

## **Rounding Rules Memo for SSB Users** **3-19-2019**

This memo outlines the new rules regarding disclosure of results from validations of the SIPP Synthetic Beta in accordance with standards of the Census Bureau's Disclosure Review Board. Going forward, most counts and estimates must be rounded. This helps to minimize disclosure risk.

It is not sufficient to format a number in a spreadsheet file, because the underlying unformatted value is often retained. If you prefer, you may output your results to two separate text files: one for counts and one for parameter estimates. We can then run these two text files through our own set of formatting programs that will round counts and estimates for you.

The rules are as follows:

### **Number of Observations and Related Integers**

All reported Ns, whether weighted or unweighted, must be rounded. This is true even for large Ns. An exception is made if the count is at a level substantially different than microdata and doesn't reveal microdata counts. For example, sometimes researchers use industry as the unit of analysis.

Other integers related to observation counts must also be rounded. For instance, degrees of freedom is often closely related to sample size.

The rounding scheme for unweighted counts is as follows:

- If N is less than 15, report  $N < 15$
- If N is between 15 and 99, round to the nearest 10
- If N is between 100-999, round to the nearest 50
- If N is between 1000-9999, round to the nearest 100
- If N is between 10000-99999, round to the nearest 500
- If N is between 100000-999999, round to the nearest 1,000
- If N is 1000000 or more, round to four significant digits

Rounding of weighted counts follows the four significant digit rule for estimates discussed below.

## Summary Statistics, Model Based Output, and Other Estimates

Summary statistics and model-based estimates must be rounded to four significant digits. This includes but is not limited to

- Means
- Standard deviations/ standard errors,
- Correlations
- Test statistics
- Degrees of freedom
- Model coefficients

Special attention needs to be paid to unweighted count-based statistics (e.g. means for binary variables). The numerator and denominator must be treated as counts and rounded accordingly. Therefore, the rounding rules in the previous section would be applied to the numerator and to the denominator separately. Any statistics for that measure would be based on the ratio of these two rounded numbers.

All prior disclosure rules still apply (including but not limited to the standing rules of  $\geq 15$  individuals for each implicit/explicit statistic, no minimums or maximums can be released,  $\geq 5$  individuals between each quantile released).

### Formula for Rounding to Four Significant Digits

To automate rounding to four significant digits,  $x$  should be rounded to the following power of 10:

$$10^{\lfloor \log_{10}(|x|) \rfloor - 3}$$