

Proposed High Level Design
Ratio of Means TABLING Addition
Larry Bednar
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Purpose

This document outlines the proposed high level application design to be implemented by the revisions of this project

Design Outline

Overview

Much of the existing code modularization will remain intact. The primary change will be the addition of three code modules designed to parallel the function of the existing RANDOM, STRAT, and DOUBLE modules. These modules, however, will be designed to accept job specifications appropriate to the generation of separate ratio estimators. These newly constructed code modules will not replace the existing RANDOM, STRAT, and DOUBLE modules, but will instead be used in place of these existing modules when the user requests a ratio estimate.

New Modules

RANDOM_RS.SAS

This module will be designed to generate tables of ratio estimates as specified by the user-provided job parameters in cases where a simple random sample design is indicated.

“RS” in the module name indicates “Ratio estimator – Separate”. In this case “separate” refers to the fact that an estimate derived from combined subpopulation samples will be formed as if the subpopulations constituted different strata in a stratified sampling design – the population estimator will be a separate ratio estimator formed from individual ratios estimated for each subpopulation.

STRAT_RS.SAS

This module will be designed to generate tables of separate ratio estimates as specified by the user provide job parameters in cases where a stratified random sample design is indicated.

“RS” in the module name indicates “Ratio estimator – Separate”.

DOUBLE_RS.SAS

This module will be designed to generate tables of separate ratio estimates as specified by the user provide job parameters in cases where a double sampling for stratification sample design is indicated.

“RS” in the module name indicates “Ratio estimator – Separate”.

Modified Modules

TABLING.SAS

The TABLING module, which is responsible for overall control and operation of subsidiary code modules in the application will need to be modified to handle the additional job parameters required for ratio estimators.

Alteration of the method for calling estimation modules

The application will also have to be modified to alter the mechanism used to call the appropriate estimation modules, as the current method will not work under acceptable methods for obtaining the job parameters from the user.

The clearest method for calling the appropriate estimation modules would be to construct a series of conditional flow statements that test for values of job parameters related to sample design and requested estimators, and then execute the appropriate estimation module.

Alteration of the methods for calling data extraction modules

Under the proposed application revision, execution of the data extraction modules must be modified to specify the extraction of two analysis variables, as opposed to the current process, which specifies only one analysis variable to be extracted from input data sets.

GET_OB.SAS

The GET_OB module is responsible for extracting analysis observations from the input data sets used to provide sample evaluation data. This module is used only when CENSUS or simple stratified random sampling designs are indicated by the user-provided job parameters.

This module must be altered to extract either one analysis variable from the input data sets (for estimating sample unit means or simple population totals) or to extract two analysis variables (as required for generation of a ratio estimate).

GET_OB_S.SAS

The GET_OB_S module is current responsible for extracting analysis observations from the input data sets used to provide sample evaluation data. This module is used only when stratified sampling designs are indicated by the user-provided job parameters.

This module must be altered to extract either one analysis variable from the input data sets (for estimating sample unit means or simple population totals) or to extract two analysis variables (as required for generation of a ratio estimate).