.43	0.1386	0.0125

Table A-7. Comparison of survey estimates, eligible cases with base weight vs. screener respondents after screener nonresponse adjustment (continued)

Variable	Subgroups	All eligible cases %	All eligible cases SE	Screener respondents (after Scr NR adj) %	Screener respondents (after Scr NR adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
ACS percent of housing units with multiple units								
	1st quartile	29.08	2.99	29.21	2.98	-0.13	0.6106	0.0125
	2nd quartile	26.01	3.24	25.57	3.04	0.44	0.3270	0.0125
	3rd quartile	23.00	2.63	23.33	2.72	-0.33	0.2437	0.0125
	4th quartile	21.91	3.58	21.89	3.48	0.02	0.9414	0.0125
ACS percent of population non-Hispanic Asian alone								
	1st quartile	25.47	3.11	26.37	3.28	-0.90	0.0226	0.0125
	2nd quartile	27.62	3.43	27.61	3.31	0.01	0.9733	0.0125
	3rd quartile	23.17	2.15	22.76	2.15	0.41	0.3048	0.0125
	4th quartile	23.75	3.34	23.27	3.34	0.48	0.4355	0.0125
ACS percent of population non-Hispanic Black alone								
	1st quartile	31.66	2.97	31.66	2.94	0.00	0.9962	0.0125
	2nd quartile	24.88	2.57	24.26	2.67	0.62	0.1332	0.0125
	3rd quartile	23.35	2.57	23.55	2.59	-0.20	0.5412	0.0125
	4th quartile	20.11	2.75	20.53	2.82	-0.42	0.2369	0.0125
ACS percent of population non-Hispanic White alone								
	1st quartile	20.39	3.57	21.05	3.59	-0.66	0.0402	0.0125
	2nd quartile	23.47	2.66	23.22	2.69	0.26	0.4700	0.0125
	3rd quartile	25.80	2.41	25.22	2.29	0.59	0.0773	0.0125
	4th quartile	30.33	2.92	30.51	2.97	-0.18	0.6840	0.0125
ACS percent of households receiving public assistance income								
	1st quartile	25.94	2.64	25.32	2.52	0.62	0.0347	0.0125
	2nd quartile	28.22	2.32	27.85	2.29	0.38	0.2842	0.0125
	3rd quartile	24.72	2.36	25.01	2.39	-0.30	0.3344	0.0125
	4th quartile	21.12	2.83	21.82	2.86	-0.70	0.0414	0.0125
ACS percent of population 1 year old and older in poverty								
	1st quartile	29.36	3.58	28.64	3.70	0.72	0.1650	0.0125
	2nd quartile	25.79	2.35	25.67	2.38	0.11	0.7364	0.0125
	3rd quartile	25.03	3.20	25.11	3.26	-0.08	0.8251	0.0125
	4th quartile	19.82	2.16	20.58	2.25	-0.75	0.0137	0.0125

Table A-7. Comparison of survey estimates, eligible cases with base weight vs. screener respondents after screener nonresponse adjustment (continued)

Variable	Subgroups	All eligible cases %	All eligible cases SE	Screener respondents (after Scr NR adj) %	Screener respondents (after Scr NR adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
ACS percent of housing units that are renter occupied								
	1st quartile	31.10	3.47	30.98	3.49	0.11	0.7328	0.0125
	2nd quartile	26.93	2.41	26.92	2.44	0.01	0.9851	0.0125
	3rd quartile	21.65	2.32	21.51	2.23	0.14	0.5606	0.0125
	4th quartile	20.32	3.19	20.59	3.12	-0.26	0.2751	0.0125
ACS percent of households receiving SNAP in last 12 months								
	1st quartile	28.23	4.28	27.46	4.25	0.77	0.0977	0.0125
	2nd quartile	26.18	2.99	26.30	3.03	-0.11	0.7565	0.0125
	3rd quartile	23.68	2.85	23.82	2.98	-0.14	0.6667	0.0125
	4th quartile	21.91	2.60	22.42	2.66	-0.51	0.0987	0.0125
ACS percent of households receiving Social Security income								
	1st quartile	22.43	3.08	22.04	2.91	0.39	0.3379	0.0125
	2nd quartile	24.65	3.05	25.23	3.12	-0.58	0.1381	0.0125
	3rd quartile	25.12	3.23	24.70	3.12	0.42	0.2796	0.0125
	4th quartile	27.80	2.96	28.04	3.04	-0.24	0.5631	0.0125
ACS percent of population unemployed								
	1st quartile	28.52	2.72	28.05	2.85	0.47	0.3124	0.0125
	2nd quartile	25.12	2.18	24.61	2.17	0.51	0.0655	0.0125
	3rd quartile	24.42	2.72	25.14	2.79	-0.72	0.0105	0.0125
	4th quartile	21.94	2.56	22.19	2.54	-0.25	0.4809	0.0125
ACS percent of housing units vacant								
	1st quartile	24.50	2.04	24.16	2.06	0.34	0.4195	0.0125
	2nd quartile	25.18	2.83	24.46	2.83	0.72	0.0175	0.0125
	3rd quartile	26.17	2.20	26.56	2.18	-0.39	0.1614	0.0125
	4th quartile	24.16	3.50	24.82	3.60	-0.66	0.0547	0.0125
ACS percent of population married								
	1st quartile	19.40	2.34	20.14	2.38	-0.74	0.0091	0.0125
	2nd quartile	22.64	2.72	21.38	2.60	1.26	0.0007	0.0125
	3rd quartile	25.93	2.66	26.45	2.56	-0.51	0.1565	0.0125
	4th quartile	32.03	3.66	32.03	3.71	0.00	0.9909	0.0125

Table A-7. Comparison of survey estimates, eligible cases with base weight vs. screener respondents after screener nonresponse adjustment (continued)

Variable	Subgroups	All eligible cases %	All eligible cases SE	Screener respondents (after Scr NR adj) %	Screener respondents (after Scr NR adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
Percent with low income and low access to store								
	1st quartile	34.90	5.65	34.61	5.54	0.30	0.5395	0.0125
	2nd quartile	31.21	4.96	30.99	4.85	0.22	0.5867	0.0125
	3rd quartile	26.84	5.51	26.81	5.38	0.03	0.9267	0.0125
	4th quartile	7.04	1.60	7.59	1.71	-0.55	0.0020	0.0125
MeSA status								
	Metro	74.42	4.00	74.10	4.13	0.32	0.4245	0.0167
	Micro	10.78	3.44	10.79	3.41	-0.01	0.9845	0.0167
	Non-MeSA	14.80	2.98	15.11	3.07	-0.31	0.2442	0.0167
FNS region								
	Mid-Atlantic	9.57	1.26	9.70	1.41	-0.13	0.6874	0.0071
	Midwest	25.99	4.54	25.67	4.40	0.32	0.2295	0.0071
	Mountains/Plains	7.06	2.30	7.03	2.47	0.02	0.8911	0.0071
	Northeast	9.40	1.55	9.47	1.54	-0.07	0.6325	0.0071
	Southeast	19.56	2.27	19.71	2.19	-0.15	0.6267	0.0071
	Southwest	10.52	2.45	10.79	2.49	-0.27	0.2176	0.0071
	West	17.91	2.26	17.63	2.16	0.28	0.5873	0.0071

Table A-8. Comparison of survey estimates, eligible cases with base weight vs. cases selected for main study after quota group selection adjustment

Variable	Subgroups	All eligible cases %	All eligible cases SE	Cases selected for main study (after QG selection Adj) %	Cases selected for main study (after QG selection Adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
Sampling frame								
	SNAP	7.64	0.81	8.20	0.93	-0.56	0.0483	0.0250
	non-SNAP	92.36	0.81	91.80	0.93	0.56	0.0483	0.0250
Source of address information								
	SNAP list	1.03	0.14	1.05	0.17	-0.03	0.7090	0.0125
	ABS list	89.80	1.02	89.53	1.16	0.27	0.6483	0.0125
	Both SNAP and ABS	6.62	0.73	7.15	0.83	-0.53	0.0413	0.0125
	Field listed	2.56	0.82	2.28	0.69	0.28	0.5652	0.0125
Type of address								
	Single	77.28	2.39	77.50	2.42	-0.22	0.6772	0.0250
	Multi-unit	22.72	2.39	22.50	2.42	0.22	0.6772	0.0250
Percent with low access to store								
	1st quartile	23.26	5.02	22.57	4.78	0.69	0.3267	0.0125
	2nd quartile	33.66	6.92	32.41	6.67	1.25	0.1983	0.0125
	3rd quartile	26.50	5.53	28.49	5.84	-1.99	0.0031	0.0125
	4th quartile	16.58	4.86	16.54	4.97	0.04	0.9529	0.0125
ACS average household size								
	1st quartile	29.40	4.12	27.90	3.74	1.50	0.0753	0.0125
	2nd quartile	25.03	2.36	26.93	2.38	-1.90	0.0039	0.0125
	3rd quartile	23.39	2.97	22.78	2.97	0.61	0.3381	0.0125
	4th quartile	22.18	2.93	22.39	3.07	-0.21	0.7402	0.0125
ACS median age								
	1st quartile	19.36	2.49	20.17	2.52	-0.81	0.1473	0.0125
	2nd quartile	23.15	3.16	22.97	3.18	0.18	0.7650	0.0125
	3rd quartile	26.95	2.76	26.62	2.65	0.34	0.6917	0.0125
	4th quartile	30.54	3.97	30.25	4.13	0.29	0.6912	0.0125
ACS median household income								
	1st quartile	20.56	2.47	21.82	2.60	-1.25	0.0220	0.0125
	2nd quartile	24.43	3.00	23.58	2.79	0.85	0.2831	0.0125
	3rd quartile	26.92	2.51	27.06	2.64	-0.14	0.8325	0.0125
	4th quartile	28.08	3.16	27.54	2.89	0.54	0.5126	0.0125

Table A-8. Comparison of survey estimates, eligible cases with base weight vs. cases selected for main study after quota group selection adjustment (continued)

Variable	Subgroups	All eligible cases		Cases selected for main study (after QG selection Adj)		Difference	p-value	Bonf alpha to compare, p=0.05
		%	SE	%	SE			
ACS percent of households with children under 18 years old								
	1st quartile	26.83	2.69	26.91	2.65	-0.09	0.8888	0.0125
	2nd quartile	27.72	2.47	28.17	2.50	-0.45	0.5316	0.0125
	3rd quartile	23.67	3.06	23.09	3.14	0.58	0.4842	0.0125
	4th quartile	21.78	2.83	21.83	2.97	-0.04	0.9435	0.0125
ACS percent of households with earnings								
	1st quartile	26.64	2.91	25.90	2.91	0.73	0.3742	0.0125
	2nd quartile	23.87	2.43	24.01	2.31	-0.14	0.8224	0.0125
	3rd quartile	25.35	1.93	26.34	2.07	-0.99	0.2333	0.0125
	4th quartile	24.14	3.26	23.75	3.44	0.39	0.5803	0.0125
ACS percent of population 25 years and older with bachelor's degree or higher								
	1st quartile	25.24	2.66	26.16	2.69	-0.93	0.0878	0.0125
	2nd quartile	24.21	2.63	24.51	2.67	-0.29	0.6887	0.0125
	3rd quartile	23.86	2.86	23.10	2.88	0.76	0.3019	0.0125
	4th quartile	26.69	3.28	26.23	3.07	0.46	0.5131	0.0125
ACS percent of households linguistically isolated								
	1st quartile	28.01	4.94	28.25	5.20	-0.24	0.7361	0.0125
	2nd quartile	26.18	3.22	26.71	3.31	-0.52	0.4691	0.0125
	3rd quartile	25.88	3.41	24.56	3.29	1.32	0.0702	0.0125
	4th quartile	19.92	3.31	20.48	3.60	-0.56	0.3648	0.0125
ACS percent of population 25 years and older with less than a high school diploma								
	1st quartile	27.75	2.90	26.52	2.71	1.23	0.2225	0.0125
	2nd quartile	26.50	2.81	27.17	2.92	-0.67	0.4508	0.0125
	3rd quartile	25.19	2.91	24.83	2.84	0.37	0.6023	0.0125
	4th quartile	20.56	2.73	21.48	2.91	-0.92	0.1316	0.0125
ACS percent of housing units with multiple units								
	1st quartile	29.08	2.99	28.98	3.16	0.11	0.9037	0.0125
	2nd quartile	26.01	3.24	25.65	2.90	0.36	0.6782	0.0125
	3rd quartile	23.00	2.63	23.18	2.62	-0.19	0.7271	0.0125
	4th quartile	21.91	3.58	22.19	3.63	-0.28	0.6044	0.0125

Table A-8. Comparison of survey estimates, eligible cases with base weight vs. cases selected for main study after quota group selection adjustment (continued)

Variable	Subgroups	All eligible cases %	All eligible cases SE	Cases selected for main study (after QG selection Adj) %	Cases selected for main study (after QG selection Adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
ACS percent of population non-Hispanic Asian alone								
	1st quartile	25.47	3.11	26.65	3.27	-1.19	0.0567	0.0125
	2nd quartile	27.62	3.43	28.48	3.53	-0.87	0.1156	0.0125
	3rd quartile	23.17	2.15	22.83	2.24	0.33	0.5740	0.0125
	4th quartile	23.75	3.34	22.03	3.34	1.72	0.0709	0.0125
ACS percent of population non-Hispanic Black alone								
	1st quartile	31.66	2.97	31.14	3.33	0.51	0.5257	0.0125
	2nd quartile	24.88	2.57	24.26	2.79	0.62	0.4643	0.0125
	3rd quartile	23.35	2.57	23.65	2.75	-0.30	0.7109	0.0125
	4th quartile	20.11	2.75	20.94	2.91	-0.83	0.1677	0.0125
ACS percent of population non-Hispanic White alone								
	1st quartile	20.39	3.57	21.42	3.65	-1.02	0.0757	0.0125
	2nd quartile	23.47	2.66	23.74	2.51	-0.27	0.6018	0.0125
	3rd quartile	25.80	2.41	24.17	2.17	1.63	0.0427	0.0125
	4th quartile	30.33	2.92	30.67	3.17	-0.33	0.6434	0.0125
ACS percent of households receiving public assistance income								
	1st quartile	25.94	2.64	25.75	2.81	0.18	0.8189	0.0125
	2nd quartile	28.22	2.32	27.78	2.68	0.44	0.5510	0.0125
	3rd quartile	24.72	2.36	24.71	2.54	0.01	0.9868	0.0125
	4th quartile	21.12	2.83	21.76	2.90	-0.64	0.2467	0.0125
ACS percent of population 1 year old and older in poverty								
	1st quartile	29.36	3.58	27.52	3.35	1.84	0.0930	0.0125
	2nd quartile	25.79	2.35	25.84	2.56	-0.06	0.9533	0.0125
	3rd quartile	25.03	3.20	26.10	3.36	-1.07	0.1515	0.0125
	4th quartile	19.82	2.16	20.54	2.26	-0.72	0.1862	0.0125
ACS percent of housing units that are renter occupied								
	1st quartile	31.10	3.47	30.64	3.72	0.46	0.5108	0.0125
	2nd quartile	26.93	2.41	27.43	2.55	-0.51	0.4812	0.0125
	3rd quartile	21.65	2.32	21.32	2.29	0.33	0.5181	0.0125
	4th quartile	20.32	3.19	20.61	3.28	-0.28	0.6058	0.0125

Table A-8. Comparison of survey estimates, eligible cases with base weight vs. cases selected for main study after quota group selection adjustment (continued)

Variable	Subgroups	All eligible cases		Cases selected for main study (after QG selection Adj)		Difference	p-value	Bonf alpha to compare, p=0.05
		%	SE	%	SE			
ACS percent of households receiving SNAP in last 12 months								
	1st quartile	28.23	4.28	26.24	4.05	1.99	0.0067	0.0125
	2nd quartile	26.18	2.99	26.43	3.10	-0.25	0.7236	0.0125
	3rd quartile	23.68	2.85	24.72	2.88	-1.05	0.0842	0.0125
	4th quartile	21.91	2.60	22.60	2.57	-0.70	0.1791	0.0125
ACS percent of households receiving Social Security income								
	1st quartile	22.43	3.08	22.58	3.25	-0.15	0.8619	0.0125
	2nd quartile	24.65	3.05	24.56	3.01	0.09	0.8523	0.0125
	3rd quartile	25.12	3.23	24.96	3.20	0.16	0.8350	0.0125
	4th quartile	27.80	2.96	27.90	3.03	-0.10	0.8972	0.0125
ACS percent of population unemployed								
	1st quartile	28.52	2.72	28.09	3.25	0.43	0.6168	0.0125
	2nd quartile	25.12	2.18	24.69	2.47	0.43	0.6669	0.0125
	3rd quartile	24.42	2.72	25.13	2.78	-0.71	0.1965	0.0125
	4th quartile	21.94	2.56	22.09	2.67	-0.16	0.7440	0.0125
ACS percent of housing units vacant								
	1st quartile	24.50	2.04	23.25	2.21	1.24	0.0698	0.0125
	2nd quartile	25.18	2.83	23.73	2.77	1.45	0.0879	0.0125
	3rd quartile	26.17	2.20	28.32	2.30	-2.15	0.0088	0.0125
	4th quartile	24.16	3.50	24.71	3.22	-0.55	0.4478	0.0125
ACS percent of population married								
	1st quartile	19.40	2.34	20.43	2.50	-1.03	0.0634	0.0125
	2nd quartile	22.64	2.72	21.06	2.66	1.58	0.0441	0.0125
	3rd quartile	25.93	2.66	27.40	2.67	-1.47	0.0243	0.0125
	4th quartile	32.03	3.66	31.11	3.88	0.92	0.1602	0.0125
Percent with low income and low access to store								
	1st quartile	34.90	5.65	33.02	5.47	1.88	0.0339	0.0125
	2nd quartile	31.21	4.96	31.11	5.05	0.10	0.9032	0.0125
	3rd quartile	26.84	5.51	28.14	5.50	-1.30	0.0735	0.0125
	4th quartile	7.04	1.60	7.73	1.67	-0.69	0.0116	0.0125

Table A-8. Comparison of survey estimates, eligible cases with base weight vs. cases selected for main study after quota group selection adjustment (continued)

Variable	Subgroups	All eligible cases		Cases selected for main study (after QG selection Adj)		Difference	p-value	Bonf alpha to compare, p=0.05
		%	SE	%	SE			
MeSA status								
	Metro	74.42	4.00	74.76	4.12	-0.34	0.6572	0.0167
	Micro	10.78	3.44	10.34	3.45	0.44	0.3196	0.0167
	Non-MeSA	14.80	2.98	14.90	3.07	-0.10	0.8574	0.0167
FNS region								
	Mid-Atlantic	9.57	1.26	10.12	1.55	-0.55	0.1588	0.0071
	Midwest	25.99	4.54	25.29	4.59	0.71	0.4093	0.0071
	Mountains/Plains	7.06	2.30	6.70	2.41	0.36	0.1343	0.0071
	Northeast	9.40	1.55	8.86	1.54	0.54	0.6070	0.0071
	Southeast	19.56	2.27	21.06	2.21	-1.50	0.0195	0.0071
	Southwest	10.52	2.45	11.63	2.52	-1.11	0.0039	0.0071
	West	17.91	2.26	16.34	2.22	1.56	0.0385	0.0071

Table A-9. Comparison of survey estimates, eligible cases with base weight vs. cases giving initial agreement (after agreement nonresponse adjustment)

Variable	Subgroups	All eligible cases %	All eligible cases SE	Cases giving initial agreement (after Agr NR Adj) %	Cases giving initial agreement (after Agr NR Adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
Sampling frame								
	SNAP	7.64	0.81	8.86	1.02	-1.22	0.0025	0.0250
	non-SNAP	92.36	0.81	91.14	1.02	1.22	0.0025	0.0250
Source of address information								
	SNAP list	1.03	0.14	1.15	0.19	-0.12	0.144	0.0125
	ABS list	89.80	1.02	88.67	1.30	1.12	0.1229	0.0125
	Both SNAP and ABS	6.62	0.73	7.71	0.92	-1.10	0.0027	0.0125
	Field listed	2.56	0.82	2.47	0.77	0.09	0.8753	0.0125
Type of address								
	Single	77.28	2.39	76.88	2.46	0.40	0.5147	0.0250
	Multi-unit	22.72	2.39	23.12	2.46	-0.40	0.5147	0.0250
Percent with low access to store								
	1st quartile	23.26	5.02	22.35	4.67	0.91	0.2521	0.0125
	2nd quartile	33.66	6.92	33.22	6.74	0.44	0.6897	0.0125
	3rd quartile	26.50	5.53	28.22	5.64	-1.72	0.0374	0.0125
	4th quartile	16.58	4.86	16.21	4.94	0.37	0.6689	0.0125
ACS average household size								
	1st quartile	29.40	4.12	28.66	4.09	0.73	0.3037	0.0125
	2nd quartile	25.03	2.36	26.91	2.61	-1.88	0.0068	0.0125
	3rd quartile	23.39	2.97	21.93	2.93	1.46	0.048	0.0125
	4th quartile	22.18	2.93	22.49	3.19	-0.31	0.6983	0.0125
ACS median age								
	1st quartile	19.36	2.49	20.53	2.53	-1.17	0.0474	0.0125
	2nd quartile	23.15	3.16	23.69	3.16	-0.54	0.4604	0.0125
	3rd quartile	26.95	2.76	26.03	2.66	0.92	0.4008	0.0125
	4th quartile	30.54	3.97	29.75	4.26	0.79	0.3878	0.0125
ACS median household income								
	1st quartile	20.56	2.47	22.16	2.63	-1.60	0.0098	0.0125
	2nd quartile	24.43	3.00	24.24	3.01	0.19	0.8036	0.0125
	3rd quartile	26.92	2.51	26.69	2.58	0.23	0.7612	0.0125
	4th quartile	28.08	3.16	26.91	2.95	1.18	0.1999	0.0125

Table A-9. Comparison of survey estimates, eligible cases with base weight vs. cases giving initial agreement (after agreement nonresponse adjustment) (continued)

Variable	Subgroups	All eligible cases		Cases giving initial agreement (after Agr NR Adj)		Difference	p-value	Bonf alpha to compare, p=0.05
		%	SE	%	SE			
ACS percent of households with children under 18 years old								
	1st quartile	26.83	2.69	27.71	2.82	-0.89	0.2299	0.0125
	2nd quartile	27.72	2.47	27.48	2.68	0.24	0.7655	0.0125
	3rd quartile	23.67	3.06	22.77	3.21	0.90	0.2979	0.0125
	4th quartile	21.78	2.83	22.04	3.21	-0.26	0.7559	0.0125
ACS percent of households with earnings								
	1st quartile	26.64	2.91	25.98	2.93	0.65	0.4381	0.0125
	2nd quartile	23.87	2.43	24.26	2.50	-0.39	0.6345	0.0125
	3rd quartile	25.35	1.93	26.19	2.16	-0.84	0.3192	0.0125
	4th quartile	24.14	3.26	23.56	3.41	0.58	0.5163	0.0125
ACS percent of population 25 years and older with bachelor's degree or higher								
	1st quartile	25.24	2.66	26.35	2.65	-1.12	0.105	0.0125
	2nd quartile	24.21	2.63	24.59	2.56	-0.38	0.6288	0.0125
	3rd quartile	23.86	2.86	22.77	2.85	1.09	0.2716	0.0125
	4th quartile	26.69	3.28	26.28	3.07	0.40	0.6273	0.0125
ACS percent of households linguistically isolated								
	1st quartile	28.01	4.94	28.51	5.03	-0.50	0.4845	0.0125
	2nd quartile	26.18	3.22	25.92	3.35	0.26	0.7199	0.0125
	3rd quartile	25.88	3.41	25.01	3.27	0.87	0.2225	0.0125
	4th quartile	19.92	3.31	20.55	3.77	-0.63	0.4719	0.0125
ACS percent of population 25 years and older with less than a high school diploma								
	1st quartile	27.75	2.90	27.03	2.93	0.71	0.5509	0.0125
	2nd quartile	26.50	2.81	26.20	2.96	0.30	0.7823	0.0125
	3rd quartile	25.19	2.91	24.87	3.04	0.32	0.6694	0.0125
	4th quartile	20.56	2.73	21.90	2.97	-1.34	0.1266	0.0125
ACS percent of housing units with multiple units								
	1st quartile	29.08	2.99	28.16	3.03	0.92	0.2048	0.0125
	2nd quartile	26.01	3.24	25.96	2.90	0.05	0.9556	0.0125
	3rd quartile	23.00	2.63	23.64	2.70	-0.65	0.2706	0.0125
	4th quartile	21.91	3.58	22.23	3.52	-0.32	0.5575	0.0125

Table A-9. Comparison of survey estimates, eligible cases with base weight vs. cases giving initial agreement (after agreement nonresponse adjustment) (continued)

Variable	Subgroups	All eligible cases %	All eligible cases SE	Cases giving initial agreement (after Agr NR Adj) %	Cases giving initial agreement (after Agr NR Adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
ACS percent of population non-Hispanic Asian alone								
	1st quartile	25.47	3.11	27.32	3.41	-1.85	0.0071	0.0125
	2nd quartile	27.62	3.43	28.26	3.67	-0.65	0.4233	0.0125
	3rd quartile	23.17	2.15	22.90	2.30	0.26	0.6706	0.0125
	4th quartile	23.75	3.34	21.52	3.41	2.23	0.0283	0.0125
ACS percent of population non-Hispanic Black alone								
	1st quartile	31.66	2.97	31.20	3.48	0.45	0.6737	0.0125
	2nd quartile	24.88	2.57	23.42	2.89	1.46	0.1183	0.0125
	3rd quartile	23.35	2.57	23.84	2.72	-0.49	0.5661	0.0125
	4th quartile	20.11	2.75	21.54	3.18	-1.43	0.1064	0.0125
ACS percent of population non-Hispanic White alone								
	1st quartile	20.39	3.57	21.70	3.79	-1.31	0.0556	0.0125
	2nd quartile	23.47	2.66	23.77	2.58	-0.30	0.5711	0.0125
	3rd quartile	25.80	2.41	24.59	2.31	1.21	0.161	0.0125
	4th quartile	30.33	2.92	29.94	3.08	0.40	0.6619	0.0125
ACS percent of households receiving public assistance income								
	1st quartile	25.94	2.64	26.23	2.99	-0.30	0.7846	0.0125
	2nd quartile	28.22	2.32	26.84	2.52	1.39	0.0263	0.0125
	3rd quartile	24.72	2.36	24.80	2.60	-0.08	0.9142	0.0125
	4th quartile	21.12	2.83	22.13	3.13	-1.01	0.2961	0.0125
ACS percent of population 1 year old and older in poverty								
	1st quartile	29.36	3.58	26.74	3.38	2.62	0.0438	0.0125
	2nd quartile	25.79	2.35	25.80	2.55	-0.01	0.9913	0.0125
	3rd quartile	25.03	3.20	26.19	3.48	-1.16	0.1831	0.0125
	4th quartile	19.82	2.16	21.27	2.28	-1.44	0.0216	0.0125
ACS percent of housing units that are renter occupied								
	1st quartile	31.10	3.47	30.06	3.54	1.03	0.2138	0.0125
	2nd quartile	26.93	2.41	26.77	2.54	0.16	0.8556	0.0125
	3rd quartile	21.65	2.32	22.09	2.31	-0.43	0.4168	0.0125
	4th quartile	20.32	3.19	21.08	3.22	-0.76	0.2051	0.0125

Table A-9. Comparison of survey estimates, eligible cases with base weight vs. cases giving initial agreement (after agreement nonresponse adjustment) (continued)

Variable	Subgroups	All eligible cases %	All eligible cases SE	Cases giving initial agreement (after Agr NR Adj) %	Cases giving initial agreement (after Agr NR Adj) SE	Difference	p-value	Bonf alpha to compare, p=0.05
ACS percent of households receiving SNAP in last 12 months								
	1st quartile	28.23	4.28	26.16	4.14	2.08	0.0072	0.0125
	2nd quartile	26.18	2.99	25.59	3.03	0.59	0.4608	0.0125
	3rd quartile	23.68	2.85	25.12	2.98	-1.44	0.0209	0.0125
	4th quartile	21.91	2.60	23.13	2.64	-1.23	0.0349	0.0125
ACS percent of households receiving Social Security income								
	1st quartile	22.43	3.08	22.88	3.36	-0.45	0.6864	0.0125
	2nd quartile	24.65	3.05	24.98	2.96	-0.33	0.6514	0.0125
	3rd quartile	25.12	3.23	24.19	2.98	0.93	0.3650	0.0125
	4th quartile	27.80	2.96	27.95	3.17	-0.15	0.8535	0.0125
ACS percent of population unemployed								
	1st quartile	28.52	2.72	28.00	3.14	0.52	0.5313	0.0125
	2nd quartile	25.12	2.18	24.42	2.37	0.70	0.5132	0.0125
	3rd quartile	24.42	2.72	25.29	2.90	-0.87	0.146	0.0125
	4th quartile	21.94	2.56	22.29	2.63	-0.35	0.5827	0.0125
ACS percent of housing units vacant								
	1st quartile	24.50	2.04	23.06	2.29	1.43	0.1666	0.0125
	2nd quartile	25.18	2.83	23.01	2.72	2.17	0.0511	0.0125
	3rd quartile	26.17	2.20	28.11	2.39	-1.93	0.0402	0.0125
	4th quartile	24.16	3.50	25.82	3.35	-1.67	0.0325	0.0125
ACS percent of population married								
	1st quartile	19.40	2.34	21.11	2.63	-1.70	0.0308	0.0125
	2nd quartile	22.64	2.72	21.22	2.68	1.41	0.1178	0.0125
	3rd quartile	25.93	2.66	27.14	2.62	-1.20	0.228	0.0125
	4th quartile	32.03	3.66	30.53	3.81	1.50	0.0919	0.0125
Percent with low income and low access to store								
	1st quartile	34.90	5.65	33.06	5.55	1.84	0.0574	0.0125
	2nd quartile	31.21	4.96	31.77	5.02	-0.55	0.5719	0.0125
	3rd quartile	26.84	5.51	27.42	5.35	-0.58	0.5183	0.0125
	4th quartile	7.04	1.60	7.75	1.65	-0.71	0.0008	0.0125

Table A-9. Comparison of survey estimates, eligible cases with base weight vs. cases giving initial agreement (after agreement nonresponse adjustment) (continued)

Variable	Subgroups	All eligible cases		Cases giving initial agreement (after Agr NR Adj)		Difference	p-value	Bonf alpha to compare, p=0.05
		%	SE	%	SE			
MeSA status								
	Metro	74.42	4.00	74.42	4.16	-0.01	0.9929	0.0167
	Micro	10.78	3.44	10.57	3.51	0.21	0.6464	0.0167
	Non-MeSA	14.80	2.98	15.01	3.13	-0.21	0.6866	0.0167
FNS region								
	Mid-Atlantic	9.57	1.26	9.66	1.50	-0.09	0.8409	0.0071
	Midwest	25.99	4.54	24.86	4.19	1.14	0.2341	0.0071
	Mountains/Plains	7.06	2.30	6.52	2.19	0.53	0.0648	0.0071
	Northeast	9.40	1.55	8.80	1.48	0.60	0.6047	0.0071
	Southeast	19.56	2.27	21.69	2.46	-2.13	0.0153	0.0071
	Southwest	10.52	2.45	12.09	2.54	-1.58	0.0021	0.0071
	West	17.91	2.26	16.38	2.20	1.52	0.0587	0.0071

Table A-10. Comparison of survey estimates, eligible cases with base weight vs. main study respondents after main study nonresponse adjustment

Variable	Subgroups	All eligible cases		Main study respondents		Difference	p-value	Bonf alpha to compare, p=0.05
		%	SE	%	SE			
				Sampling frame				
	SNAP	7.64	0.81	8.84	1.02	-1.20	0.0083	0.0250
	non-SNAP	92.36	0.81	91.16	1.02	1.20	0.0083	0.0250
Source of address information								
	SNAP list	1.03	0.14	1.28	0.25	-0.25	0.0863	0.0125
	ABS list	89.80	1.02	88.83	1.32	0.97	0.2476	0.0125
	Both SNAP and ABS	6.62	0.73	7.56	0.89	-0.94	0.0161	0.0125
	Field listed	2.56	0.82	2.33	0.88	0.23	0.7493	0.0125
Type of address								
	Single	77.28	2.39	77.78	2.28	-0.49	0.5639	0.0250
	Multi-unit	22.72	2.39	22.22	2.28	0.49	0.5639	0.0250
Percent with low access to store								
	1st quartile	23.26	5.02	22.09	4.45	1.17	0.2745	0.0125
	2nd quartile	33.66	6.92	33.77	6.88	-0.11	0.9391	0.0125
	3rd quartile	26.50	5.53	27.88	5.81	-1.38	0.1670	0.0125
	4th quartile	16.58	4.86	16.26	4.94	0.32	0.7774	0.0125
ACS average household size								
	1st quartile	29.40	4.12	27.93	4.17	1.46	0.0764	0.0125
	2nd quartile	25.03	2.36	28.41	2.34	-3.38	<0.0001	0.0125
	3rd quartile	23.39	2.97	21.64	3.05	1.76	0.0347	0.0125
	4th quartile	22.18	2.93	22.02	3.26	0.16	0.8555	0.0125
ACS median age								
	1st quartile	19.36	2.49	19.77	2.63	-0.41	0.6050	0.0125
	2nd quartile	23.15	3.16	23.27	3.13	-0.12	0.8913	0.0125
	3rd quartile	26.95	2.76	25.27	2.58	1.68	0.1914	0.0125
	4th quartile	30.54	3.97	31.69	4.60	-1.15	0.3884	0.0125
ACS median household income								
	1st quartile	20.56	2.47	21.16	2.50	-0.60	0.3977	0.0125
	2nd quartile	24.43	3.00	25.07	3.51	-0.64	0.6242	0.0125
	3rd quartile	26.92	2.51	26.67	2.64	0.25	0.8165	0.0125
	4th quartile	28.08	3.16	27.10	3.20	0.98	0.4592	0.0125

Table A-10. Comparison of survey estimates, eligible cases with base weight vs. main study respondents after main study nonresponse adjustment (continued)

Variable	Subgroups	All eligible cases		Main study respondents		Difference	p-value	Bonf alpha to compare, p=0.05
		%	SE	%	SE			
ACS percent of households with children under 18 years old								
	1st quartile	26.83	2.69	27.59	2.95	-0.76	0.4671	0.0125
	2nd quartile	27.72	2.47	27.86	2.57	-0.14	0.8942	0.0125
	3rd quartile	23.67	3.06	22.89	3.23	0.78	0.4763	0.0125
	4th quartile	21.78	2.83	21.66	3.18	0.12	0.8815	0.0125
ACS percent of households with earnings								
	1st quartile	26.64	2.91	26.59	2.93	0.05	0.9614	0.0125
	2nd quartile	23.87	2.43	24.37	2.36	-0.50	0.5524	0.0125
	3rd quartile	25.35	1.93	25.98	2.27	-0.63	0.5791	0.0125
	4th quartile	24.14	3.26	23.07	3.47	1.08	0.3026	0.0125
ACS percent of population 25 years and older with bachelor's degree or higher								
	1st quartile	25.24	2.66	26.06	2.74	-0.82	0.4564	0.0125
	2nd quartile	24.21	2.63	24.82	2.83	-0.61	0.6364	0.0125
	3rd quartile	23.86	2.86	23.88	2.96	-0.02	0.9884	0.0125
	4th quartile	26.69	3.28	25.23	3.21	1.45	0.1950	0.0125
ACS percent of households linguistically isolated								
	1st quartile	28.01	4.94	29.31	5.43	-1.30	0.1858	0.0125
	2nd quartile	26.18	3.22	26.55	3.62	-0.37	0.7487	0.0125
	3rd quartile	25.88	3.41	24.47	3.28	1.41	0.0884	0.0125
	4th quartile	19.92	3.31	19.66	3.40	0.26	0.7566	0.0125
ACS percent of population 25 years and older with less than a high school diploma								
	1st quartile	27.75	2.90	26.62	3.13	1.13	0.4876	0.0125
	2nd quartile	26.50	2.81	26.92	3.19	-0.42	0.7713	0.0125
	3rd quartile	25.19	2.91	25.72	3.51	-0.52	0.6416	0.0125
	4th quartile	20.56	2.73	20.75	2.89	-0.18	0.8477	0.0125
ACS percent of housing units with multiple units								
	1st quartile	29.08	2.99	29.42	3.17	-0.34	0.7195	0.0125
	2nd quartile	26.01	3.24	25.56	2.92	0.45	0.5813	0.0125
	3rd quartile	23.00	2.63	22.93	2.99	0.07	0.9203	0.0125
	4th quartile	21.91	3.58	22.09	3.55	-0.18	0.8342	0.0125

Table A-10. Comparison of survey estimates, eligible cases with base weight vs. main study respondents after main study nonresponse adjustment (continued)

Variable	Subgroups	All eligible cases		Main study respondents		Difference	p-value	Bonf alpha to compare, p=0.05
		%	SE	%	SE			
ACS percent of population non-Hispanic Asian alone								
	1st quartile	25.47	3.11	27.70	3.62	-2.24	0.0626	0.0125
	2nd quartile	27.62	3.43	28.83	4.21	-1.21	0.3261	0.0125
	3rd quartile	23.17	2.15	23.05	2.45	0.11	0.8879	0.0125
	4th quartile	23.75	3.34	20.42	3.22	3.33	0.0010	0.0125
ACS percent of population non-Hispanic Black alone								
	1st quartile	31.66	2.97	32.99	3.84	-1.34	0.3419	0.0125
	2nd quartile	24.88	2.57	21.81	2.89	3.07	0.0060	0.0125
	3rd quartile	23.35	2.57	24.69	2.82	-1.34	0.1946	0.0125
	4th quartile	20.11	2.75	20.50	2.97	-0.39	0.6405	0.0125
ACS percent of population non-Hispanic White alone								
	1st quartile	20.39	3.57	20.45	3.46	-0.06	0.9504	0.0125
	2nd quartile	23.47	2.66	23.86	2.65	-0.39	0.5733	0.0125
	3rd quartile	25.80	2.41	24.89	2.49	0.91	0.4264	0.0125
	4th quartile	30.33	2.92	30.80	3.28	-0.47	0.6648	0.0125
ACS percent of households receiving public assistance income								
	1st quartile	25.94	2.64	27.02	3.26	-1.08	0.4426	0.0125
	2nd quartile	28.22	2.32	26.70	2.49	1.52	0.0659	0.0125
	3rd quartile	24.72	2.36	24.84	2.78	-0.12	0.9152	0.0125
	4th quartile	21.12	2.83	21.44	3.11	-0.32	0.7262	0.0125
ACS percent of population 1 year old and older in poverty								
	1st quartile	29.36	3.58	26.85	3.53	2.51	0.1234	0.0125
	2nd quartile	25.79	2.35	25.67	2.60	0.11	0.9278	0.0125
	3rd quartile	25.03	3.20	27.14	3.66	-2.11	0.0880	0.0125
	4th quartile	19.82	2.16	20.34	2.10	-0.51	0.4883	0.0125
ACS percent of housing units that are renter occupied								
	1st quartile	31.10	3.47	31.57	3.76	-0.48	0.7095	0.0125
	2nd quartile	26.93	2.41	26.21	2.30	0.72	0.4903	0.0125
	3rd quartile	21.65	2.32	21.65	2.43	0.00	0.9989	0.0125
	4th quartile	20.32	3.19	20.56	3.05	-0.24	0.8184	0.0125

Table A-10. Comparison of survey estimates, eligible cases with base weight vs. main study respondents after main study nonresponse adjustment (continued)

Variable	Subgroups	All eligible cases		Main study respondents		Difference	p-value	Bonf alpha to compare, p=0.05
		%	SE	%	SE			
ACS percent of households receiving SNAP in last 12 months								
	1st quartile	28.23	4.28	26.70	4.35	1.54	0.1477	0.0125
	2nd quartile	26.18	2.99	25.76	3.07	0.43	0.4864	0.0125
	3rd quartile	23.68	2.85	26.02	3.09	-2.35	0.0156	0.0125
	4th quartile	21.91	2.60	21.52	2.49	0.38	0.5823	0.0125
ACS percent of households receiving Social Security income								
	1st quartile	22.43	3.08	21.84	3.25	0.60	0.5857	0.0125
	2nd quartile	24.65	3.05	24.60	2.82	0.04	0.9646	0.0125
	3rd quartile	25.12	3.23	24.48	3.10	0.63	0.6339	0.0125
	4th quartile	27.80	2.96	29.07	3.27	-1.28	0.2746	0.0125
ACS percent of population unemployed								
	1st quartile	28.52	2.72	27.63	3.30	0.89	0.4878	0.0125
	2nd quartile	25.12	2.18	25.07	2.43	0.05	0.9717	0.0125
	3rd quartile	24.42	2.72	25.20	2.87	-0.77	0.3081	0.0125
	4th quartile	21.94	2.56	22.11	2.68	-0.17	0.8803	0.0125
ACS percent of housing units vacant								
	1st quartile	24.50	2.04	22.61	2.20	1.88	0.1159	0.0125
	2nd quartile	25.18	2.83	23.60	2.94	1.58	0.3265	0.0125
	3rd quartile	26.17	2.20	26.57	2.45	-0.39	0.7079	0.0125
	4th quartile	24.16	3.50	27.22	3.82	-3.07	0.0165	0.0125
ACS percent of population married								
	1st quartile	19.40	2.34	20.77	2.50	-1.37	0.1013	0.0125
	2nd quartile	22.64	2.72	20.23	2.54	2.41	0.0236	0.0125
	3rd quartile	25.93	2.66	26.37	2.80	-0.44	0.7012	0.0125
	4th quartile	32.03	3.66	32.63	4.12	-0.60	0.6714	0.0125
Percent with low income and low access to store								
	1st quartile	34.90	5.65	32.11	5.30	2.80	0.0413	0.0125
	2nd quartile	31.21	4.96	32.77	4.89	-1.56	0.1442	0.0125
	3rd quartile	26.84	5.51	27.61	5.59	-0.77	0.3812	0.0125
	4th quartile	7.04	1.60	7.51	1.59	-0.47	0.2346	0.0125

Table A-10. Comparison of survey estimates, eligible cases with base weight vs. main study respondents after main study nonresponse adjustment (continued)

Variable	Subgroups	All eligible cases		Main study respondents		Difference	p-value	Bonf alpha to compare, p=0.05
		%	SE	%	SE			
MeSA status								
	Metro	74.42	4.00	74.22	4.20	0.20	0.8388	0.0167
	Micro	10.78	3.44	10.65	3.62	0.14	0.8363	0.0167
	Non-MeSA	14.80	2.98	15.14	3.28	-0.34	0.5610	0.0167
FNS region								
	Mid-Atlantic	9.57	1.26	9.27	1.68	0.29	0.6132	0.0071
	Midwest	25.99	4.54	25.13	4.56	0.87	0.3587	0.0071
	Mountains/Plains	7.06	2.30	6.48	2.40	0.58	0.3124	0.0071
	Northeast	9.40	1.55	8.25	1.70	1.15	0.4875	0.0071
	Southeast	19.56	2.27	22.28	2.19	-2.72	0.0121	0.0071
	Southwest	10.52	2.45	11.67	2.72	-1.15	0.0624	0.0071
	West	17.91	2.26	16.93	2.40	0.98	0.2463	0.0071

Figure A-1. Level-of-effort plots, Food at Home

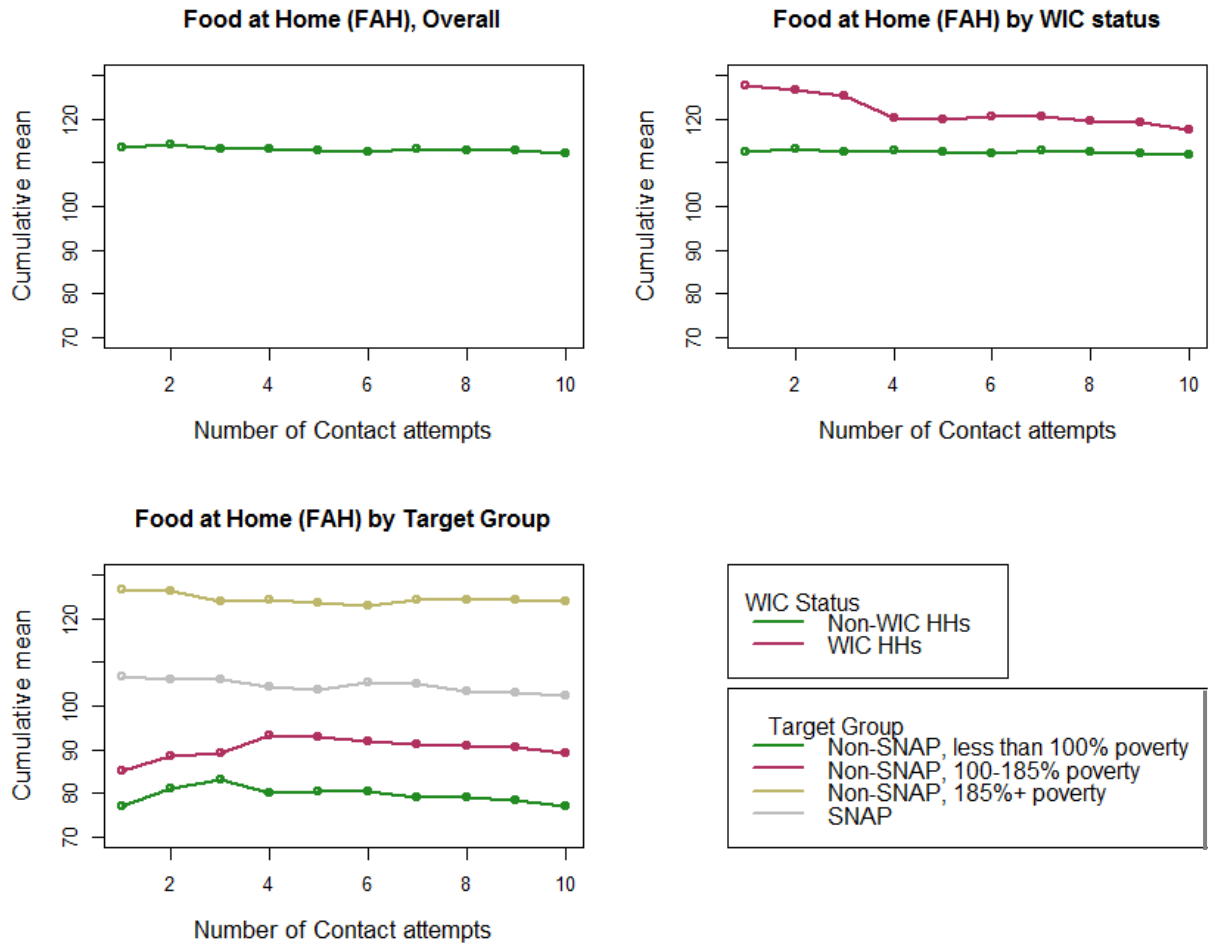


Figure A-2. Level-of-effort plots, Number of Free Events

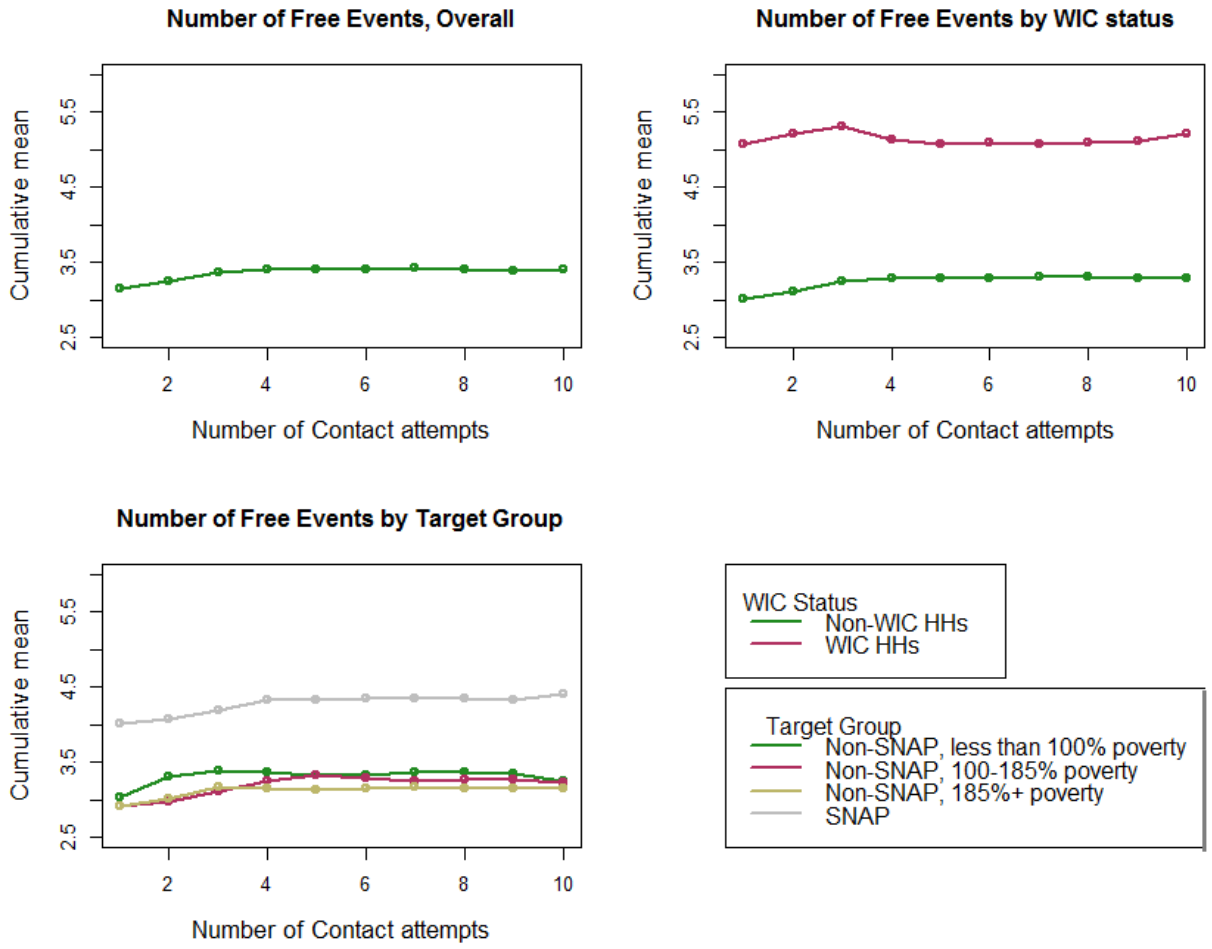


Figure A-3. Level-of-effort plots, Food Insecurity

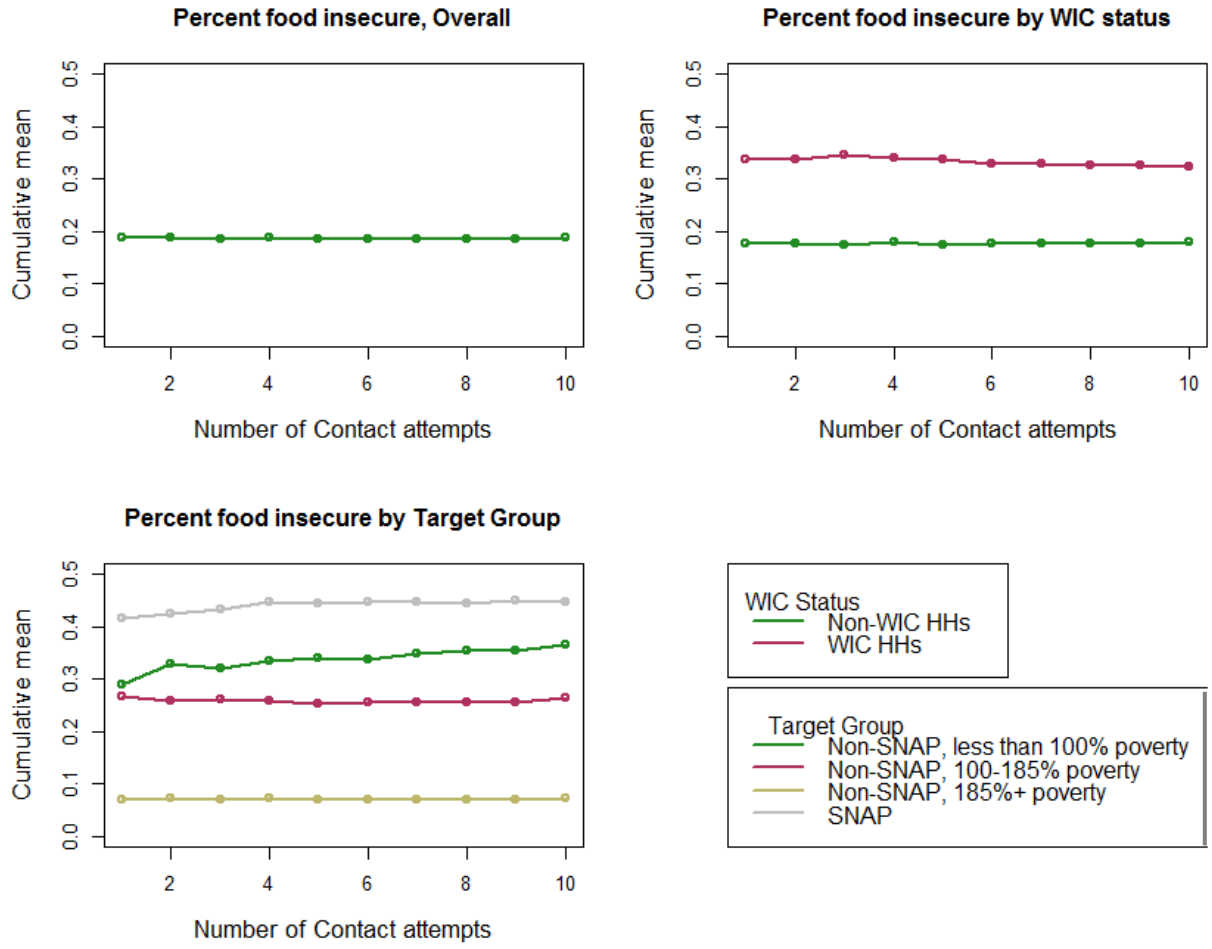
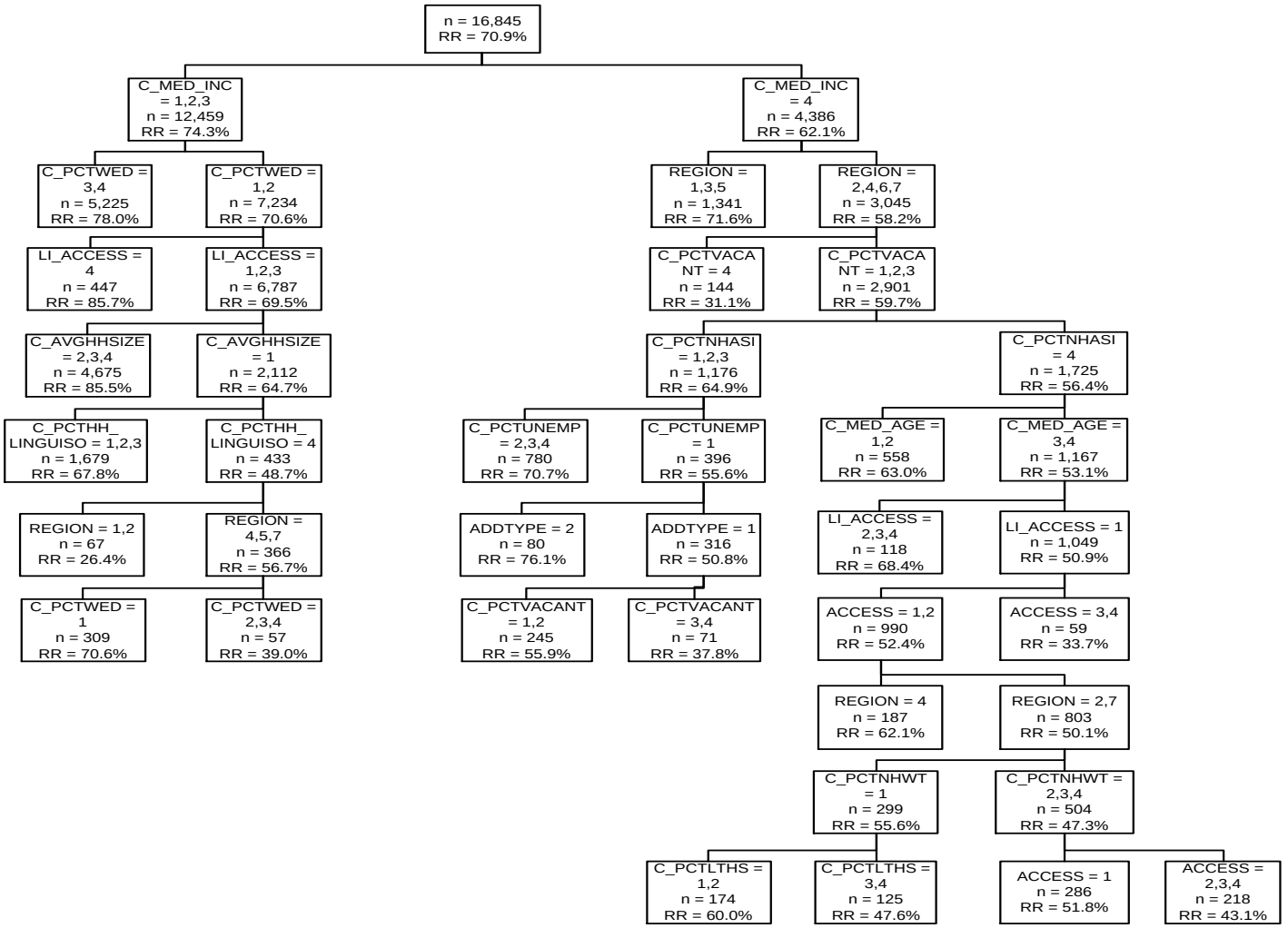
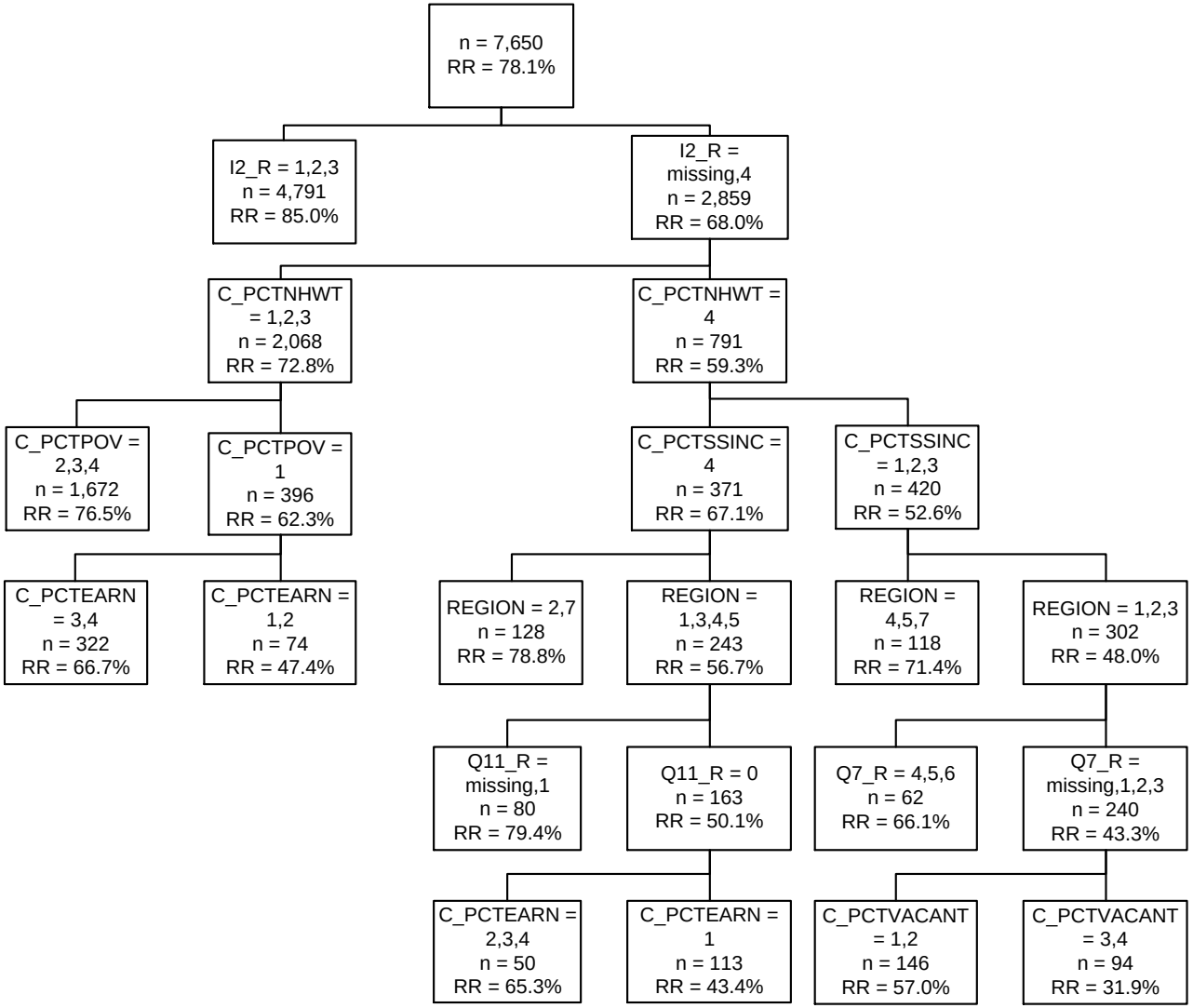


Figure A-4. Screener classification tree



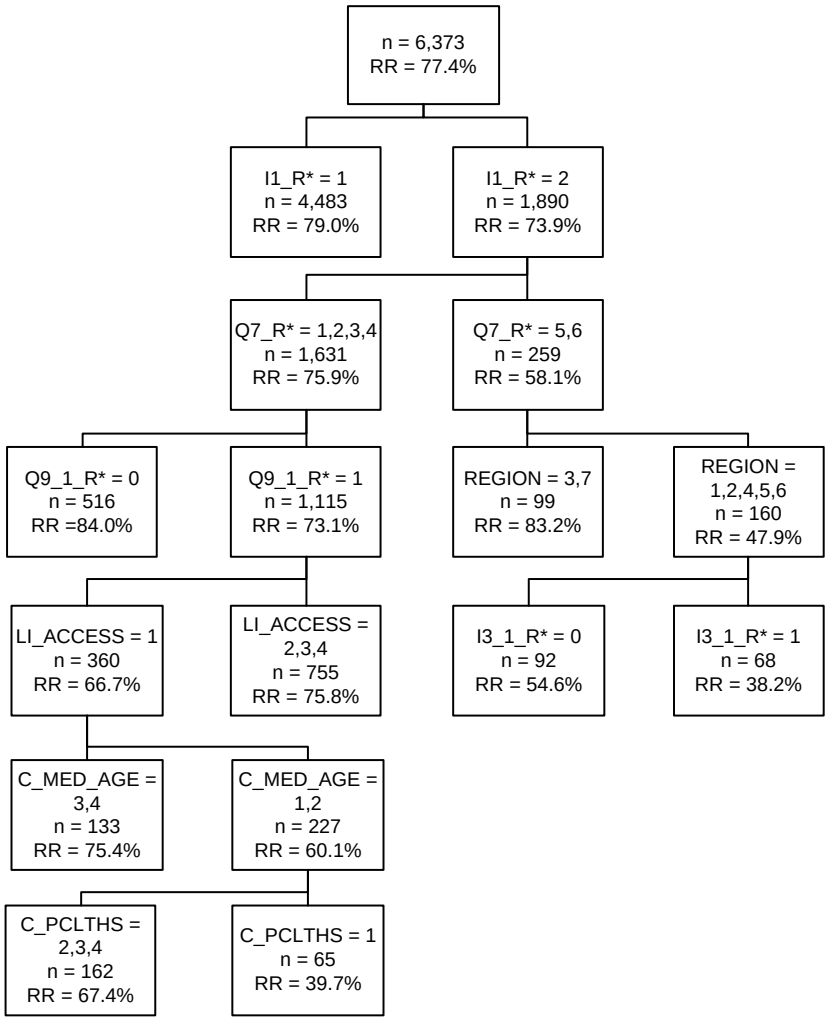
Note: "n" is the number of cases within each cell; "RR" is the weighted response rate within each cell; other variables are defined in Table A-1.

Figure A-5. Initial agreement classification tree



Note: "n" is the number of cases within each cell; "RR" is the weighted response rate within each cell; other variables are defined in Table A-1.

Figure A-6. Initial Interview classification tree



*For these ordinal or binary variables, the classification algorithm attempted to split missing values into one cell and non-missing values into the other. This is not a desirable split. To avoid this, they were treated as continuous variables. Cases with missing values for continuous variables are not classified directly; instead, classification is done via proxy variables chosen by the algorithm. See the rpart documentation for more details: http://cran.r-project.org/web/packages/rpart/vignettes/longintro.pdf

Note: "n" is the number of cases within each cell; "RR" is the weighted response rate within each cell; other variables are defined in Table A-1.