12/27/2010

Notice for Data Users:
Calculation of Poverty Ratios Using Poverty Thresholds, and Implications of Rounding

Potential rounding inconsistencies between public use and in-house poverty ratio variables

The 2009 National Health Interview Survey (NHIS) Imputed Family Income/Personal Earnings public use data files contain poverty ratios (POVRATI2). These ratios were calculated by dividing top-coded total combined imputed family income (FAMINCI2) by the U.S. Census Bureau's poverty thresholds:

POVRATI2 = FAMINCI2/poverty threshold. †

After calculation the poverty ratios were rounded to two decimal places. This was in contrast to the poverty ratios contained on the 2009 NHIS Imputed Family Income/Personal Earnings in-house data files (POVRAT_I) that were rounded to three decimal places. This inconsistency in rounding may affect categorical values of recoded poverty ratio variables. Respondents could be placed in one category when using the public use poverty ratios (POVRATI2), but in another category using the in-house poverty ratios (POVRAT_I). For example, a categorical poverty ratio variable is created with categories for (a) less than 200% of the poverty threshold and (b) 200% or more of the poverty threshold. In the 2009 NHIS, a respondent who has a poverty ratio of 1.995 in the in-house data file (POVRAT_I) would have a poverty ratio of 2.00 in the public use data file (POVRATI2) and would therefore be placed into different categories.

Adjusting for these rounding differences is not required, and rounding differences may or may not move the poverty ratio value to an adjacent category. Therefore, data users should employ their own discretion as to whether or not any adjustments should be made to account for this inconsistency. If a user is concerned about the instances this discrepancy occurs and wishes to eliminate it, they may do so by following the instructions below.

Data users can utilize the equation above, and using the top-coded total combined imputed family income (FAMINCI2) and the U.S. Census Bureau's poverty thresholds for the appropriate year, create comparable poverty ratio categories with three decimal places. Users can identify the appropriate poverty threshold for each respondent by determining the age of the respondent (AGE_P), the size of the family (FM_SIZE), and the number of children in the family (FM_KIDS). The age of the respondent is found in the NHIS Person data file; the size of the family and the number of children in the family are found in the NHIS Family data file. Note that for one or two person families, the NHIS distinguishes between adult householders under 66 years and 66 years and over, whereas the U.S. Census Bureau distinguishes between householders under 65 years and 65 years and over. This difference in age ranges is due to NHIS respondents being asked questions about personal earnings and family income for the previous calendar year. For example, using the 2009 NHIS data, a family consisting of one adult householder aged 65 years with no children under 18 years would be assigned a poverty threshold of $11,201 (from the U.S. Census Bureau's 2008 poverty thresholds).

1997-2008 Supplemental Family Income/Personal Earnings data files

All top-coded point estimates contained in the 2009 NHIS Imputed Family Income/Personal Earnings files are analogous to the top-coded point estimates contained in the 1997-2008 Supplemental Imputed Family Income/Personal Earnings files. No analogue of the 1997-2008 Imputed Family Income/Personal Earnings files (with categorical income data) was produced in 2009. Therefore, the same technique detailed above can be applied to calculate poverty ratios using the 1997-2008 Supplemental Family Income/Personal Earnings data files. However, in these files, the POVRAT_I and POVRATI2 ratios were calculated using a slightly modified version of the U.S. Census Bureau's poverty thresholds. Two-person households consisting of an adult householder and child were treated the same regardless of the age of the adult householder, while the Census poverty thresholds vary depending on the age of the householder. For example, according to the 2007 Census thresholds, families in the 2008 NHIS with (a) one adult under 66 years and one child, and (b) one adult 66 years and over and one child had poverty thresholds of $14,291 and $14,237, respectively. However, the variables POVRAT_I and POVRATI2 were calculated using the lower poverty threshold of $14,237 for both households regardless of the age of the householder.

Rounding vs. truncating user-created poverty ratio variables

Note that the same procedure (i.e., using the lower poverty threshold for families with one adult and one child) was used to calculate the poverty ratio category variables (e.g., RAT_CAT, RAT_CAT2, RAT_CAT3) in the released 1997-2009 NHIS Family files, whereas the exact Census thresholds were used in the calculation of POVRAT_I and POVRATI2 in the 2009 Imputed Family Income/Personal Earnings data file. Finally, users should be aware that the POVRAT_I variable released in the 1997-2008 NHIS Imputed Family Income/Personal Earnings in-house data files was truncated at three decimal places rather than rounded to three decimal places. Users wishing to create new poverty ratio categories for the 1997-2008 Imputed Family Income/Personal Earnings data that are comparable to the released categories should assign categories without rounding the poverty ratio values.

† Poverty thresholds are available on the U.S. Census Bureau website: http://www.census.gov/hhes/www/poverty/data/threshld/index.html. Note that the NHIS asks respondents about their personal earnings and family income for the previous calendar year; therefore U.S. Census Bureau poverty thresholds for the previous calendar year should be used when calculating poverty ratios for the current NHIS survey year. For example, the poverty ratios in the 2009 NHIS data files were calculated using the U.S. Census Bureau's 2008 poverty thresholds.