

**Current Population Survey Food Security Supplement  
December 2021 Microdata File  
User Notes**

August 1, 2022

***Overview***

This document provides technical information on the Current Population Survey Food Security Supplement (CPS-FSS) conducted by the U.S. Department of Commerce's Bureau of the Census for the U.S. Department of Agriculture (USDA) in December 2021. The CPS-FSS data and documentation are available from the U.S. Census Bureau in ASCII format and CSV format on the Census Bureau ([https://www.census.gov/data/datasets/time-series/demo/cps/cps-supp\\_cps-repwgt/cps-food-security.html](https://www.census.gov/data/datasets/time-series/demo/cps/cps-supp_cps-repwgt/cps-food-security.html)). The *Food Security in the United States* topic page on USDA, Economic Research Service's (ERS) website (<https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/>) provides additional documentation, a copy of the questionnaire, and information on the concepts and history of the food security measurement project. Users can also download CPS-FSS data files, codebooks, and examples of input statements for statistical software including SAS, Stata, and SPSS from the National Bureau of Economic Research (NBER) website (note that these resources are provided by NBER and not reviewed or approved by ERS or Census Bureau).

***Technical Description: CPS Food Security Supplement December 2021 Public-Use Microdata File***

The public-use microdata file on the Census Bureau website consists of 127,489 logical records. Each record represents one person in a surveyed household (or one address that was selected for the core labor force survey, but the address was either vacant, not a residence, could not be contacted, or refused to participate). There were 25,464 noninterview households in the FTP file. For Basic CPS, there were 42,949 interviewed households with 102,025 person records. The Food Security Supplement was completed for 30,343 interviewed households with 71,571 person records.

A subset of variables on each record contains data about the household of which the person is a part. These variables have the same value for all persons in the same household.

***Contents of the Data Files***

The file includes data in four general categories:

- (1) Monthly labor force survey data and recodes, collected by the Census Bureau for the Bureau of Labor Statistics. Included are geographic, demographic, income, and employment data that may be of interest to those analyzing the FSS data. These variables are described briefly in the data dictionary. More detailed information on concepts and definitions underlying these data is available in the technical documentation for the base CPS monthly data.
- (2) Food Security Supplement data, collected by the Census Bureau for USDA. These data consist of answers by household respondents to questions about household food expenditures,

use of food assistance programs, and experiences and behaviors related to food security. All of the Food Security Supplement data are household-level data.

(3) Food security status and scale variables, calculated from the Food Security Supplement data by USDA Economic Research Service (ERS). These household-level variables (HRFS12CX-HRFS30DE) are described in detail later in this document.

(4) Weighting variables, calculated by the Census Bureau as the number of persons or households represented by each person or household in the sample. Separate weights are calculated for the Food Security Supplement and for the core CPS. Selection of appropriate weights for statistical estimation is described later in this document.

### ***Contents of the Food Security Supplement Questionnaire***

A copy of the Food Security Supplement questionnaire is available on the ERS website and on the Census Bureau site. Variable names in the data dictionary generally consist of the prefix HE (household variable, edited) followed by the question number from the questionnaire. The major sections are as follows:

- (1) Food Spending (HES1A-HES8).
- (2) Minimum Food Spending Needed (HES8B-HES8D).
- (3) Food Assistance Program Participation (HES9-HESP9).
- (4) Food Sufficiency and Food Security (HESS1-HESSHM5). This section includes the 18 food security questions that are used to calculate the 12-month Food Security Scales, as well as follow-up questions that are used to calculate the 30-day Food Security Scales.
- (5) Ways of Avoiding or Ameliorating Food Deprivation – Coping Strategies (HESC1-HESCM4).

### ***Changes from Previous Years' Food Security Supplements***

Data users should carefully review variable locations for the Food Security Supplement, as they may change from year to year.

In 2020, Census revised the relationship to reference person variable, PERRP, and all codes were changed with new and revised categories. The 2021 PERRP variable is the same as the 2020 variable, but different from earlier years.

The December 2021 food security supplement questionnaire content was unchanged from the December 2020 survey, except for the date. However, beginning in 2015 and continuing through 2021, there were changes from previous years in how the Census Bureau processes some variables. The Census Bureau is no longer releasing continuous variables on public-use data

files. Continuous variables are now categorized to reduce the risk of disclosure related to a small number of households reporting a single value. In 2021, one variable did not meet Census guidelines for disclosure and is not released in the public-use data (described below).

This change in processing has affected CPS-FSS variables on food spending and SNAP benefit amount since 2015 (see table 1). ERS analysis of the food spending variables suggests that the recoding has little effect on the calculation of median food spending. However, data on food spending and SNAP benefit amount are not precisely comparable with corresponding data from previous years, and users should be cautious with the use of these variables. Users should refer to the codebook for recoded values.

Table 1. U.S. Census Bureau categorization guidelines for continuous food spending and SNAP variables in the Current Population Survey Food Security Supplement

Original variable value <sup>1</sup>	Categorization value
0	0
1-7	4
8-999	Round to nearest 10
1,000-99,999	Round to nearest 100

<sup>1</sup>All variables are topcoded at specified values as indicated in the codebook. Topcode values may change from year to year.

SNAP=Supplemental Nutrition Assistance Program

Source: U.S. Department of Commerce, Bureau of the Census, December 2021 Current Population Survey Food Security Supplement.

Beginning with the 2019 Current Population Survey Food Security Supplement data and continuing in 2021, all continuous variables for the number of days out of the previous 30 days that food-insecure conditions occurred are released only after being categorized into ranges of number of days (see table 2 for the specific variables and their recoded values). All of these recoded variables include at least a category for 1 or 2 days, so that the 30-day food security prevalence rate can be calculated the same way as in previous years, using 3 or more days as affirmative.

One variable, HESSHM5: “In the last 30 days, did children ever not eat for a whole day because there wasn’t enough money for food?” did not meet Census guidelines for disclosure. Beginning in 2019 and continuing in 2021, variable HESSHM5 is not released in the public-use datafile. That question was not used in assessing 30-day food security status, but it is unlikely to impact the estimates, since it is the most severe item in the scale. Only 10 households in the survey reported experiencing this condition among children any time in the last 12 months.

The exclusion of variable HESSHM5 affects the range of the composite variables for raw score and Rasch-model-based scale score for the 30-day household and children’s food security scale variables (see further discussion regarding these variables under “*Food Security Status and Scale*”).

*Variables*” below). This is the most severe item in the food security module, so is unlikely to affect the categorization of food insecurity or very low food security.

Table 2a. U.S. Census Bureau categorization guidelines for variables HETSSHMF1, HETSHMF2, HETSHMF3, HETSHMF4 in the Current Population Survey Food Security Supplement

Original variable value	Categorization value
1 to 7 <sup>1</sup>	No change
8 to 14	14
15 to 21	21
22 to 30	30

<sup>1</sup>Values 1 through 7 are not categorized. Original value maintained.

Table 2b. U.S. Census Bureau categorization guidelines for variables HETSSHMF2 in the Current Population Survey Food Security Supplement

Original variable Value	Categorization value
1 to 2	2
3 to 4	4
5	5
6 to 7	7
8 to 14	14
15 to 30	30

Table 2c. U.S. Census Bureau categorization guidelines for variables HETSSHMF3 in the Current Population Survey Food Security Supplement

Original variable Value	Categorization value
1 to 2	2
3 to 7	7
8 to 14	14
15 to 30	30

Table 2d. U.S. Census Bureau categorization guidelines for variable HETSSHMF4 in the Current Population Survey Food Security Supplement

Original variable value	Categorization value
1 to 2	2
3 to 7	7
8 to 30	30

Source: U.S. Department of Commerce, Bureau of the Census, December 2021 Current Population Survey Food Security Supplement.

Researchers who wish to use continuous variables in their analysis, instead of these categorized variables, will need to apply for access to the confidential CPS-FSS data through the U.S. Census Bureau.

A Spanish-language version of the Food Security Supplement was implemented in the survey instrument, beginning in 2014 and continuing through 2021. The Spanish-language questionnaire is available on the ERS website.<sup>1</sup>

Revised metropolitan statistical areas (MSAs) and principal cities within them were delineated by the Office of Management and Budget in 2013, based on revised standards developed by the Census Bureau in collaboration with other Federal agencies. The revised delineations were implemented beginning with the 2014 Food Security Supplement as part of the monthly labor force interview and recodes. Food Security Statistics by area of residence for 2021 are comparable with those from 2014 and later but are not precisely comparable with corresponding statistics from earlier years.

### ***Screening of the Food Security Supplement***

The Food Security Supplement includes several screens to reduce respondent burden and to avoid asking questions that may seem inappropriate to respondents given other information they have provided in the survey. The screener variables use information from the monthly labor force core data, as well as from CPS-FSS. Households with incomes above 185 percent of the poverty threshold (HRPOOR=2, approximated from HUFAMINC and HRNUMHOU) that responded “no” to HES9 were not asked the questions on participation in food assistance programs. Households with income above 185 percent of poverty that registered no indication of food stress on HES9 or HESS1 were not asked the rest of the questions in the “Food Sufficiency and Food Security” section or those in the “Ways of Avoiding or Ameliorating Food Deprivation” section. Households that were screened out at the initial screen are assumed to be highly food secure (raw score imputed as zero). However, if they were screened out at the initial screen without having given a valid response to either screening question, then the food security scale and status variables are coded as “No Response” (-9).

There were also two internal screeners in the adult section and one in the child section in the main food security section (the questions used to calculate the Household Food Security Scale). These series of questions are divided into blocks. Households that registered no indication of food stress in the preceding block are skipped over the remaining blocks, and responses to questions in the skipped blocks are assumed to be negative. However, if they were screened out without having given a valid response to any of the questions in the scale, then the food security scale and status variables are coded as “No Response” (-9).

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<sup>1</sup> ERS assessed the effect of interview language on Hispanics versus non-Hispanics and found no differences in the statistical properties of the food security measure, see:

Rabbitt, Matthew P., and Alisha Coleman-Jensen. 2017. “Rasch Analysis of the Standardized Spanish Translation of the U.S. Household Food Security Survey Module,” *Journal of Economic and Social Measurement* 42(2):171–197.

The screening rules that determine whether a household was asked the questions in the food security scale varied somewhat during the first 4 years of fielding the Food Security Supplement (1995–98). These different screening procedures affected the estimated prevalence of food security differently in each year. From 1998–2021, screening procedures remained essentially unchanged and prevalence rates are directly comparable. The variable HRFS12CX indicates screening status under the “common screen” that allows comparisons of food security prevalence rates across all years since data were first collected in 1995. To compare 2021 prevalence rates to those for 1995, 1996, or 1997, users will need to edit the food security status variable of interest to “high food security” (raw score=0) for households that would have been screened out under the common screen (HRFS12CX=1). Comparison can then be made to variables in the common screen series in data from any earlier year.

Screeners also were applied based on whether the household included any children so that households without children were not asked questions that refer specifically to children. For this purpose, persons 17 or younger are classified as children, except those who are household reference persons or spouses or partners of household reference persons (PERRP=40, 41, 42, 43, 44, 45, 46, or 47; note that PERRP codes were revised in 2020). Children’s Food Security Scale variables are coded as “Not in Universe” (-1) if there were no children in the household.

### ***Food Security Status and Scale Variables***

The main purpose of the Food Security Supplement is to provide information about the food security of the nation’s households. Six series of variables are provided for this purpose. The first 3 series indicate the food security of households, children in households, and adults in households during the 12 months prior to the survey. The remaining 3 series indicate the food security of households, children in households, and adults in households during the 30 days prior to the survey. Each series includes one (or two in some series) categorical food security status variables, a raw score variable, and a scale score variable.

The food security status variables are as follows:

- ***Household Food Security Scale, 12-Month Reference Period***
  - HRFS12M1 is a categorical variable that classifies households in three categories: food secure, low food security, and very low food security. ***This is the variable used for most food security statistics in USDA’s annual food security report series.*** Users may combine the latter two categories as food insecure.
  - HRFS12MD is the same as HRFS12M1, except that the food-secure category is subdivided to differentiate households that reported no food-insecure conditions (high food security) from those that reported one or two food-insecure conditions (marginal food security).
  - HRFS12M3 is the raw score—a count of the number of questions in the 12-month Household Food Security Scale that were affirmed by the household respondent.

- HRFS12M4 is the scale score, a continuous score based on fitting the data to a single-parameter Rasch model using item calibrations calculated from the 1998 data. Computed values range from about 1 to 14. Scale scores for households that affirmed no items cannot be calculated within the Rasch model. These households are food secure, but the degree of their food security is not known and may vary widely from household to household. The households are assigned scale scores of -6 to remind users that they require special handling in analyses that assume linearity of the scale scores.
- ***Children's Food Security Scale, 12-Month Reference Period.*** A set of food security variables indicating the food security of children in the household is calculated from responses to the eight questions in the scale that ask specifically about food conditions among the children.
  - HRFS12MC is a categorical variable that classifies households in three categories based on the food security of children in the household: food secure, low food security, and very low food security. ***This is the variable used for statistics on very low food security among children in USDA's annual food security report series.*** Note that the coding of this variable differs from that of HRFS12M5 in 2004 and earlier years. HRFS12MC differentiates households with low food security among children (raw score 2, 3, and 4) from households in which children were food secure (raw score 0 and 1). The category very low food security among children in 2005 and later years (HRFS12MC=3) is exactly equivalent to the category food insecure with hunger among children (HRFS12M5=2) in 2004 and earlier years.
  - HRFS12M6 is the raw score on the 12-month child-referenced items.
  - HRFS12M7 is the Rasch-model-based scale score on the Children's Food Security Scale.
- ***Adult Food Security Scale, 12-Month Reference Period.*** A set of food security status variables indicating the level of food security among adults in the household is calculated from responses to the 10 questions in the scale that ask specifically about food conditions among adults in the household and of the household in general. This variable provides a more nearly comparable measure of food security between households with and without children, or among households with children in different age ranges than does the Household Food Security Scale (the HRFS12M1—M4 series).
  - HRFS12M8 is a categorical variable, based on the scale score (HRFS12ME) that classifies households in four categories of food security among adults: high, marginal, low, and very low. Users may combine the first two categories as indicating food security among adults and the latter two as indicating food insecurity among adults.
  - HRFS12M9 is the raw score on the 12-month adult- and household-referenced items.
  - HRFS12ME is the Rasch-model-based scale score on the Adult Food Security Scale.
- ***Household Food Security Scale, 30-Day Reference Period.*** HRFS30D1, -D2, -D3 and -D4 correspond to HRFS12M1, -MD, -M3, and -M4, except that they are based on food security conditions during the 30-day period prior to the food security survey, rather than the 12-month period. Note that these variables are not comparable with the 30-day food security

variables in 2004 and earlier years' data (HRFS30M1, M2, and M3). The earlier years' measures were based on only a subset of the items in the scale in 2005 and later years. In 2021, variable HESSHM5 did not meet Census guidelines for disclosure, so was not used in assessing 30-day household food security status. Due to the exclusion of this variable in 2021, HRFS30D3 has a range of 1-17 and HRFS30D4 has a range of 1.43-12.16.

- ***Children's Food Security Scale, 30-Day Reference Period.*** HRFS30D5, -D6, and -D7 correspond to HRFS12MC, -M6, and -M7, except that they are based on food security conditions among children during the 30-day period prior to the food security survey rather than the 12-month period. In 2021, variable HESSHM5 did not meet Census guidelines for disclosure so is not released in the public-use datafile and was not used in assessing 30-day children's food security status. Due to the exclusion of this variable in 2021, HRFS30D6 has a range of 1-7 and HRFS30D7 has a range of 4.11-11.50.
- ***Adult Food Security Scale, 30-Day Reference Period.*** HRFS30D8, -D9, and -DE correspond to HRFS12M8, -M9, and -ME, except that they are based on food security conditions among adults during the 30-day period prior to the food security survey, rather than the 12-month period.

### ***Constructing Household Characteristics from Person Records***

To compute some household characteristics (such as household size, presence of children, or presence of elderly members), it is necessary to identify the records of all persons in the same household. Households within the December CPS-FSS are uniquely and completely identified by two household identifiers in combination, HRHHID and HRHHID2 (State of residence is no longer required to uniquely identify households). Characteristics of the household reference person can be assigned from the person record with PERRP 40 or 41, which will always be the record with the lowest-numbered PERRP in the household. To match to other months' CPS files, add the HRMIS variable to the household identification, adjusting one of the files for the difference in survey month.

### ***Weights: Estimating Population Distributions of Person and Household Characteristics***

The CPS is a complex probability sample—and interviewed households, as well as persons in those households, are assigned weights so that the full interviewed sample represents the total national non-institutionalized civilian population. Initial weights are assigned based on probability of selection into the sample, and weights are then adjusted iteratively to match population controls for selected demographic characteristics at State and national levels. There are two sets of household and person weights in this data file: (1) labor force survey weights, and (2) Food Security Supplement weights.

The labor force survey weights, HWHHWGT for households and PWSSWGT for persons, are positive for persons in all interviewed households (except that person weights for persons in the armed forces are zero or missing). These weights would be appropriate for analyzing whether



households or persons who completed the Supplement differed from those who declined to complete the Supplement.

In 2021, about 29 percent of the households that completed the core labor force survey declined to complete the Food Security Supplement.<sup>2</sup> The Supplement weights, HHSUPWGT for households and PWSUPWGT for persons, are adjusted for Supplement nonresponse, so that the Supplement respondents represent the national civilian non-institutionalized population. These weights are appropriate for estimating household distributions, food security status, food expenditures, use of food and nutrition assistance programs, and any other variables in the Food Security Supplement.

Household weights are attached to all person records in the household. To estimate household frequency distributions, the sample must be limited to one record for each household—usually by limiting the sample to records of household reference persons (PERRP=40 or 41). Noninterview or nonsupplement households must be excluded from these analyses based on HRINTSTA or HRSUPINT.

All weight variables have four implied decimal places in the data file (the decimal point is not included). Divide the weight variables by 10,000 for analysis in units or by 10,000,000 for analysis in thousands of persons or thousands of households.

### ***Variance Estimation; Sampling Error; Replicate Weights***

Calculations of the sampling error of prevalence rates and other statistics estimated from CPS-FSS data must consider the complex character of the sample, which is stratified, clustered, and reweighted to control to known population totals. Beginning with the 2010 data, the Census Bureau has provided household replicate weights to facilitate a more rigorous estimation of sampling error. The replicate weights and documentation on how to use them can be downloaded from: [https://www.census.gov/data/datasets/time-series/demo/cps/cps-supp\\_cps-repwgt/cps-food-security.html](https://www.census.gov/data/datasets/time-series/demo/cps/cps-supp_cps-repwgt/cps-food-security.html).

### ***Further Information***

Information on the Federal Food Security Measurement Project, and on survey and measurement issues, is available from the Economic Research Service *Food Security in the United States* page: <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/>.

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<sup>2</sup> At ERS' request, the U.S. Department of Commerce, Bureau of the Census conducted a nonresponse bias analysis of FSS. Although the analysis found that the distributions of respondents and nonrespondents differ on some demographic characteristics, those distributional differences do not necessarily indicate a nonresponse bias problem, see:

Farnham, KeTrena. 2017. *Evaluating Nonresponse Bias in the 2015 Food Security Supplement to the Current Population Survey*. Memorandum for U.S. Department of Agriculture, Economic Research Service, Food Assistance Branch, from U.S. Department of Commerce, Bureau of the Census Demographic Statistical Methods Division.

A statistical summary of the December 2021 CPS-FSS data, *Household Food Security in the United States in 2021*, can also be downloaded from that page.

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