CPS April 1995 Food Security Supplement and Revision: Technical Documentation

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Background

This document provides technical information on two food security data files:

- The Current Population Survey Food Security Supplement (CPS-FSS) April 1995 Public-Use Microdata File; and
- The April 1995 Food Security Update File that matches to the CPS-FSS file.

The CPS-FSS is available from the U.S. Census Bureau in three formats: ASCII format on CD-ROM (original file, or in the CPS Archive of supplements released in 1999); ASCII format via the DataFerett system; and SAS transport format via the DataFerrett system. Subsequent to release of the CPS-FSS data file in 1997, USDA researchers and USDA contractors refined the methods used to calculate household food security scores and food security status categories. They also developed methods to adjust these household summary variables for differences in questionnaire screening protocols so that prevalence rates can be compared across years without bias. The April 1995 Food Security Update File was prepared by Mathematica Policy Research (MPR) under contract to USDA to (1) update the 1995 data file to methods and variable naming conventions used in 1996 and subsequent years, and (2) to add the "common screen" food security variables appropriate for cross-year comparisons. The Update File is available from the ERS Food Security Briefing Room on the Web.

Technical Description

The CD-ROM data file is in ASCII format and consists of 153,418 logical records. The length of each record is 1,079 characters. Each record represents one person in a surveyed household or one household that was eligible for the core labor force survey but that either could not be contacted or refused to participate. Noninterview households are included in the CD-ROM file with their noninterview status indicated.

The DataFerrett system files do not include noninterview households (but do include interviewed households with supplement data missing). Data files downloaded from DataFerrett, therefore, exclude noninterview households and consist of 138,984 records representing 53,665 households.

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 interview household.

Note that some data dictionaries provided by the Census Bureau for this file erroneously show the first variable, HRHHID, as length 12 beginning at column 12. The correct location is length 12 beginning at column 1.

The data file (Cpsfs95.dat) is in ASCII format and is also available zipped. The file consists of 68,099 logical records. The length of each record is 53 characters. Each record represents one household. Noninterview households are included, with all food security variables coded -1 to indicate "not in universe." The Update File matches to the CPS-FSS Public-Use File by three variables: GESTCEN HRHHID HRSERSUF.

A data dictionary and SAS code to read the data file are provided.

Contents of the Data File

Throughout the rest of this document, the two files are described as a single data file, assuming that the two files have already been merged.

The file includes data in three general categories:

(1) Monthly labor force survey data and recodes, collected by the Census Bureau for the Bureau of Labor Statistics. These variables are described briefly in the data dictionary. For concepts and definitions underlying these data, users should refer to the technical documentation for the CPS monthly labor force data available from the Bureau of Labor Statistics. Included are geographic, demographic, income, and employment data which may be of interest to those analyzing the food security supplement.

(2) Food Security Supplement data, collected by the Census Bureau for the United States Department of Agriculture. 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, food insecurity, and hunger. All of the Food Security Supplement variables are household-level data except the supplement person weight, the food security status person weight, and the identifier for the focus child for individually referenced children in rotation 8.

(3) Food security and hunger scale and status indicators calculated from the Food Security Supplement data by the Economic Research Service of the United States Department of Agriculture. These indicate the screening status of the household, as well as continuous and categorical measures of food security status.

Contents of the Food Security Supplement Questionnaire

A facsimile of the Food Security Supplement questionnaire is available on the ERS website and on the Census Bureau Website. It is also available in Hamilton et al., Household Food Security in the United States in 1995: Summary Report of the Food Security Measurement Project, available from the Food and Nutrition Service website. (The questionnaire is in appendix A, which is included only in the printed version of the report, not in the electronic version available on the FNS 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 (HES1 - HES8).

(2) Food Program Participation (HES9 - HES9G).

(3) Food Sufficiency, Food Security, and Ways of Avoiding or Ameliorating Food Deprivation (HES11A - HES58). This section includes, among other items, the 18 food security and hunger items that are used to calculate the household food security scale.

Screening of the Food Security Supplement

The Food Security Supplement includes several screens to reduce respondent burden and to avoid embarrassing respondents by asking them questions that are inappropriate, 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 the Food Security Supplement. Households with incomes above 185 percent of the poverty threshold for that household (HRPOOR=2, estimated from HUFAMINC and HRNUMHOU) were not asked the questions on participation in food assistance programs. Households with income above 185 percent of poverty

who registered little or no indication of food stress on HES15, HES16, or HESS11/11A were not asked the questions in the "Food Sufficiency, Food Security, and the Ways of Avoiding or Ameliorating Food Deprivation" section.

Looking ahead, changes in the initial screener will be introduced in the 1996 and 1997 surveys, and in 1998 the questionnaire will be reorganized and two "internal" screeners added in the main food security section (the questions that are used to calculate the household food security scale). These different screening procedures bias estimated prevalences of food insecurity and hunger differently in each year. Adjustments must be made for these differences to compare prevalences of food security and hunger across years. This topic is discussed below under the heading "Food security scales and screener variables."

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. These screeners, as calculated at the time of the survey, classified as children all persons 17 or younger. However, for processing and analyzing the food security data, persons who are household reference persons or spouses of household reference persons (PERRP=1, 2, or 3) are not considered children even if they are 17 or younger. The food security scale, status, and screener variables reflect this recoding; however, the individual item responses are not recoded, and the user will need to recode these if they are to be analyzed or used to replicate scale scores.

Food Security Scales and Screener Variables

The main purpose of the Food Security Supplement is to provide information about food security, food insecurity, and hunger in the nation's households. Several variables are provided in the data file that identify the food security status of each household during the previous 12 months. All of these variables are based on responses to a set of 18 items in the Supplement that are indicators of food insecurity and hunger. HRFS12M3 is the raw score—a count of the number of items affirmed by the household respondent. Households that were screened out are assigned a score of -5 on this variable to remind users that these households were not actually asked any of the 18 items. HRFS12M4 is the household food security scale score, a continuous score based on fitting the data to a single-parameter Rasch model using item calibrations calculated from the 1995 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. They are assigned scale scores of -6 to remind users that they require special handling in analyses that assume linearity of the scale scores. Households that were screened out are assigned a score of -5 on this variable. HRFS12M1 is a categorical variable based on the scale score that classifies households in three categories: food secure, food insecure without hunger, and food insecure with hunger. HRFS12M2 is the same as HRFS12M1 except that the food-insecure-with-hunger category is subdivided to level 1 and level 2 hunger. The level 2 hunger category corresponds operationally with the "Severe Hunger" category described in *Household Food Security in the United States in 1995: Summary Report of the Food Security Measurement Project* and with the "Food Insecure with Hunger (Severe)" category described in *Guide to Measuring Household Food Security - 2000*, both published by the Food and Nutrition Service.

The food security variables described in the previous paragraph are based on the 18 food security indicator items as they were administered in the 1995 survey. A second set of food security scale and status indicators are provided that are adjusted for interyear differences in survey screening procedures. These "common-screen" variables are comparable to corresponding variables in the September 1996, April 1997, August 1998, and April 1999 data files. Prevalence estimates based on these common-screen variables are comparable across these years. The common-screen-based food security variables are HRFS12C3 (raw score), HRFS12C4 (Rasch-based scale score), HRFS12C1 (3-category food security status indicator), and HRFS12C2 (4-category food security status indicator). The common-screen food security variables are needed because the screening procedures used in administering the Food Security Supplements varied somewhat from year to year. In all

years, households that were screened out after a few initial questions are classified as food secure. However, comparisons across years of the item responses of households with identical responses to the preliminary screener variables show that some households that were screened out under more stringent screening rules would have been classified as food insecure (or, in a few cases, even as food insecure with hunger) if they had not been screened out. The screening procedures, therefore, bias prevalence estimates of food security and hunger downward, and the extent of the bias varies across years. To compare prevalence rates across years, it is essential to adjust the data from each year so that it matches, as nearly as possible, a common set of screening procedures. That is, negative responses must be imputed to households that would have been screened out at the initial screener in any year. For surveys prior to 1998, negative responses also must be imputed to "downstream" variables for households that would have been screened out at either of the internal screens that were first implemented in 1998.

A screener status variable, HRFS12CS, is provided to indicate screening status under the 1995-98 common screen. The variable indicates whether the household would have been administered all questions in the food security scale, would have been screened out prior to the first of the 18 scale items, or would have been screened out at either of the two internal screens introduced in 1998.

Changes from Previous Years' Food Security Supplements

The CPS-FSS April 1995 Microdata File includes 4 household summary food security variables:

- 12-month and 30-day food security scale variables HSCAL12 and HSCAL30. These are continuous, interval-level measures of household food security status and range from 0 to 10.
- 12-month and 30-day food security status variables HSCAL12D and HSCAL30C. These are categorical variables that identify households as food secure, food insecure, food insecure with hunger, and food insecure with hunger (severe).

The 12-month categorical measure, HSCAL12D, corresponds to the updated variable HRFS12M2. The two variables classify households identically, with the following exceptions:

- A few households that had many missing items, a few valid negative responses, and no affirmative responses were (arguably) misclassified as food insecure on HSCAL12D because of a peculiarity of the Rasch software. These are classified as food secure on HRFS12M2.
- For households with some valid responses and some missing responses to scale items, HSCAL12D was based on direct Rasch estimates of household scores that ignored missing items. Under the revised protocol, responses to the missing items are imputed based on valid responses to other items in accordance with Bickel et al., *Guide to Measuring Household Food Security, Revised 2000*. This changed the scale scores of only about 0.5 percent of households, and very few of those changed categories.
- A few households (N=36) had valid responses to some items but to fewer than half of the items to which responses were expected (i.e., fewer than 9 for households with children or 5 for households with no children). For these households, HSCAL12D was set to "missing." Under the current protocol, as reflected in HRFS12M2, the missing items for such households are imputed as described above, and the households are assigned a valid food security status.

The continuous scale variable, HRFS12M4, is essentially a linear transformation of HSCAL12. The metric was adjusted in all years to accommodate the slightly greater spread of scores in 1998 (that is, to keep them all above zero). The editing and imputation changes described above also affected this variable for a small number of households.

Cross tabulation of HSCAL12D with HRFS12M2 shows that these three changes together affected the

categorical assignment of only 106 households (0.24 percent of supplement households). Linear regression of HRFS12M4 on HSCAL12 has an R2 of .999. Therefore, there is no need to reexamine analyses already carried out using the original variables. However, for future analysis, the revised variables are preferred.

The update file does not include 30-day food security variables. The original variables may be used, although they will include a few anomalies related to the problems described above.

Interview Households, Supplement Households, and Noninterview Households

Noninterview households-those that were eligible for the survey but could not be contacted or that declined to complete the core labor force survey—are included in the CD-ROM file (but not in the Ferrett files). Interview status is indicated by the variable HRINTSTA, which has value of 1 for interviewed households, or by HRHTYPE, which is positive for interviewed households and zero for noninterview households. (There is only one record for each noninterview household.) Some households that completed the core labor force survey did not complete the Food Security Supplement. Supplement interview status is indicated by the variable HRSUPINT, which has a value of 1 for households that completed the supplement, 2 for households that completed the core but not the supplement, and -1 for core noninterview households.

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 are uniquely and completely identified by State of residence (GESTCEN), household identifier (HRHHID), and household serial suffix (HSERSUF). Sort records within households by PERRP if the household reference person record must be the first record 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. For matching to the March annual demographic supplement, HRSERSUF may need to be recoded.

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 noninstitutionalized 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. These weights would be appropriate for analyzing whether households or persons who completed the supplement differed from those who declined to complete the supplement.

About 12 percent of households completed the core labor force survey but declined to complete the Food Security Supplement. The supplement weights, HHSUPWGT for households and PWSUPWGT for persons, are adjusted for supplement nonresponse so that the supplement respondents represent the national noninstitutionalized population. These weights are appropriate for estimating household distributions of variables in the Food Security Supplement, including food security status.

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. This is usually accomplished by limiting the sample to records of household reference persons (PERRP=1 or 2). Noninterview or nonsupplement households must be excluded from these analyses based on HRHTYPE or HRSUPINT.

All weight variables have four implied decimal places in the CD-ROM (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. The format of weight variables downloaded from Ferrett are somewhat unpredictable. Sometimes they are in units; sometimes they have four implied decimal places. These should be checked prior to use.