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Abstract

Food insecurity, defined as a household-level economic and social condition of limited or uncertain access to adequate food, is a substantial threat to public health in the United States. In 2017, nearly 12% of households reported being food insecure, affecting over 40 million persons. Numerous studies have documented that food insecurity is associated with substantive negative health outcomes among children and families, and leads to excessive health care expenditures. In this paper we compare the levels, trends, and determinants of food insecurity in the University of Michigan's Panel Study of Income Dynamics (PSID) to those from the official source of food security statistics in the U.S.—the Food Security Supplement of the Current Population Survey—from 1999-2017. The PSID, which was begun in 1968, is the leading longitudinal household survey on work, welfare, family structure, consumption, health, and wealth. The survey added measures of food security in the 1999-2003 waves, and again in the 2015-2017 waves. This offers the first opportunity to answer key pressing scientific and policy issues such as the persistence of food insecurity within and across generations, and how changes in food security affect and are affected by the level and change in consumption, wealth, and broader measures of health. This paper aims to describe how well levels and trends in food insecurity in the PSID align with the CPS, and the sources of why they might differ. In addition, we examine the robustness of key model predictors of food insecurity—income, race, education, disability status, marital status—across the surveys. We find that, although the estimated food insecurity rates in the PSID are lower than those in the CPS, the trends over time in the two datasets are similar. Food insecurity rates in the PSID and CPS converge from the 1998-2002 period to the 2014-16 period when food insecurity rates closely match those in the CPS. Our findings, taken as a whole, lend credence to the use of the PSID for food insecurity research.

Food insecurity, as defined in the United States, is a condition in which households lack access to adequate food because of limited resources. In 2017, 12.5% of all persons (40 million) in the U.S. lived in food-insecure households (Coleman-Jensen et al., 2018). The size of the food-insecure population is roughly similar in scale to the number of persons living in poverty, but perhaps surprising, only about half of those living in poverty report being food insecure. Research suggests multiple reasons for the onset of food insecurity beyond income, and that it is associated with numerous negative health outcomes across the age gradient (Gundersen and Ziliak 2015, 2018). Indeed, food insecurity has been estimated to result in an additional outlay on health care in excess of $77 billion annually (Berkowitz et al. 2017), making it one of the leading nutrition-related health care issues facing the nation.

The current measure of food insecurity was put into practice in response to a report issued by the Life Sciences Research Office that encouraged the collection of the socioeconomic concept of uncertain access to nutritionally adequate food at the household level, as distinct from the physiological condition of hunger at the individual level (Anderson 1990). Since 1995, the USDA has sponsored the Food Security Supplement (FSS) as part of the Current Population Survey (CPS), a nationally representative monthly survey conducted by the U.S. Census Bureau on behalf of the Bureau of Labor Statistics. The FSS contains detailed information on food security, food spending, participation in food assistance programs, and other food-related outcomes. Food security on the FSS is measured by the household food security module (HFSM), which consists of 18 questions for households with children and a subset of 10 of these for households without children, with each condition owing to financial constraints. Some of the conditions include: “I worried whether our food would run out before we got money to buy more” (the least severe item); “Did you or the other adults in your household ever cut the size of

your meals or skip meals because there wasn't enough money for food;" "Were you ever hungry but did not eat because you couldn't afford enough food;" and "Did a child in the household ever not eat for a full day because you couldn't afford enough food" (the most severe item for households with children). The CPS FSS is the source for official statistics on food insecurity (Coleman-Jensen et al, 2018), and scores of research papers on its correlates (see Gundersen and Ziliak 2018, for a recent review).

In subsequent years the food security module has been added, in whole or in part, to several household surveys. Notable among these is the University of Michigan's Panel Study of Income Dynamics (PSID). The PSID is the world's longest running longitudinal household survey, starting with 4,802 families in 1968 and following split-offs from the original families and their descendants, such that by 2017 there were over 9,000 families consisting of nearly 25,000 individuals. The PSID is the only nationally representative panel survey with the full 18-item HFSM, with the supplement included in the 1999, 2001, 2003, 2015, and 2017 waves of the main family file, along with the 1997, 2002, and 2014 Child Development Supplements. What also sets the PSID apart is that it is the only panel survey that since 1999 contains information on family demographics, employment, income, consumption, health, and wealth. Moreover, because families can be followed both intra- and inter-generationally, it is the only source available to examine long-term consequences of food insecurity on (extended) family well-being.

Because of the PSID's longstanding prominence in social science research and policy, and its potential to provide the first evidence on intergenerational dimensions of food insecurity, the aim of this paper is to assess how well rates and determinants of food insecurity in the PSID compare to those in the CPS. There are several reasons why estimates from the two surveys may not align. First, the composition of the U.S. population has changed dramatically since the

beginning of the PSID in 1968, and because of potentially selective attrition from the survey and the loss of a sizable portion of the low-income oversample due to budget cuts (Fitzgerald, Gottschalk, and Moffitt 1998), the PSID may not adequately capture the extent and scope of food insecurity compared to the much larger CPS, despite efforts by PSID to add refresher samples of immigrants. Second, even though the 18 questions in the HFSM are the same across the surveys, the PSID does not ask initial screener questions. For example, in the CPS, the initial screen ensures that, unless the household responds in the affirmative to one of two questions indicating food stress, the HFSM is restricted to those households with incomes less than 185% of the federal poverty line. The CPS FSS weights are supposed to adjust for the selective sample, but this hinges on the assumption that selection is missing at random conditional on the screeners. If this assumption does not hold, then (weighted) estimates from the surveys may diverge. In addition, the 1999-2003 PSID utilized screeners for households with children which differed from those in the CPS. Third, and related to the latter, is that the surveys have differential rates of item nonresponse to the survey questions. In general, item nonresponse is lower in the PSID than the CPS, and while the weights are designed to adjust for nonresponse, this again hinges on the missing at random assumption, which is violated on some other outcomes in the CPS such as earnings (Bollinger et al., 2019). Fourth, the CPS FSS has been fielded in the month of December starting in 2001, and refers to the prior 12 months, e.g. Dec 2014 – Nov 2015 for the December 2015 CPS FSS. The modal months of PSID interviews are March and April, and since 2001, over half of all interviews have occurred after the month of April, meaning that estimates of food insecurity could differ from calendar timing. The reference period in the PSID changed over time, from the prior calendar year in the 1999-2003 waves to the prior 12 months in the 2015-2017 surveys.

In our analysis, we begin by documenting rates of food insecurity both overall and by detailed socioeconomic characteristics in the CPS and PSID. We examine three measures that represent a range of food-related hardship: (1) marginal food security (answering yes to one to two questions), (2) food insecurity (answering yes to at least three questions), and (3) very low food security (answering yes to at least 6 questions, or 8 questions if children are present in the household). We then assess response patterns across each of the 18 items in the respective surveys, followed by a multiple regression analysis examining whether and how determinants of food insecurity differ across the CPS and PSID surveys. We conclude with an overall assessment of the suitability of the PSID for food insecurity research, along with some guidance to researchers on its use.

II. CPS and PSID Food Security Data

The benchmark data on food insecurity comes from the CPS. The CPS is a monthly survey of approximately 60,000 households with a rotation group design, which means that households are interviewed for four consecutive months, are out of the survey for eight months, and then are returned to the sample for another four months. The first and fifth interviews are generally in person, while the remaining six interviews are by phone, which means that roughly one quarter of any given monthly interview is in person because it corresponds with months one or five of the rotation group. From 1995 – 2001, the FSS was fielded in either April, August, or September, but since 2001 the supplement has been fielded in December. Supplement weights constructed as part of the FSS are used to ensure a nationally representative sample.

The original PSID sample of 4,802 families consisted of two subsamples, with roughly three-fifths from a stratified random sample of U.S. households (known as the Survey Research Center (SRC) sample) and two-fifths from an oversample of low-income households (known as

the Survey of Economic Opportunity (SEO) sample). The SRC sample can be used in isolation and weights are not necessary for population representativeness, but the combined SRC-SEO samples have differential selection probabilities, and thus weights for simple summary statistics are required.[1] Interviews were conducted annually through 1997, and then biennially thereafter, and since 1993 the interview is by computer-assisted phone interview. In 1997, approximately one-third of the SEO sample was (randomly) dropped for budgetary reasons, but a randomly selected immigrant refresher sample was added to account for post-1968 demographic changes and thus the combined SRC-SEO weights were recalibrated. However, our analysis is conducted only with households from the original SRC and SEO subsamples and the appropriate weights.

The PSID administered the food security questionnaire in the 1999, 2001, 2003, 2015, and 2017 waves of the main family file, along with the 1997, 2002, and 2014 Child Development Supplements. For our analysis we restrict attention to the HFSM from the main family file. The time reference for the HFSM questions in the 1999-2003 surveys is the year prior to the survey; for example, respondents to the 1999 PSID were asked about their food situation during 1998. In the 2015 and 2017 surveys, the HFSM questions refer to the prior 12 months.

While PSID interviews may be conducted throughout the survey calendar year, historically the majority were conducted in the months of March and April. For example, in 1999, 85 percent of the households in the PSID had been interviewed through May. However, in both 2001 and 2003 this fell to about two-thirds of the sample. Because the food security questions in these three survey years refer to a household's food hardships in the prior calendar year, the lower proportion of households responding in the early months of the survey year may produce greater recall bias in food security estimates in 2001 and 2003. By 2015, just over one-

[1] Weights for multiple regression models with the PSID may or may not be needed, depending on the question being asked and its possible relation to sample inclusion in the PSID (Solon, Haider, and Wooldridge 2013).

quarter of PSID households were interviewed by May. However, all PSID households were asked about their food hardships in the prior 12 months, regardless of their month of interview. Taking into account the timing and question wording of the PSID HFSM, we compare each wave of the PSID to the CPS survey whose reference period is most closely aligned to it. We compare the April 1999 CPS to the 1999 PSID, the April 2001 CPS survey to the 2001 PSID, the December 2002 CPS to the 2003 PSID, the December 2014 CPS to the 2015 PSID, and the December 2016 CPS to the 2017 PSID. The December 2002, 2014, and 2016 food security supplements are the source of the official USDA statistics on food insecurity, and our estimates from the CPS for those years align with the official statistics. In 1998 and 2000, the official USDA statistics are based on supplements fielded in the fall of those years, and therefore our estimates based on the CPS are not identical to the official statistics in those years.

[Table 1 here]

The eighteen questions in the HFSM are shown in Table 1, along with the variable names in the respective datasets. The food security questions have remained the same in both surveys and the CPS naming convention has remained constant, while the PSID uses distinct variable names in each year. The order of the questions in Table 1, where all household- and adult-referenced questions are administered first, followed by the child-referenced questions, has been used in the CPS since the December 2007 survey. The question ordering was revised in response to recommendations of a 2006 National Academies of Science panel that the revision would reduce cognitive burden on respondents (Wunderlich and Norwood, 2006). Prior to December 2007, the CPS question ordering was based on severity of conditions in the household, with questions 1-3, questions 11-13 (to households with children), questions 4-10, and questions 14-18 (to households with children). In the PSID, the order of the food security questions has been

consistent across survey years, and is identical to the order in Table 1, except that question 15 is asked between questions 17 and 18.[2]

In both the CPS and PSID, question screeners are used to expedite the survey and reduce burden on the reporting household by skipping questions deemed to be irrelevant to the household based on responses to past questions. There are two common screeners in the surveys: (1) the questions on frequency of the event—questions 5, 10, and 17—are only asked to households who answered affirmatively to the preceding question; and (2) the child-referenced questions—questions 11-18—are only asked to households who had children under the age of 17 present in the past year. Below, we outline the additional screeners used by the CPS and PSID.

A. Screeners in the CPS and PSID

Figure 1a compares the question order and screeners in the April 1999 CPS to the 1999 PSID. The HFSM in the April 1999 CPS is similar to that in the April 2001 and December 2002 CPS. Likewise, the HFSM in the 1999 PSID is similar to that in the 2001 and 2003 PSID. The survey households in the CPS are screened out of the food security questions entirely if they have income above 185% of the federal poverty line (FPL) and show no indication of problems obtaining food for the household in response to the following two questions:

1. "In the last 12 months, since ___ of last year, did you ever run short of money and try to make your food or your food money go further?" and
2. "Which of these statements best describes the food eaten in your household--enough of the kinds of food we want to eat, enough but not always the kinds of food we want to eat, sometimes not enough to eat, or often not enough to eat?" (referred to as the "food sufficiency" question)

[2] The question order in the PSID follows USDA guidance at: https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools/#household

Households with income below 185% of the FPL or those with income above 185% of the FPL that experience either of the problems obtaining food—answering "yes" or "don't know" to question (1) or "yes" to one of the last three options on the food sufficiency question (or don't know")—enter the HFSM. The initial screen to the HFSM is generally consistent throughout the CPS surveys.[3] However, as noted previously, the question ordering was revised in the December 2007 and subsequent surveys, which had some effect on the internal screens in the HFSM.

[Figure 1a here]

In the April 1999, April 2001, and December 2002 CPS, the first block of questions consists of questions 1-3 and questions 11-12 (to households with children). The second block of questions is only asked of households that report sometimes or often not having enough food on the food sufficiency question or that respond in the affirmative to any questions in the first block. The second block of questions consists of question 13 (to households with children) and questions 4-8. The final block of questions is only asked of households that responded in the affirmative to any of the questions in the second block, and consists of questions 9-10 and questions 14-18 (to households with children).

The ordering of the PSID food security questionnaire in all of the waves is similar to the structure initiated in the 2007 CPS, with the household-referenced questions asked before the child-referenced questions. There is no initial screener to the HFSM in any of the waves of the PSID, so all households are asked the first block of three questions regardless of income or other indicators of problems obtaining food. In 1999 and 2001, a PSID household received the second block of household-referenced questions if they answered affirmatively to at least one of the

[3] The April 1999 survey included split-ballot testing of an experimental variation of the food insufficiency question.

three questions in the first block or if they report (in an earlier question) being food insufficient.[4] In 2003, the screen was made stricter and a household received the second block of questions if they responded affirmatively to at least two of the three questions in the first block or report being food insufficient and respond affirmatively to at least one of the three questions. The 1999-2003 PSID surveys have only two blocks of the adult- and household-referenced questions. So, PSID households in those years that pass the screener after questions 1-3 will be administered questions 4-10, whereas CPS respondents in the corresponding years face a screener before receiving questions 9-10. Perhaps the most significant difference between the CPS and PSID in the 1999-2003 period is that PSID households with children were only asked child-focused questions 11-13 if they answered in the affirmative to any of questions 1-3. In the CPS, any household with children that passed the initial screen was asked questions 11 and 12, though question 13 was only asked of those who answered affirmatively to at least one of the questions in the first block.

[Figure 1b here]

Due to the reordering of the food security questions that was initiated in the December 2007 CPS, the HFSM in the 2014 and 2016 CPS was quite different from previous CPS years in the analysis, as shown in Figure 1b. The initial screener was the same as in the previous years in our analysis, but the adult- and household-referenced questions are asked in three blocks, while the child-referenced questions are asked in two blocks. Thus, the structure of the HFSM in the 2014 and 2016 CPS and the 2015 and 2017 PSID are quite similar, though there are some minor

[4] Households in the 1999-2003 PSID that report being food insufficient ("sometimes" or "often" not having enough to eat) are asked in a series of follow-up questions to provide reasons for this condition. There were a small number of households that responded that "not enough money for food" was not a reason for their reported food insufficiency. The PSID treats these households as being food sufficient for the purposes of the screener.

differences in the screeners. One difference is that the 2015 and 2017 PSID, like the earlier PSID waves, does not have an initial screener to the HFSM. For the adult- and household-referenced questions, the first block in each survey consists of questions 1-3. The second block consists of questions 4-8, asked of households that responded affirmatively to any of the questions in the first block, or in the CPS, that reported sometimes or often not having enough food on the food sufficiency question. The final block consists of questions 9–10, which were only asked to households who responded in the affirmative to any of the questions in the second block.[5]

The first block of child-referenced questions consists of questions 11-13, which were asked to all PSID households with children unlike in the 1999-2003 waves, but only asked to CPS households with children who passed through the initial screener. The second block consists of questions 14-18, which were only asked to households with children in both surveys that responded affirmatively to any of the questions in the first block of child-referenced questions.

In all years of the CPS, once a household is screened out, subsequent food security questions are coded as "not in universe." In the PSID, once a household is screened out, all subsequent responses were coded as "Inap.: no major food distress."

C. Food Security Measures

Our measures of food security describe conditions at the household level, and include marginal food security, food insecurity, and very low food security. A household is marginally food secure if they respond affirmatively to 1-2 questions in the HFSM. This generally corresponds with some members reporting anxiety about food sufficiency or shortage of food in

[5] There is a small difference in the screen between the second and third blocks in the 2015 PSID compared to the 2014 CPS, in that the PSID omits question 4 from the list of questions whose affirmative response would advance a household to the final block of adult- and household-referenced questions.

the house, but with no indication of changes in diet or food intake. A household is food insecure if they have 3 or more affirmative responses to the HFSM, which generally corresponds with at least some household members reporting reduced quality, variety, or desirability of diet but not necessarily reduced food intake. The final and most severe category is very low food security, assigned to households with 8 or more affirmative responses if there are children in the household (6 or more affirmative responses in household no children). Very low food security is generally characterized by one or more household members reporting multiple indications of disrupted eating patterns and reduced food intake.

III. Results

We begin our analysis by presenting rates of household food insecurity in the CPS and the PSID. Figure 2 depicts weighted estimates of the three measures of food insecurity from the CPS and PSID for each of the five years in our analysis, along with a pooled estimate. In our discussion of research results, we refer to the year that corresponds to the reference period for data collection. While trends in the three measures of food insecurity in the PSID largely align with those in the CPS, the figure makes clear that rates of food insecurity in the PSID are almost always lower in the PSID than in the CPS. It is also clear that food insecurity rates in the PSID are more closely matched to the CPS in 2014-2016 than in 1998-2002. In 1998-2002, rates of marginal food security are 6-7 percentage points lower in the PSID, rates of food insecurity are 4-5 percentage points lower in the PSID, and rates of very low food security are about 1 percentage point lower in the PSID. In 2014-2016, marginal food security rates are 1-3 percentage points lower and food security rates are about 2 points lower in the PSID than in the CPS, roughly half the average difference found in 1998-2002 period. The rate of very low food security is 0.5 percentage points lower in the PSID than in the CPS in 2014, and is 0.3 percentage points higher in 2016. The rest of the analysis aims to understand these differences,

and why the two surveys yield more comparable estimates in the more recent period, including differences in the demographic composition of the households in the surveys and differences in screeners.

[Figure 2 here]

A. Baseline Demographics in the CPS and PSID

Table 2 compares key demographic characteristics in the CPS and PSID that have been found in the literature to be important determinants of the risk of household food insecurity (Gundersen and Ziliak 2015; 2018). The table suggests that there are a few important differences in demographics. Notably, the PSID has a higher proportion of households with incomes above 200% of the federal poverty line than the CPS and a lower proportion of poor (with incomes under 100% of the poverty line) and near poor households (with incomes between 100-200% of the poverty line). The higher incomes of PSID respondents may help explain the lower reported rates of food insecurity in the PSID, though they could simply be a result of the higher quality of income reports in the PSID rather than a true difference in economic means. Another important demographic difference between the two data sources is in the gender of the head of household, but this is an artifact of the way heads are defined. In the CPS any individual age 17 and older may report themselves as the household head. In the PSID, if a female has a male spouse or partner with whom she has been living with for at least a year in the family unit, then he is designated as head. Moreover, the differences in the income distribution and gender of the household head between the CPS and PSID are fairly stable across the survey years, and thus are not likely to explain the convergence in food insecurity rates in the 2014-2016 period.

There are two demographic changes that could help explain the convergence in food insecurity rates in the PSID and the CPS. The likelihood of a PSID household head being

unmarried increases from about 50 percent in 1998-2002 (which is higher than in the CPS by 3 percentage points) to about 57 percent in 2014-16 (7 percentage points higher than in the CPS). The probability that a PSID household has a black head also increased somewhat from the 1998-2002 period to the 2014-16 period, where it is about 3 percentage points higher than in the CPS. Having a head who is unmarried or black is associated with a higher probability of food insecurity, so these demographic changes could help explain some of the convergence in food insecurity rates across the two surveys in 2014-16.

On the other hand, there are some changes in demographic characteristics in the PSID that would be expected to increase the divergence in food insecurity rates across the two surveys. The percentage of PSID households with children decreased from 30-32 percent in 1998-2002 to 24 percent 2014-2016, when it is 3-4 percentage points lower than in the CPS. In addition, there was a larger increase in the percentage of households with an elderly head in the PSID than in the CPS from 1998-2002 to 2014-16. Both of these trends would be expected to decrease the prevalence of food insecurity in the PSID relative to the CPS, which is counter to the study findings.

In sum, there is a substantive difference in the distribution of income between the PSID and the CPS, but the differences in each year do not exhibit a pattern that would explain the convergence in food insecurity rates in 2014-16. While patterns in some of the demographic characteristics (such as marital status and race) are consistent with the convergence in food insecurity rate, other characteristics (such as presence of children and age) are not. Thus, it is not obvious a priori that demographics are driving the large differences in rates of food insecurity between the CPS and PSID in 1998-2002, or the convergence in those rates in 2014-16.

[Table 2 here]

B. Question Item Responses

In light of the different screeners that are used in the two datasets, we show the fraction of affirmative responses question-by-question for the full HFSM for each dataset and year in Figure 3. For each subfigure, the horizontal axis is the question number matching Table 1. For each year we show both the weighted and unweighted percent of affirmative responses.

[Figure 3 here]

There are two noteworthy patterns that emerge in Figure 3. First, the unweighted affirmative response rates in the PSID are lower across the majority of questions 1 – 14 in 1998-2002 (with both surveys generally recording no affirmative responses to questions 15-18). In contrast, the unweighted affirmative response rates in the 2014 and 2016 PSID are higher than in the CPS for questions 1-10 and generally lower than in the CPS for questions 11-14. In the weighted data, the affirmative response rate for most questions is lower in the PSID than in the CPS, but the differences between the two surveys are smaller in 2014-2016 than in the earlier years, consistent with the more comparable food security estimates in those years.

The second noteworthy pattern is that the biggest discrepancy in response rates in 1998-2002 comes from question 11, the first child-focused question. Recall that in those years of the PSID, households were asked question 11 only if they answered affirmatively to at least two of questions 1-3 or if they had reported food insufficiency and answered affirmatively to one of questions 1-3. In the CPS, though, any household that passed the initial screen was asked questions 1-3 as well as questions 11-12. This suggests that the screeners play a role in the overall reported food security rates.

To further explore the role of the different screeners in the surveys, we examine two counterfactuals. In the first, we apply PSID screeners to the corresponding CPS survey year, and in the second, we apply the more stringent screens used in the 1999-2001 PSID to the more

recent PSID survey years. The resulting food security measures are shown in Table 3. Both approaches result in a reduction in the measured prevalence of food insecurity. In the first counterfactual, we compare actual food insecurity rates in the CPS to the rates estimated when applying the PSID screeners to the CPS, labeled CPS-PSID in Table 3. The counterfactual results in reductions in early years and very little change in more recent waves. The similarity of the rates in 2014 and 2016 highlights the similarity between the screeners in those years. Food insecurity rates with the PSID screens applied are about half of a percentage point lower for 1998-2002. In the second counterfactual, applying the earlier, more stringent PSID screens to later waves, labeled PSID-Old in Table 3, we estimate that the actual 2014 and 2016 food insecurity rates in the PSID are about 1 percentage point higher than they would have been under the more stringent 1998-2002 screeners. Together, these results imply that, while the screeners account for some portion of the differences in food insecurity rates between the PSID and the CPS in 1998-2002, they are not likely to account for a substantial portion of the 4 to 5 percentage point differences between them. Thus, although the screener differences led to significant changes in affirmative response rates to certain individual questions, the changes did not translate into a broad recategorization of the food security status of PSID households.

[Table 3 here]

C. Demographic Differences in Food Insecurity

To better compare the food insecure populations in the two data sources, we examine: (1) food insecurity rates by demographic group and (2) the demographic composition of households that report being food insecure. Tables 4-8 show the percentage of selected demographic groups that are food insecure for each separate year. With few exceptions, the prevalence of food insecurity is lower in the PSID than in the CPS across all years and demographic groups. This

suggests that the lower overall rates of food insecurity in the PSID are not driven by a particular demographic group or by the fact that PSID respondents have relatively higher incomes than CPS respondents. The most notable exception to the lower food insecurity rates in the PSID is among low-income households in 2014-2016, when poor and near poor households in the PSID actually experienced a slightly higher prevalence of the three food insecurity conditions compared to those in the CPS, with the exception of food insecurity in 2016. This is in contrast with the1998-2002 period, when the food insecurity rates of poor households are 14-16 percentage points lower in the PSID than in the CPS, while rates of marginal food security are 15-21 percentage points lower, and rates of very low food security are 4-6 percentage points lower. We see the same pattern among near poor households, though the differences are not as large. Thus, the 2014-2016 food insecurity rates in the PSID are more comparable to the CPS across all income groups, but the convergence is most pronounced among poor households, and accounts for a large degree of convergence in overall rates between the two surveys in 2014-2016.

[Tables 4-8 here]

Next, we look at the composition of households that report being food insecure, with results shown for each separate year in Tables 9-13. Within each set of demographics, the percentages add to 100%.[6] On average, a lower proportion of food-insecure households in the PSID are poor and a higher proportion have incomes above 200% of the federal poverty line compared to food-insecure households in the CPS. For example, among food-insecure households, 28-34 percent are poor in the PSID, compared to 39-44 percent in the CPS. This is true across the three food security measures, though the magnitudes of the differences vary and

[6] Note, due to rounding totals may not add to 100%.

the differences are far less pronounced in the 2014-2016 data. Households with an unmarried head account for a greater proportion of food-insecure households in the PSID (75-84%) than in the CPS (62-70%), and this relationship holds for marginal food security and very low food security as well. Food-insecure households in the PSID were relatively more likely to have a black household head (30-35%) than those in the CPS (24-26%). The differences between the PSID and the CPS in the racial composition of marginally food secure households are similar to those of food-insecure households, while households with very low food security exhibit greater variation in racial composition across data sources and years. Food-insecure households in the datasets are otherwise similar.

[Tables 9-13 here]

D. Determinants of Food Insecurity

Lastly, we systematically assess differences between the CPS and PSID surveys in the estimated relationship between demographic characteristics and food insecurity. We present linear probability regression estimates for the determinants of food insecurity in Tables 14-18 for each separate year in our analysis.

Each table presents six sets of results that compare estimates of each of the three food insecurity measures between the two datasets, where the independent variables are the groups of demographic variables in the previous tables. The omitted categories are income less than 100%FPL, white, non-married, age 16-24, less than high school education, and male. Standard errors are corrected using Huber-White robust standard errors and survey weights are used.

[Tables 14-18 here]

The coefficient estimates tend to be qualitatively similar across the data sources. That is, for example, regression results from both the PSID and the CPS indicate that having higher income relative to the poverty line and a head with higher levels of education is associated with

lower rates of food insecurity. They also both show households with an unmarried or black head are more likely to be food insecure. Where the estimation results from the two datasets differ is on the effect of the age of the household head and of the presence of children in the household on food insecurity. Estimates from the PSID indicate a monotonically negative relation between age and food insecurity, meaning older individuals have lower rates of insecurity and the decline increases (in absolute value) with successively older age groups. The effect of age on food insecurity found for the CPS, however, is parabolic, first rising with age and then declining for households over the age of 65. These age patterns are more muted in both the PSID and CPS for the very low food security category, but we also explain much less of the total variation for this more extreme outcome. The estimates from the CPS show that presence of children increases the probability of food insecurity, while the PSID estimates are negative and not statistically significant. The estimates from both surveys indicate that the presence of children increases the probability of marginal food security and decreases the probability of very low food security.

In general, the coefficient estimates from the CPS are more likely to be statistically significant than those from the PSID results, though this is not surprising given the much larger sample sizes in the CPS. The CPS regressions also have higher pseudo-R-squared values compared to the PSID counterparts.

Though most of the coefficient estimates from the two datasets are qualitatively similar, effects sizes can differ. To more rigorously compare the results from each sample, we run a Wald Test to test if the coefficients are jointly different from one another. The Wald statistic is

$$W = (\beta_P - \beta_C)\big((V_P + V_C)\big)^{-1}(\beta_P - B_C) \sim \chi_k^2 ,$$

Where subscript P denotes the PSID estimate and subscript C denotes the CPS estimate, β is the vector of estimated coefficients, and V is the variance-covariance matrix. The statistic is distributed chi-squared with k degrees of freedom, where k is the number of regressors.

[Table 19 here]

For each year, we conduct five Wald tests based on the regression estimates for the primary food insecurity measure. We conduct the test using the entire set of regressors as well as four different subsets that characterize household income relative to the poverty line, and the race, age, and education of the household head. These results are shown in Table 19, which includes both the test statistic and its p-value. In each year, we soundly reject the null hypothesis of the equality of the full set of coefficient estimates between the two samples. The Wald statistics do show that the coefficient estimates for the year 2014 and 2016 are most similar to one another, consistent with our earlier analyses. The test cannot reject the equality of the coefficient estimates on income and education in both 2014 and 2016, though the hypothesis of equality is generally rejected in the earlier years of the surveys. The equality of coefficient estimates on the age of the household head is rejected in all survey years, which is not surprising given the differences in the age-related patterns of estimated food insecurity described above. The results on the equality of coefficient estimates on the race of the household head are mixed across the survey years, resulting from the cross-year variation in the coefficient estimate on the presence of a black household head in the PSID.

IV. Conclusions

This study compares the levels, trends, and determinants of food insecurity in five waves of the PSID to those from the CPS, the official source of food security statistics in the U.S. We find that, although the estimated food insecurity rates in the PSID are lower than those in the

CPS, the trends over time in the two datasets are similar. Food insecurity rates in the PSID and CPS converge from the 1998-2002 period to the 2014-16 period, when the gap in food insecurity rates between the two surveys is cut in half.

We explore possible explanations for the gap in food insecurity rates between the surveys, and the decrease in that gap in the 2014-16 period. We find evidence that the more stringent screeners in the 1998-2002 PSID play some role in the relatively lower food insecurity rates in those years, though not as large as might be expected given the effect of the screeners on the response rates to individual food insecurity questions. We find no evidence that the differences in food insecurity rates are driven by differences in the demographic characteristics of households, though we do find higher average income among PSID households. Rather, our results show that a large degree of the overall convergence in food insecurity rates can be accounted for by the relatively higher rates of food insecurity among poor PSID households in 2014-16 than in the earlier period. Consistent with this finding, the regression results indicate a relationship between income and food insecurity in the 2014-16 PSID that is stronger than that found in the 1998-2002, and similar to the relationship estimated in the corresponding CPS data.

The addition of the HFSM to multiple waves of the PSID provides the opportunity for significant advances in our understanding of food insecurity, particularly as part of intra- and inter-generational research. Researchers using the 1998-2002 PSID data should be aware that food insecurity rates are lower and the estimated relationship with income is weaker than in the CPS. However, the 2014-2016 food insecurity rates closely match those in the CPS, and the study finds very few other systematic differences in demographic patterns in food insecurity rates in the PSID. Our findings, taken as a whole, lend credence to the use of the PSID for food insecurity research.

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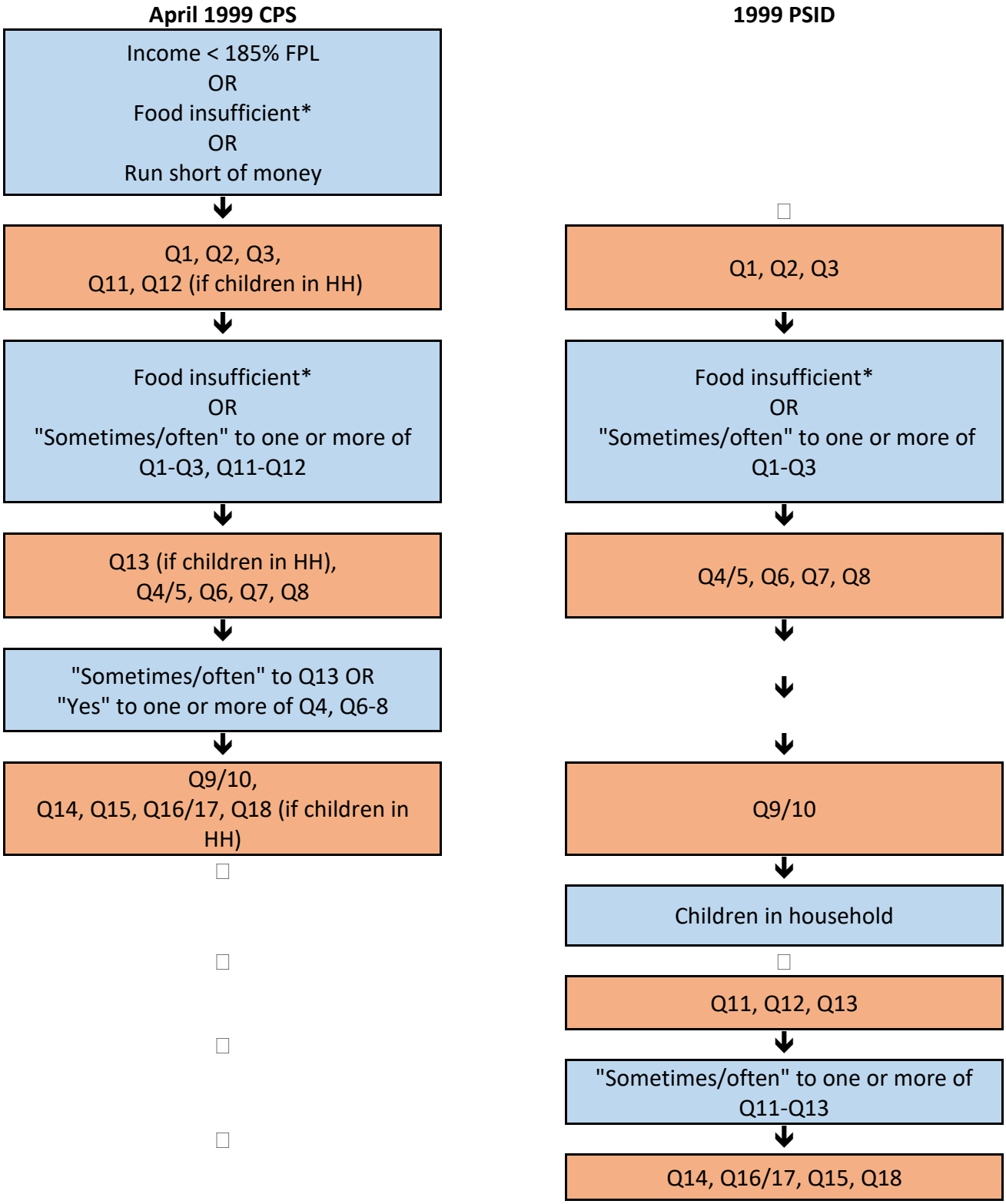
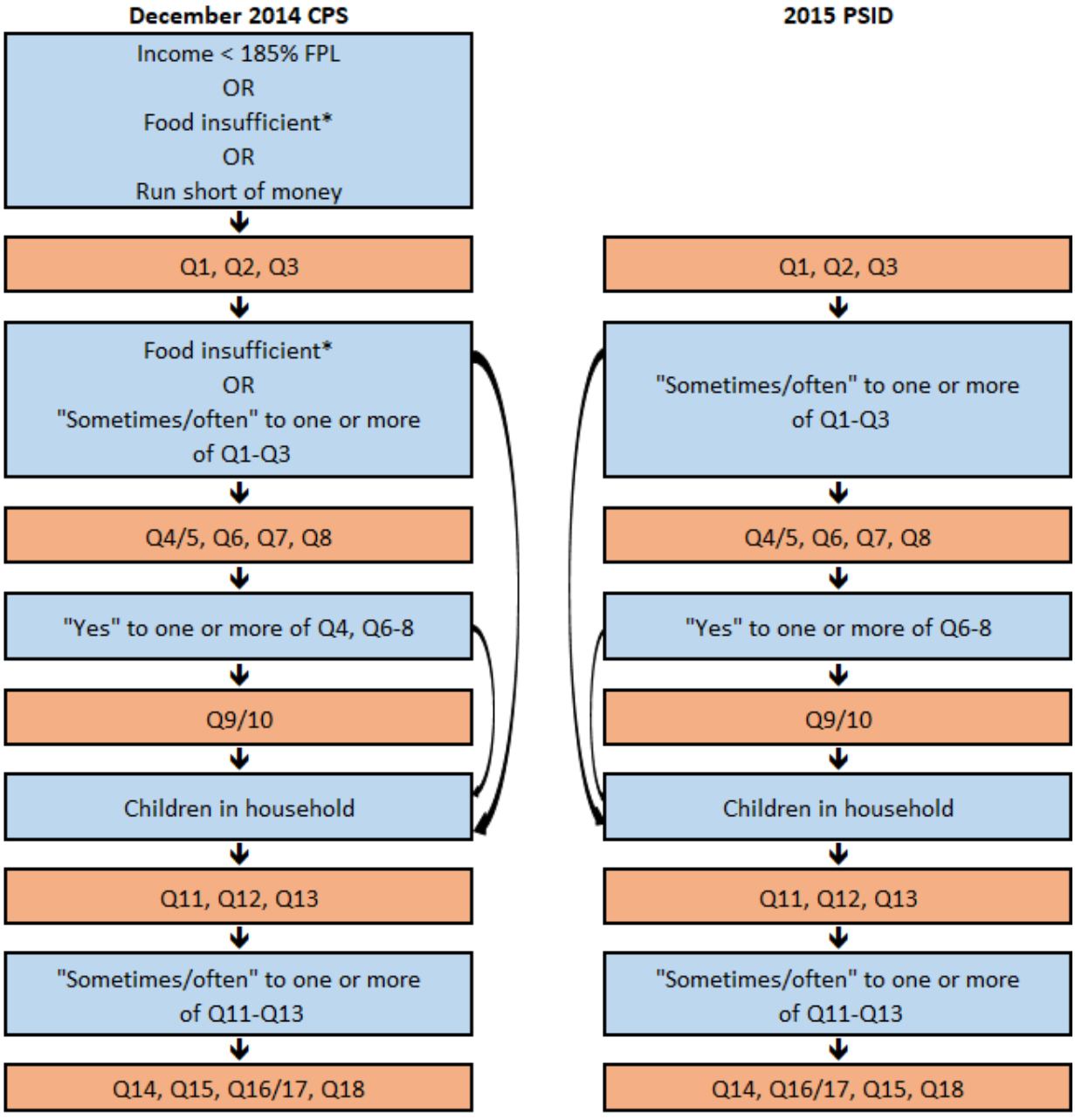
Figure 1a. The Household Food Security Module questions and screeners in the April 1999 CPS and the 1999 PSID



*Note: There is some variation in the food insufficiency definitions within the CPS screens and between the CPS and PSID.

Figure 1b. The Household Food Security Module questions and screeners in the December 2014 CPS and the 2015 PSID



* The initial CPS screen uses a somewhat less severe definition of food insufficiency than the later screen.

Figure 2. Comparison of Alternative Measures of Food Insecurity in the CPS and PSID

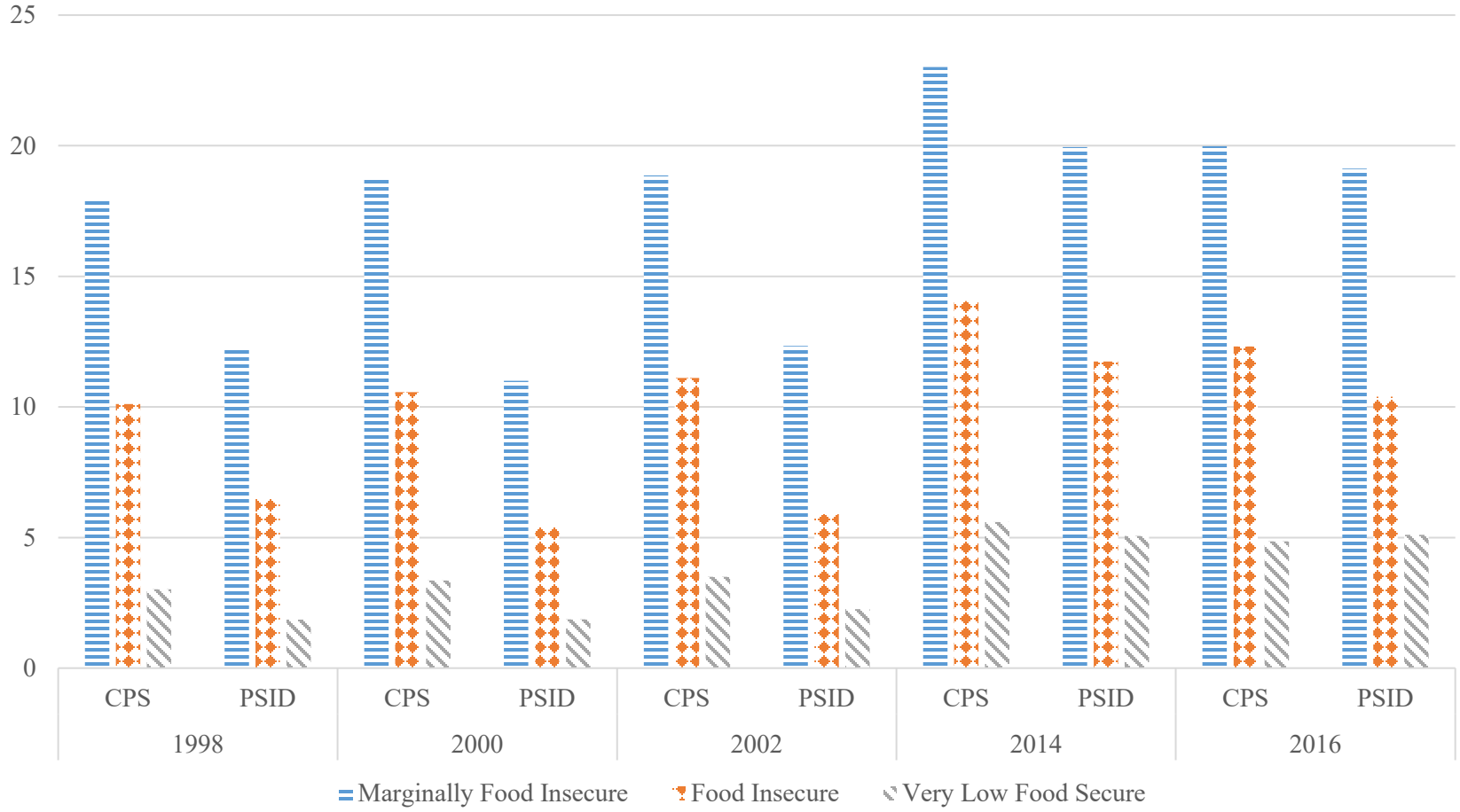
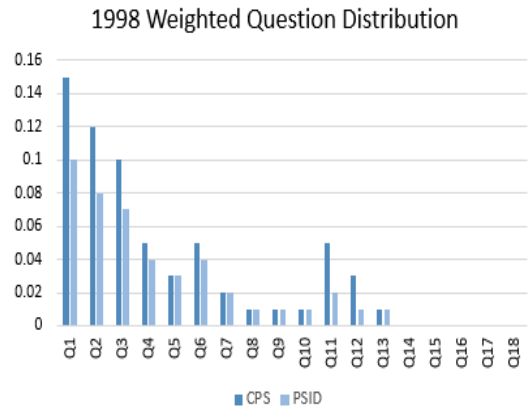
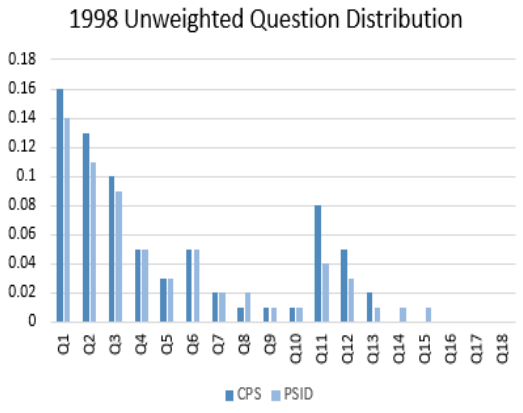
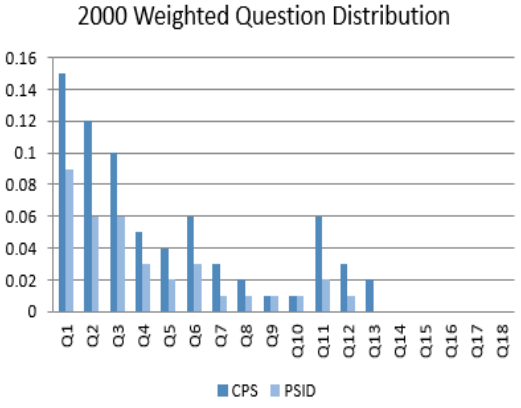
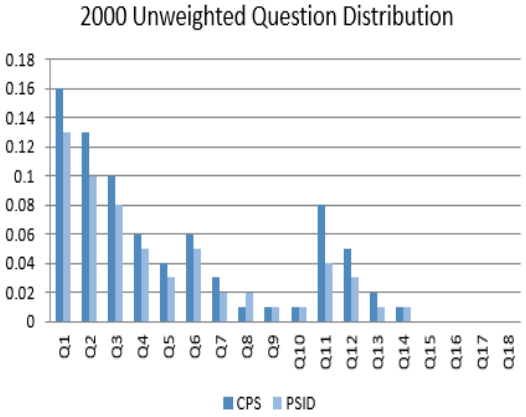


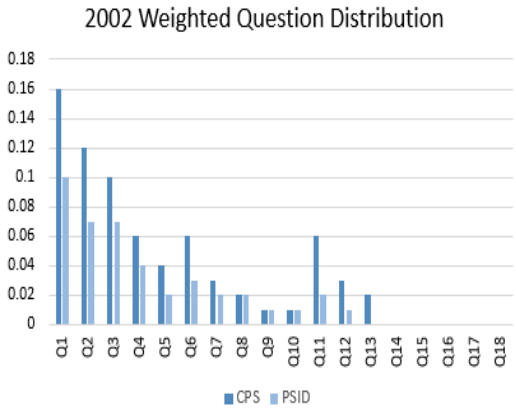
Figure 3: Affirmative Responses to Individual Food Security Questions, by Calendar Year











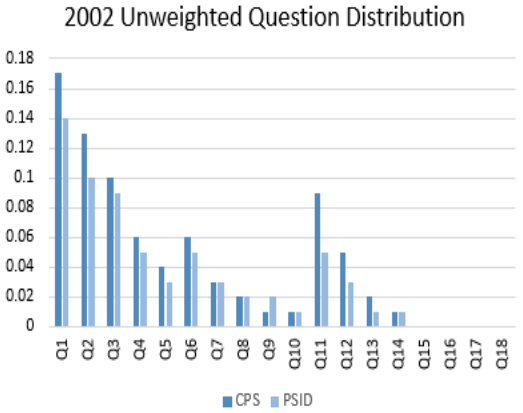


Figure 3 (cont.): Response Rates by Question, by Year

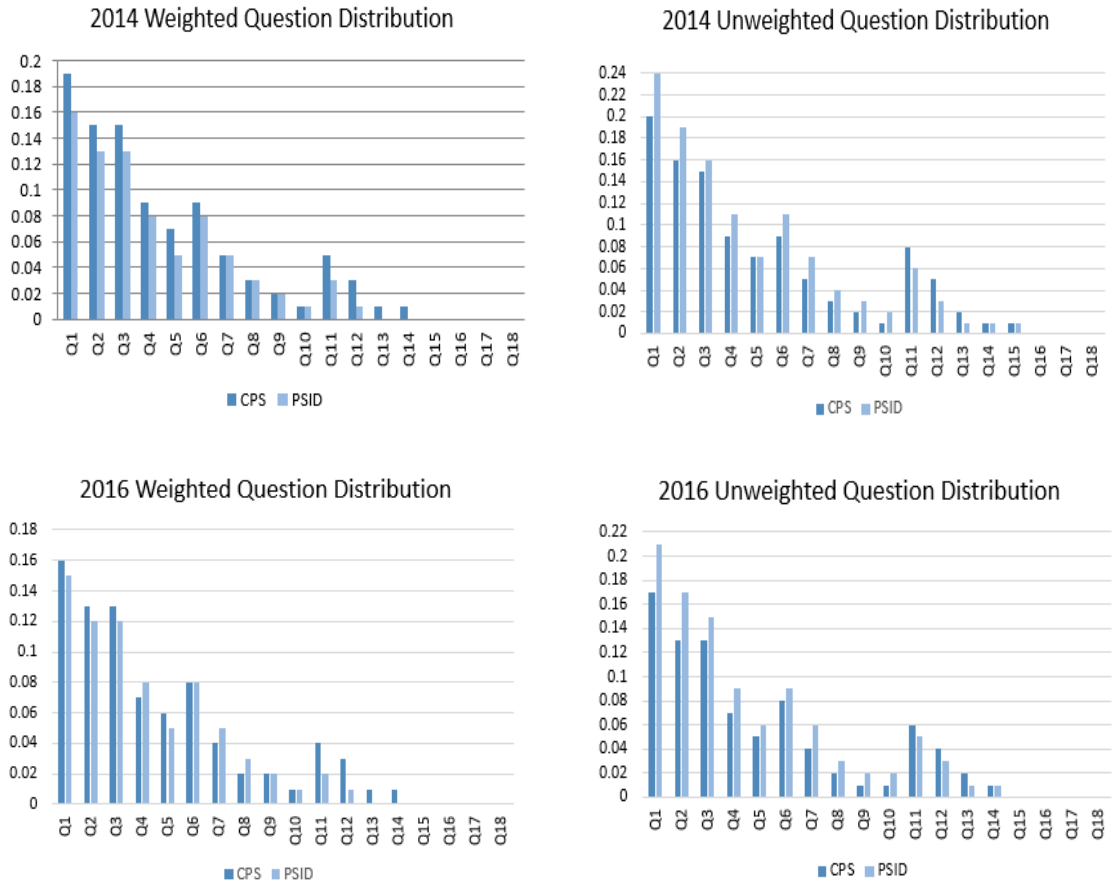


Table 1. Food Security Questionnaire

Question	**Question**	**CPS**	**PSID99**	**PSID01**	**PSID03**	**PSID15**	**PSID17**
Q1	"We worried whether our food would run out before we got money to buy more." Was that often, sometimes, or never true for you in the last 12 months?	HESS2	ER14308	ER18447	ER21712	ER60760	ER66808
Q2	"The food that we bought just didn't last and we didn't have money to get more." Was that often, sometimes, or never true for you in the last 12 months?	HESS3	ER14309	ER18448	ER21713	ER60761	ER66809
Q3	"We couldn't afford to eat balanced meals." Was that often, sometimes, or never true for you in the last 12 months?	HESS4	ER14310	ER18449	ER21714	ER60762	ER66810
Q4	In the last 12 months, did you or other adults in the household ever cut the size of your meals or skip meals because there wasn't enough money for food? (Yes/No)	HESH2	ER14312	ER18451	ER21716	ER60763	ER66811
Q5	(If yes to question 4) How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?	HESHF2	ER14313	ER18452	ER21717	ER60764	ER66812
Q6	In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food? (Yes/No)	HESH3	ER14314	ER18453	ER21718	ER60765	ER66813
Q7	In the last 12 months, were you ever hungry, but didn't eat, because there wasn't enough money for food? (Yes/No)	HESH4	ER14315	ER18454	ER21719	ER60766	ER66814
Q8	In the last 12 months, did you lose weight because there wasn't enough money for food? (Yes/No)	HESH5	ER14316	ER18455	ER21720	ER60767	ER66815
Q9	In the last 12 months did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food? (Yes/No)	HESSH1	ER14317	ER18456	ER21721	ER60768	ER66816
Q10	(If yes to question 9) How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?	HESSHF1	ER14318	ER18457	ER21722	ER60769	ER66817
	(Questions 11-18 were asked only if the household included children age 0-17)						
Q11	"We relied on only a few kinds of low-cost food to feed our children because we were running out of money to buy food." Was that often, sometimes, or never true for you in the last 12 months?	HESS5	ER14323	ER18462	ER21727	ER60771	ER66819
Q12	"We couldn't feed our children a balanced meal, because we couldn't afford that." Was that often, sometimes, or never true for you in the last 12 months?	HESS6	ER14324	ER18463	ER21728	ER60772	ER66820
Q13	"The children were not eating enough because we just couldn't afford enough food." Was that often, sometimes, or never true for you in the last 12 months?	HESH1	ER14325	ER18464	ER21729	ER60773	ER66821
Q14	In the last 12 months, did you ever cut the size of any of the children's meals because there wasn't enough money for food? (Yes/No)	HESSH2	ER14327	ER18466	ER21731	ER60774	ER66822
Q15	In the last 12 months, were the children ever hungry but you just couldn't afford more food? (Yes/No)	HESSH3	ER14330	ER18469	ER21734	ER60777	ER66823
Q16	In the last 12 months, did any of the children ever skip a meal because there wasn't enough money for food? (Yes/No)	HESSH4	ER14328	ER18467	ER21732	ER60775	ER66824
Q17	(If yes to question 16) How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?	HESSHF4	ER14329	ER18468	ER21733	ER60776	ER66825
Q18	In the last 12 months did any of the children ever not eat for a whole day because there wasn't enough money for food? (Yes/No)	HESSH5	ER14331	ER18470	ER21735	ER60778	ER66826

Table 2. CPS-PSID Summary Statistics

	1998		2000		2002		2014		2016	
Characteristics	**CPS**	**PSID**	**CPS**	**PSID**	**CPS**	**PSID**	**CPS**	**PSID**	**CPS**	**PSID**
Income Categories										
< 100% FPL	12.16	9.42	14.26	7.94	14.36	9.12	16.25	11.07	14.37	10.39
100%-200% FPL	19.24	14.36	19.64	14.72	19.46	15.64	20.05	16.92	18.71	16.18
≥ 200% FPL	68.60	76.22	66.10	77.34	66.18	75.24	63.70	72.01	66.92	73.42
Racial Categories										
White	83.87	82.88	83.24	82.81	82.81	82.47	79.43	80.80	78.52	80.20
Black	12.31	13.08	12.56	13.18	12.83	13.54	13.11	16.55	13.28	17.08
Other	3.83	4.05	4.20	4.00	4.35	3.99	7.47	2.66	8.20	2.72
Marital Status										
Married	53.95	50.50	53.42	49.92	52.81	48.91	49.88	42.86	49.74	42.60
Unmarried	46.05	49.50	46.58	50.08	47.19	51.09	50.12	57.14	50.26	57.40
Children										
Children in Household	34.22	32.14	32.85	31.28	32.31	30.30	28.16	24.12	27.12	23.49
No Children in Household	65.78	67.86	67.15	68.72	67.69	69.70	71.84	75.88	72.88	76.51
Age										
16-24	5.53	5.13	6.14	5.06	6.31	5.56	5.18	3.82	5.06	3.33
25-34	18.14	17.70	17.52	17.39	17.19	16.85	16.21	16.70	16.31	16.00
35-44	22.95	21.72	22.74	20.34	21.60	19.13	17.06	14.81	16.88	15.46
45-54	19.24	20.62	20.10	21.91	20.45	21.47	19.18	16.74	18.20	15.58
55-64	12.92	11.86	13.04	12.44	14.21	14.38	18.61	19.87	18.71	19.30
65 and older	21.21	22.96	20.41	22.85	20.20	22.60	23.75	28.07	24.83	30.32
Education Level										
Less Than High School	16.51	19.09	15.64	18.06	15.18	16.52	10.88	11.54	9.84	11.43
High School	31.22	31.36	30.80	31.17	30.50	32.88	26.74	27.73	26.36	27.48
Some College	26.45	22.14	26.83	22.94	27.32	23.40	28.85	26.01	29.24	26.04
College Degree	25.82	27.41	26.73	27.83	27.00	27.21	33.53	34.72	34.56	35.04
Gender										
Female	43.26	31.12	45.47	30.74	47.50	30.80	49.89	33.07	50.17	32.84
Male	56.74	68.88	54.53	69.26	52.50	69.20	50.11	66.93	49.83	67.16

Note: Numbers in table are percentages that sum to 100% within subgroup.

Table 3. Food Insecurity Rates by Screener Counterfactuals

Food Insecurity	CPS	CPS-PSID	PSID	PSID-Old
	1998			
Marginally Food Insecure	17.98	17.62	12.26	—
Food Insecure	10.11	9.77	6.53	—
Very Low Food Secure	3.02	2.90	1.85	—
	2000			
Marginally Food Insecure	18.71	18.24	11.00	—
Food Insecure	10.57	10.54	5.44	—
Very Low Food Secure	3.36	3.33	1.87	—
	2002			
Marginally Food Insecure	18.87	18.85	12.34	—
Food Insecure	11.10	10.57	5.90	—
Very Low Food Secure	3.50	3.46	2.26	—
	2014			
Marginally Food Insecure	23.02	23.00	19.95	19.49
Food Insecure	14.05	14.02	11.74	10.90
Very Low Food Secure	5.60	5.55	5.06	5.02
	2016			
Marginally Food Insecure	19.98	19.96	19.12	18.73
Food Insecure	12.31	12.28	10.40	9.66
Very Low Food Secure	4.85	4.77	5.11	5.01

Table 4. Food Insecurity Rates by Demographic Group – 1998

1998						
	Marginally Food Insecure		Food Insecure		Very Low Food Secure	
	CPS	PSID	CPS	PSID	CPS	PSID
Full Sample	17.98	12.26	10.11	6.53	3.02	1.85
Income Categories						
< 100% FPL	55.49	34.80	36.80	21.78	12.38	6.07
100%-200% FPL	33.89	24.23	18.32	12.86	5.13	4.54
≥ 200% FPL	8.58	7.23	3.96	3.46	1.00	0.83
Racial Categories						
White	15.39	9.70	8.40	5.09	2.47	1.62
Black	34.97	27.69	21.34	15.19	6.55	3.78
Other	19.55	14.26	10.85	7.97	3.61	0.40
Marital Status						
Married	13.06	7.07	6.65	3.17	1.40	0.61
Not Married	23.32	17.57	13.85	9.96	4.78	3.13
Children						
Children in Household	25.56	16.59	14.74	9.09	3.31	2.08
No Children in Household	14.19	10.21	7.79	5.32	2.88	1.74
Age						
16-24	35.13	33.76	18.24	19.30	5.44	6.70
25-34	23.66	17.22	13.10	8.38	3.49	1.39
35-44	20.92	14.64	12.00	8.22	3.63	2.92
45-54	15.42	11.10	9.31	6.70	3.23	1.75
55-64	13.24	4.08	7.86	2.26	2.39	0.82
65+	10.81	6.67	5.56	2.72	1.56	0.75
Gender						
Male	22.71	18.51	13.17	11.01	4.25	3.13
Female	14.27	9.44	7.70	4.50	2.06	1.27
Education						
Less than High School	31.90	22.82	19.65	13.09	6.03	4.26
High School Only	19.66	13.02	11.08	6.15	3.17	1.42
Some College	18.46	10.21	9.74	6.13	3.12	1.24
College Degree or More	6.44	4.48	3.11	2.17	0.79	0.93

Note: Numbers in table are percentages.

Table 5. Food Insecurity Rates by Demographic Group – 2000

2000						
	Marginally Food Insecure		Food Insecure		Very Low Food Secure	
	CPS	PSID	CPS	PSID	CPS	PSID
Full Sample	18.71	11.00	10.57	5.44	3.36	1.87
Income Categories						
< 100 FPL	53.86	32.64	34.87	19.18	12.04	7.55
100-200 FPL	32.12	26.40	17.99	14.55	5.65	5.44
≥ 200 FPL	9.29	5.87	4.25	2.31	1.19	0.62
Racial Categories						
White	16.56	8.07	9.00	3.98	2.98	1.35
Black	33.04	28.50	20.67	14.01	5.81	5.01
Other	18.43	11.10	11.45	5.19	3.45	2.20
Marital Status						
Married	14.30	6.53	7.56	2.74	1.78	0.68
Not Married	23.77	15.46	14.03	8.14	5.17	3.06
Children						
Children in Household	26.20	14.19	15.60	7.10	3.92	2.05
No Children in Household	15.04	9.54	8.10	4.69	3.08	1.79
Age						
16-24	32.81	23.77	17.42	13.26	5.83	4.47
25-34	24.73	14.44	14.26	7.34	3.89	2.03
35-44	22.06	13.88	13.17	7.36	4.53	2.67
45-54	15.91	10.69	9.34	5.71	3.23	2.20
55-64	14.43	5.50	8.15	1.98	2.57	0.83
65+	10.99	6.23	5.14	2.18	1.48	0.72
Gender						
Male	23.18	16.52	13.58	8.71	4.26	3.25
Female	14.98	8.56	8.06	3.99	2.61	1.26
Education						
Less than High School	35.06	21.53	21.99	11.68	6.53	4.64
High School Only	20.96	11.32	11.52	5.15	3.53	1.26
Some College	18.30	9.51	10.15	4.32	3.60	1.66
College Degree or More	7.05	3.84	3.27	1.48	1.08	0.51

Note: Numbers in table are percentages.

Table 6. Food Insecurity Rates by Demographic Group – 2002

2002						
	Marginally Food Insecure		Food Insecure		Very Low Food Secure	
	CPS	PSID	CPS	PSID	CPS	PSID
Full Sample	18.87	12.34	11.10	5.90	3.50	2.26
Income Categories						
< 100 FPL	53.22	38.24	35.66	22.16	13.39	9.57
100-200 FPL	34.41	25.06	19.73	13.38	5.61	4.81
≥ 200 FPL	8.94	6.56	4.43	2.38	1.18	0.85
Racial Categories						
White	16.35	9.67	9.39	4.60	2.93	1.97
Black	35.53	26.88	22.25	14.14	7.27	4.35
Other	17.73	15.33	10.86	3.35	3.11	0.21
Marital Status						
Married	13.58	7.07	7.23	2.50	1.65	0.67
Not Married	24.81	17.38	15.46	9.16	5.57	3.79
Children						
Children in Household	26.52	16.03	16.20	7.01	3.84	1.94
No Children in Household	15.21	10.73	8.67	5.41	3.33	2.40
Age						
16-24	31.41	32.19	18.23	18.46	5.27	6.00
25-34	25.67	17.32	15.03	7.44	4.37	2.68
35-44	22.35	14.11	13.83	7.68	4.48	3.23
45-54	16.78	12.09	10.07	5.79	3.36	2.47
55-64	13.35	7.27	7.68	2.97	2.68	1.49
65+	11.44	5.68	6.06	2.11	1.86	0.51
Gender						
Male	22.78	18.91	13.84	9.92	4.31	4.26
Female	15.33	9.42	8.63	4.11	2.76	1.37
Education						
Less than High School	35.92	23.98	23.34	12.88	7.10	4.67
High School Only	21.37	13.71	12.05	6.21	3.75	2.44
Some College	18.61	10.86	10.84	5.08	3.51	1.80
College Degree or More	6.77	4.81	3.46	1.93	1.18	1.00

Note: Numbers in table are percentages.

Table 7. Food Insecurity Rates by Demographic Group – 2014

2014						
	Marginally Food Insecure		Food Insecure		Very Low Food Secure	
	CPS	PSID	CPS	PSID	CPS	PSID
Full Sample	23.02	19.95	14.05	11.74	5.60	5.06
Income Categories						
< 100 FPL	51.87	53.62	34.81	35.68	15.88	17.85
100-200 FPL	37.65	38.39	23.03	23.55	8.63	10.25
≥ 200 FPL	11.10	10.44	5.96	5.29	2.03	1.87
Racial Categories						
White	20.24	16.44	12.16	9.82	4.86	4.37
Black	40.94	36.74	26.32	21.12	10.39	8.91
Other	21.06	21.36	12.65	11.49	5.05	2.27
Marital Status						
Married	16.62	9.85	9.26	4.86	3.09	1.56
Not Married	29.39	27.52	18.81	16.90	8.09	7.68
Children						
Children in Household	30.15	25.30	18.25	13.05	5.58	4.06
No Children in Household	20.22	18.25	12.40	11.32	5.60	5.38
Age						
16-24	32.41	48.19	19.22	28.07	7.03	12.03
25-34	27.27	29.45	15.89	15.86	4.96	6.98
35-44	27.68	23.39	16.99	14.61	6.41	7.56
45-54	23.96	21.69	16.27	13.18	7.70	4.97
55-64	22.01	16.10	13.76	9.94	6.31	4.62
65+	14.75	10.33	7.98	5.97	2.88	2.02
Gender						
Male	27.38	28.45	17.11	16.81	6.86	7.48
Female	18.68	15.75	11.00	9.24	4.34	3.87
Education						
Less than High School	43.52	37.98	27.88	23.80	11.17	11.70
High School Only	29.05	24.26	18.08	14.30	7.42	5.27
Some College	25.29	21.79	15.69	13.36	6.14	6.61
College Degree or More	9.63	8.55	4.95	3.93	1.87	1.33

Note: Numbers in table are percentages.

Table 8. Food Insecurity Rates by Demographic Group – 2016

2016						
	Marginally Food Insecure		Food Insecure		Very Low Food Secure	
	CPS	PSID	CPS	PSID	CPS	PSID
Full Sample	19.98	19.12	12.31	10.40	4.85	5.11
Income Categories						
< 100% FPL	48.44	51.78	33.45	30.95	14.91	19.09
100%-200% FPL	34.65	37.29	20.83	23.16	7.89	10.88
≥ 200% FPL	9.83	10.49	5.43	4.67	1.86	1.85
Racial Categories						
White	17.59	15.87	10.63	8.61	4.10	4.48
Black	34.87	34.91	22.31	19.31	9.49	8.38
Other	18.86	14.86	12.31	7.92	4.60	3.64
Marital Status						
Married	13.46	9.57	7.38	3.94	2.35	1.47
Not Married	26.46	26.21	17.21	15.19	7.34	7.80
Children						
Children in Household	25.79	22.78	15.79	12.32	4.64	3.98
No Children in Household	17.82	18.00	11.02	9.81	4.94	5.45
Age						
16-24	28.05	47.10	16.23	29.65	5.60	14.88
25-34	24.06	29.66	14.52	15.95	5.31	6.91
35-44	23.70	21.99	14.82	13.39	5.43	6.30
45-54	20.75	20.23	12.90	11.01	5.38	5.75
55-64	19.50	16.49	13.01	9.05	5.92	5.28
65+	12.96	10.12	7.42	4.36	2.83	2.02
Gender						
Male	23.45	24.63	14.72	15.18	5.79	7.88
Female	16.49	16.43	9.89	8.06	3.92	3.75
Education						
Less than High School	40.33	37.79	27.38	22.04	11.13	11.94
High School Only	25.81	24.19	16.15	12.96	5.86	6.03
Some College	22.18	20.47	13.36	11.79	5.64	5.78
College Degree or More	7.93	7.66	4.24	3.19	1.65	1.49

Note: Numbers in table are percentages.

Table 9. Summary Statistics by Food Insecurity Category – 1998

1998						
	Marginally Food Insecure		**Food Insecure**		**Very Low Food Secure**	
	CPS	**PSID**	**CPS**	**PSID**	**CPS**	**PSID**
Income Categories						
< 100 FPL	35.18	26.69	41.70	31.37	47.28	30.82
100-200 FPL	34.12	28.33	32.97	28.22	31.14	35.14
≥ 200 FPL	30.69	44.98	25.33	40.41	21.59	34.04
Racial Categories						
White	71.68	65.75	69.66	64.66	68.47	72.49
Black	24.20	29.53	26.28	30.40	27.00	26.65
Other	4.11	4.72	4.06	4.95	4.53	0.86
Marital Status						
Married	37.82	29.12	34.27	24.56	24.19	16.50
Not Married	62.18	70.88	65.73	75.44	75.81	83.50
Children						
Children in Household	47.38	43.51	48.62	44.74	36.51	36.18
No Children in Household	52.62	56.49	51.38	55.26	63.49	63.82
Age						
16-24	10.95	14.14	10.11	15.18	10.09	18.57
25-34	23.68	24.86	23.33	22.72	20.81	13.25
35-44	26.42	25.91	26.96	27.31	27.29	34.18
45-54	16.44	18.67	17.65	21.15	20.48	19.46
55-64	9.48	3.95	10.01	4.10	10.16	5.27
65+	13.01	12.47	11.90	9.54	11.17	9.28
Education						
Less than High School	29.46	36.51	32.29	39.19	33.16	45.41
High School Only	34.25	34.27	34.36	30.26	32.86	24.92
Some College	27.11	18.93	25.45	21.24	27.23	15.36
College Degree or More	9.19	10.29	7.90	9.32	6.76	14.32
Gender						
Female	55.52	46.98	57.29	52.48	61.82	52.64
Male	44.48	53.02	42.71	47.52	38.18	47.36

Note: Numbers in table are percentages that sum to 100 within subgroup.

Table 10. Summary Statistics by Food Insecurity Category – 2000

2000						
	Marginally Food Insecure		**Food Insecure**		**Very Low Food Secure**	
	CPS	**PSID**	**CPS**	**PSID**	**CPS**	**PSID**
Income Categories						
< 100 FPL	38.07	23.47	43.86	27.87	47.45	31.89
100-200 FPL	31.25	35.23	31.14	39.23	30.65	42.64
≥ 200 FPL	30.68	41.30	24.99	32.90	21.91	25.46
Racial Categories						
White	73.74	61.37	70.95	61.55	74.01	59.77
Black	22.12	34.55	24.50	34.57	21.68	35.51
Other	4.13	4.08	4.55	3.88	4.31	4.72
Marital Status						
Married	40.92	29.67	38.30	25.12	28.34	18.18
Not Married	59.08	70.33	61.70	74.88	71.66	81.82
Children						
Children in Household	46.00	40.39	48.49	40.87	38.39	34.30
No Children in Household	54.00	59.61	51.51	59.13	61.61	65.70
Age						
16-24	10.77	10.96	10.13	12.35	10.68	12.10
25-34	23.18	22.87	23.65	23.48	20.29	18.92
35-44	26.83	25.71	28.36	27.55	30.72	29.02
45-54	17.11	21.29	17.78	22.96	19.36	25.71
55-64	10.07	6.23	10.06	4.53	9.99	5.50
65+	11.96	12.92	9.90	9.13	8.95	8.75
Education						
Less than High School	29.11	36.37	32.31	41.14	30.20	47.63
High School Only	34.50	33.10	33.58	31.42	32.36	22.50
Some College	26.29	20.49	25.82	19.40	28.79	21.75
College Degree or More	10.10	10.04	8.29	8.04	8.66	8.12
Gender						
Female	56.33	46.06	58.42	49.11	57.66	53.26
Male	43.67	53.94	41.58	50.89	42.34	46.74

Note: Numbers in table are percentages that sum to 100 within subgroup.

Table 11. Summary Statistics by Food Insecurity Category – 2002

2002						
	Marginally Food Insecure		**Food Insecure**		**Very Low Food Secure**	
	CPS	**PSID**	**CPS**	**PSID**	**CPS**	**PSID**
Income Categories						
< 100 FPL	37.56	28.18	42.88	34.15	50.46	38.42
100-200 FPL	33.09	31.77	32.32	35.51	28.84	33.26
≥ 200 FPL	29.35	40.05	24.80	30.34	20.70	28.32
Racial Categories						
White	71.81	65.23	70.09	64.95	69.51	73.17
Black	24.13	29.76	25.68	32.77	26.65	26.45
Other	4.06	5.00	4.23	2.29	3.84	0.39
Marital Status						
Married	38.05	28.04	34.41	20.71	24.95	14.46
Not Married	61.95	71.96	65.59	79.29	75.05	85.54
Children						
Children in Household	45.43	39.38	47.15	36.03	35.54	25.97
No Children in Household	54.57	60.62	52.85	63.97	64.46	74.03
Age						
16-24	10.51	14.52	10.36	17.42	9.51	14.75
25-34	23.37	23.67	23.25	21.26	21.46	19.98
35-44	25.59	21.90	26.91	24.91	27.65	27.29
45-54	18.21	21.05	18.57	21.09	19.70	23.47
55-64	10.06	8.47	9.83	7.24	10.91	9.47
65+	12.23	10.39	11.01	8.07	10.76	5.04
Education						
Less than High School	28.80	32.10	31.79	36.14	30.72	33.99
High School Only	34.55	36.63	33.11	34.73	32.73	35.47
Some College	26.95	20.63	26.67	20.21	27.44	18.53
College Degree or More	9.70	10.63	8.44	8.92	9.11	12.01
Gender						
Female	57.32	47.17	59.16	51.78	58.51	57.97
Male	42.68	52.83	40.84	48.22	41.49	42.03

Note: Numbers in table are percentages that sum to 100 within subgroup.

Table 12. Summary Statistics by Food Insecurity Category – 2014

2014						
	Marginally Food Insecure		**Food Insecure**		**Very Low Food Secure**	
	CPS	**PSID**	**CPS**	**PSID**	**CPS**	**PSID**
Income Categories						
< 100 FPL	36.46	29.77	40.09	33.65	45.92	39.07
100-200 FPL	32.77	32.56	32.84	33.93	30.89	34.27
≥ 200 FPL	30.77	37.67	27.07	32.41	23.19	26.67
Racial Categories						
White	69.86	66.64	68.73	67.61	68.94	69.70
Black	23.30	30.51	24.54	29.79	24.32	29.11
Other	6.84	2.85	6.73	2.60	6.74	1.19
Marital Status						
Married	36.02	21.18	32.90	17.75	27.52	13.25
Not Married	63.98	78.82	67.10	82.25	72.48	86.75
Children						
Children in Household	36.86	30.60	36.56	26.82	28.05	19.34
No Children in Household	63.14	69.40	63.44	73.18	71.95	80.66
Age						
16-24	7.28	9.22	7.07	9.12	6.49	9.07
25-34	19.20	24.65	18.34	22.56	14.38	23.04
35-44	20.54	17.36	20.65	18.42	19.55	22.13
45-54	19.94	18.20	22.19	18.79	26.36	16.44
55-64	17.79	16.03	18.23	16.82	20.99	18.14
65+	15.23	14.53	13.50	14.27	12.23	11.18
Education						
Less than High School	20.54	22.21	21.56	23.79	21.69	27.04
High School Only	33.74	34.07	34.41	34.32	35.45	29.25
Some College	31.67	28.69	32.21	30.07	31.65	34.44
College Degree or More	14.05	15.04	11.83	11.81	11.21	9.26
Gender						
Female	59.32	47.17	60.76	47.34	61.11	48.86
Male	40.68	52.83	39.24	52.66	38.89	51.14

Note: Numbers in table are percentages that sum to 100 within subgroup.

Table 13. Summary Statistics by Food Insecurity Category – 2016

2016						
	Marginally Food Insecure		Food Insecure		Very Low Food Secure	
	CPS	PSID	CPS	PSID	CPS	PSID
Income Categories						
< 100 FPL	34.74	28.15	38.94	30.94	44.00	38.86
100-200 FPL	32.27	31.56	31.48	36.05	30.24	34.48
≥ 200 FPL	32.99	40.29	29.58	33.01	25.76	26.66
Racial Categories						
White	69.15	66.65	67.80	66.28	66.35	70.16
Black	23.12	31.23	24.00	31.66	25.89	27.91
Other	7.74	2.12	8.19	2.07	7.77	1.93
Marital Status						
Married	33.54	21.31	29.86	16.16	24.13	12.28
Not Married	66.46	78.69	70.14	83.84	75.87	87.72
Children						
Children in Household	35.04	27.98	34.82	27.84	25.94	18.33
No Children in Household	64.96	72.02	65.18	72.16	74.06	81.67
Age						
16-24	7.08	8.21	6.65	9.50	5.82	9.71
25-34	19.63	24.83	19.23	24.55	17.85	21.67
35-44	20.03	17.79	20.33	19.92	18.88	19.08
45-54	18.89	16.49	19.06	16.51	20.14	17.56
55-64	18.25	16.65	19.75	16.79	22.80	19.97
65+	16.12	16.05	14.97	12.73	14.51	12.02
Education						
Less than High School	19.79	22.76	21.80	24.53	22.47	27.03
High School Only	34.02	35.01	34.54	34.68	31.77	32.83
Some College	32.44	28.09	31.72	29.90	33.97	29.80
College Degree or More	13.75	14.15	11.94	10.89	11.79	10.34
Gender						
Female	58.88	42.30	59.96	47.94	59.80	50.69
Male	41.12	57.70	40.04	52.06	40.20	49.31

Note: Numbers in table are percentages that sum to 100 within subgroup

Table 14. Food Insecurity Estimates – 1998

VARIABLES	(1) CPS Marginal	(2) PSID Marginal	(3) CPS Food Insecure	(4) PSID Food Insecure	(5) CPS Very Low	(6) PSID Very Low
100-200 FPL	-0.162***	-0.074**	-0.151***	-0.064***	-0.064***	-0.007
	(0.011)	(0.029)	(0.010)	(0.024)	(0.007)	(0.014)
> 200 FPL	-0.383***	-0.185***	-0.277***	-0.128***	-0.101***	-0.034***
	(0.010)	(0.026)	(0.009)	(0.022)	(0.006)	(0.012)
Black	0.081***	0.078***	0.051***	0.034**	0.014***	0.002
	(0.009)	(0.018)	(0.008)	(0.015)	(0.005)	(0.008)
Other Race	0.015	0.017	0.009	0.010	0.007	-0.018***
	(0.011)	(0.028)	(0.009)	(0.023)	(0.006)	(0.005)
Married	-0.016***	-0.021	-0.017***	-0.011	-0.020***	-0.015**
	(0.005)	(0.013)	(0.004)	(0.010)	(0.002)	(0.007)
Children	0.048***	0.023*	0.033***	0.013	-0.012***	-0.003
	(0.006)	(0.012)	(0.005)	(0.010)	(0.003)	(0.005)
Age 25-34	0.000	-0.096***	0.025**	-0.067**	0.008	-0.031*
	(0.014)	(0.032)	(0.011)	(0.027)	(0.007)	(0.016)
Age 35-44	-0.014	-0.119***	0.026**	-0.068***	0.015**	-0.013
	(0.013)	(0.031)	(0.011)	(0.026)	(0.007)	(0.017)
Age 45-54	-0.038***	-0.130***	0.019*	-0.069***	0.017**	-0.022
	(0.013)	(0.031)	(0.011)	(0.026)	(0.007)	(0.017)
Age 55-64	-0.075***	-0.213***	-0.003	-0.120***	0.004	-0.034**
	(0.014)	(0.030)	(0.011)	(0.025)	(0.007)	(0.017)
Age 65+	-0.162***	-0.229***	-0.068***	-0.141***	-0.018***	-0.046***
	(0.013)	(0.030)	(0.011)	(0.025)	(0.006)	(0.017)
High School	-0.054***	-0.065***	-0.038***	-0.048***	-0.011**	-0.023***
	(0.008)	(0.016)	(0.007)	(0.013)	(0.004)	(0.007)
Some College	-0.059***	-0.099***	-0.044***	-0.052***	-0.009**	-0.026***
	(0.008)	(0.017)	(0.007)	(0.014)	(0.004)	(0.008)
College	-0.127***	-0.120***	-0.077***	-0.069***	-0.021***	-0.022***
	(0.008)	(0.016)	(0.007)	(0.012)	(0.004)	(0.008)
Female	0.014***	0.015	0.004	0.016	0.005**	-0.001
	(0.005)	(0.018)	(0.004)	(0.014)	(0.002)	(0.009)
Observations	34,329	6,087	34,329	6,087	34,329	6,087
R-squared	0.224	0.143	0.157	0.098	0.057	0.034

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 15. Food Insecurity Estimates – 2000

VARIABLES	(1) CPS Marginal	(2) PSID Marginal	(3) CPS Food Insecure	(4) PSID Food Insecure	(5) CPS Very Low	(6) PSID Very Low
100-200 FPL	-0.180***	-0.029	-0.141***	-0.024	-0.057***	-0.014
	(0.012)	(0.030)	(0.011)	(0.024)	(0.007)	(0.017)
> 200 FPL	-0.385***	-0.196***	-0.265***	-0.127***	-0.100***	-0.054***
	(0.010)	(0.026)	(0.010)	(0.020)	(0.007)	(0.014)
Black	0.060***	0.123***	0.046***	0.046***	0.003	0.013
	(0.010)	(0.018)	(0.009)	(0.014)	(0.005)	(0.008)
Other Race	-0.013	0.004	0.003	-0.007	-0.005	-0.001
	(0.011)	(0.025)	(0.010)	(0.018)	(0.006)	(0.013)
Married	-0.007	-0.021	-0.006	-0.018*	-0.019***	-0.009*
	(0.005)	(0.013)	(0.004)	(0.009)	(0.003)	(0.005)
Children	0.059***	0.004	0.040***	-0.004	-0.007*	-0.009
	(0.007)	(0.011)	(0.006)	(0.008)	(0.004)	(0.005)
Age 25-34	0.019	-0.023	0.037***	-0.010	0.008	0.001
	(0.015)	(0.026)	(0.012)	(0.021)	(0.008)	(0.012)
Age 35-44	0.007	-0.025	0.036***	-0.002	0.020**	0.007
	(0.014)	(0.026)	(0.012)	(0.021)	(0.008)	(0.013)
Age 45-54	-0.024*	-0.038	0.019	-0.010	0.014*	0.007
	(0.014)	(0.026)	(0.012)	(0.021)	(0.008)	(0.013)
Age 55-64	-0.065***	-0.091***	-0.008	-0.045**	0.000	-0.008
	(0.015)	(0.026)	(0.012)	(0.020)	(0.008)	(0.012)
Age 65+	-0.170***	-0.121***	-0.084***	-0.068***	-0.028***	-0.021*
	(0.014)	(0.025)	(0.012)	(0.020)	(0.007)	(0.012)
High School	-0.059***	-0.064***	-0.053***	-0.043***	-0.009*	-0.025***
	(0.010)	(0.016)	(0.009)	(0.012)	(0.005)	(0.008)
Some College	-0.073***	-0.078***	-0.056***	-0.050***	-0.004	-0.021**
	(0.010)	(0.017)	(0.009)	(0.013)	(0.006)	(0.009)
College	-0.138***	-0.097***	-0.093***	-0.057***	-0.017***	-0.024***
	(0.010)	(0.016)	(0.008)	(0.011)	(0.005)	(0.008)
Female	0.021***	0.000	0.007*	-0.005	-0.000	0.003
	(0.005)	(0.017)	(0.004)	(0.012)	(0.003)	(0.008)
Observations	30,889	6,321	30,889	6,321	30,889	6,321
R-squared	0.213	0.149	0.154	0.100	0.054	0.044

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 16. Food Insecurity Estimates – 2002

VARIABLES	(1) CPS Marginal	(2) PSID Marginal	(3) CPS Food Insecure	(4) PSID Food Insecure	(5) CPS Very Low	(6) PSID Very Low
100-200 FPL	-0.145***	-0.097***	-0.128***	-0.069***	-0.069***	-0.044**
	(0.010)	(0.029)	(0.009)	(0.025)	(0.006)	(0.017)
> 200 FPL	-0.362***	-0.244***	-0.256***	-0.158***	-0.109***	-0.077***
	(0.009)	(0.026)	(0.008)	(0.022)	(0.006)	(0.016)
Black	0.079***	0.062***	0.048***	0.027**	0.019***	-0.004
	(0.008)	(0.017)	(0.007)	(0.013)	(0.005)	(0.008)
Other Race	0.004	0.022	0.010	-0.023	-0.001	-0.022***
	(0.010)	(0.026)	(0.008)	(0.014)	(0.005)	(0.004)
Married	-0.016***	-0.010	-0.019***	-0.013	-0.024***	-0.007
	(0.004)	(0.012)	(0.004)	(0.009)	(0.002)	(0.006)
Children	0.064***	0.011	0.044***	-0.013	-0.011***	-0.022***
	(0.006)	(0.012)	(0.005)	(0.009)	(0.003)	(0.007)
Age 25-34	0.043***	-0.068**	0.038***	-0.061**	0.019***	-0.006
	(0.012)	(0.029)	(0.010)	(0.025)	(0.006)	(0.016)
Age 35-44	0.027**	-0.104***	0.043***	-0.059**	0.027***	0.001
	(0.012)	(0.029)	(0.010)	(0.026)	(0.006)	(0.017)
Age 45-54	0.001	-0.111***	0.024**	-0.073***	0.020***	-0.008
	(0.011)	(0.029)	(0.010)	(0.025)	(0.006)	(0.016)
Age 55-64	-0.044***	-0.156***	-0.006	-0.097***	0.012*	-0.019
	(0.012)	(0.029)	(0.010)	(0.025)	(0.006)	(0.016)
Age 65+	-0.138***	-0.217***	-0.076***	-0.136***	-0.017***	-0.043***
	(0.011)	(0.028)	(0.010)	(0.025)	(0.006)	(0.015)
High School	-0.071***	-0.066***	-0.060***	-0.044***	-0.012***	-0.014
	(0.008)	(0.017)	(0.007)	(0.013)	(0.005)	(0.009)
Some College	-0.085***	-0.087***	-0.065***	-0.049***	-0.011**	-0.018**
	(0.008)	(0.017)	(0.008)	(0.014)	(0.005)	(0.009)
College	-0.153***	-0.109***	-0.105***	-0.058***	-0.022***	-0.018**
	(0.008)	(0.016)	(0.007)	(0.013)	(0.005)	(0.008)
Female	0.005	0.017	0.001	0.010	-0.002	0.017*
	(0.004)	(0.017)	(0.003)	(0.013)	(0.002)	(0.010)
Observations	43,491	6,571	43,491	6,571	43,491	6,571
R-squared	0.224	0.161	0.160	0.113	0.062	0.052

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 17. Food Insecurity Estimates – 2014

VARIABLES	(1) CPS Marginal	(2) PSID Marginal	(3) CPS Food Insecure	(4) PSID Food Insecure	(5) CPS Very Low	(6) PSID Very Low
100-200 FPL	-0.100***	-0.103***	-0.089***	-0.097***	-0.062***	-0.066***
	(0.009)	(0.029)	(0.009)	(0.027)	(0.006)	(0.021)
> 200 FPL	-0.313***	-0.310***	-0.225***	-0.237***	-0.118***	-0.133***
	(0.008)	(0.026)	(0.007)	(0.024)	(0.006)	(0.019)
Black	0.100***	0.053***	0.065***	0.009	0.020***	-0.006
	(0.008)	(0.017)	(0.008)	(0.015)	(0.005)	(0.011)
Other Race	-0.001	0.057	-0.001	0.024	0.000	-0.018
	(0.009)	(0.039)	(0.007)	(0.030)	(0.005)	(0.014)
Married	-0.034***	-0.043***	-0.034***	-0.049***	-0.029***	-0.028***
	(0.005)	(0.013)	(0.004)	(0.011)	(0.003)	(0.008)
Children	0.055***	0.029**	0.028***	-0.012	-0.017***	-0.040***
	(0.006)	(0.014)	(0.006)	(0.011)	(0.004)	(0.008)
Age 25-34	0.044***	-0.098***	0.035***	-0.056*	0.015**	-0.013
	(0.014)	(0.032)	(0.012)	(0.029)	(0.008)	(0.022)
Age 35-44	0.066***	-0.126***	0.060***	-0.043	0.039***	0.008
	(0.014)	(0.032)	(0.012)	(0.030)	(0.008)	(0.023)
Age 45-54	0.045***	-0.147***	0.065***	-0.059*	0.055***	-0.020
	(0.013)	(0.033)	(0.011)	(0.031)	(0.008)	(0.022)
Age 55-64	0.028**	-0.193***	0.041***	-0.086***	0.039***	-0.024
	(0.013)	(0.032)	(0.011)	(0.030)	(0.008)	(0.022)
Age 65+	-0.069***	-0.262***	-0.033***	-0.136***	-0.003	-0.056***
	(0.013)	(0.032)	(0.011)	(0.029)	(0.007)	(0.021)
High School	-0.063***	-0.076***	-0.041***	-0.053***	-0.009	-0.044***
	(0.010)	(0.023)	(0.009)	(0.020)	(0.006)	(0.015)
Some College	-0.077***	-0.096***	-0.047***	-0.055***	-0.012*	-0.026
	(0.010)	(0.023)	(0.009)	(0.021)	(0.006)	(0.016)
College	-0.163***	-0.164***	-0.106***	-0.108***	-0.032***	-0.059***
	(0.010)	(0.022)	(0.009)	(0.019)	(0.006)	(0.015)
Female	0.028***	0.022	0.019***	-0.002	0.008***	0.003
	(0.004)	(0.017)	(0.004)	(0.015)	(0.003)	(0.012)
Observations	43,113	8,215	43,113	8,215	43,113	8,215
R-squared	0.198	0.212	0.140	0.143	0.068	0.085

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 18. Food Insecurity Estimates – 2016

VARIABLES	(1) CPS Marginal	(2) PSID Marginal	(3) CPS Food Insecure	(4) PSID Food Insecure	(5) CPS Very Low	(6) PSID Very Low
100%-200% FPL	-0.103***	-0.104***	-0.101***	-0.052*	-0.060***	-0.067***
	(0.010)	(0.030)	(0.009)	(0.027)	(0.007)	(0.023)
> 200% FPL	-0.299***	-0.305***	-0.219***	-0.195***	-0.111***	-0.143***
	(0.009)	(0.026)	(0.008)	(0.023)	(0.006)	(0.020)
Black	0.085***	0.069***	0.054***	0.026*	0.025***	-0.008
	(0.008)	(0.017)	(0.007)	(0.014)	(0.005)	(0.011)
Other Race	-0.002	0.004	0.007	0.002	0.001	0.001
	(0.008)	(0.031)	(0.007)	(0.021)	(0.005)	(0.016)
Married	-0.071***	-0.063***	-0.060***	-0.031***	-0.028***	-0.012
	(0.005)	(0.014)	(0.004)	(0.011)	(0.003)	(0.008)
Children	0.045***	0.001	0.028***	-0.011	-0.015***	-0.038***
	(0.006)	(0.014)	(0.006)	(0.011)	(0.004)	(0.008)
Age 25-34	0.046***	-0.086***	0.046***	-0.073**	0.033***	-0.036
	(0.014)	(0.032)	(0.012)	(0.030)	(0.008)	(0.025)
Age 35-44	0.052***	-0.134***	0.057***	-0.079**	0.044***	-0.023
	(0.014)	(0.032)	(0.012)	(0.031)	(0.008)	(0.026)
Age 45-54	0.044***	-0.162***	0.052***	-0.115***	0.042***	-0.045*
	(0.013)	(0.033)	(0.011)	(0.031)	(0.007)	(0.025)
Age 55-64	0.030**	-0.200***	0.052***	-0.137***	0.039***	-0.060**
	(0.013)	(0.032)	(0.011)	(0.030)	(0.007)	(0.025)
Age 65+	-0.054***	-0.261***	-0.017	-0.187***	0.002	-0.097***
	(0.013)	(0.031)	(0.011)	(0.029)	(0.007)	(0.024)
High School	-0.068***	-0.070***	-0.056***	-0.050***	-0.026***	-0.035**
	(0.010)	(0.023)	(0.009)	(0.019)	(0.007)	(0.016)
Some College	-0.083***	-0.094***	-0.069***	-0.052***	-0.019***	-0.030*
	(0.010)	(0.023)	(0.009)	(0.019)	(0.007)	(0.016)
College	-0.165***	-0.163***	-0.120***	-0.100***	-0.040***	-0.053***
	(0.010)	(0.022)	(0.009)	(0.018)	(0.006)	(0.015)
Female	0.025***	-0.023	0.016***	0.013	0.005**	0.010
	(0.004)	(0.016)	(0.004)	(0.014)	(0.002)	(0.011)
Observations	40,956	8,338	40,956	8,338	40,956	8,338
R-squared	0.185	0.201	0.134	0.140	0.064	0.089

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 19. Wald Statistics by Category

Year	1998			2000			2002			2014			2016		
	Marginal	**Food Insecure**	**Very Low**	**Marginal**	**Food Insecure**	**Very Low**	**Marginal**	**Food Insecure**	**Very Low**	**Marginal**	**Food Insecure**	**Very Low**	**Marginal**	**Food Insecure**	**Very Low**
Category	**All Variables**														
Wald Statistic	184.81	119.59	96.51	209.38	160.62	44.06	146.75	188.61	55.42	67.88	59.48	46.99	87.91	68.02	40.43
P-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Category	**Income**														
Wald Statistic	73.01	48.85	26.17	44.90	37.15	9.68	27.16	22.41	3.95	0.06	0.20	1.02	0.10	3.36	5.35
P-value	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.14	0.97	0.90	0.60	0.95	0.19	0.07
Category	**Racial**														
Wald Statistic	0.07	0.93	10.50	9.39	0.12	1.07	1.43	5.16	12.58	9.54	13.58	5.88	0.81	3.13	7.49
P-value	0.97	0.63	0.01	0.01	0.94	0.58	0.49	0.08	0.00	0.01	0.00	0.05	0.67	0.21	0.02
Category	**Age**														
Wald Statistic	37.18	31.48	10.12	27.40	27.22	8.34	19.72	22.67	3.92	49.92	21.38	26.36	59.34	47.08	22.58
P-value	0.00	0.00	0.07	0.00	0.00	0.14	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Category	**Education**														
Wald Statistic	15.14	5.34	12.57	23.17	20.53	6.79	19.77	25.82	3.13	3.05	1.51	7.96	0.93	2.26	0.87
P-value	0.00	0.15	0.01	0.00	0.00	0.08	0.00	0.00	0.37	0.38	0.68	0.05	0.82	0.52	0.83