

Statistiska institutionen

## **Weighting Survey Data - A Short Course by Paul Biemer**

This course will present the essential concepts and principles of weighting using illustrations from elementary survey designs such as simple random sampling and stratified random sampling. The basic principles learned from these simple designs can be extended to more complex survey designs and sampling situations. The course will not provide comprehensive coverage of all the techniques of survey weighting; rather the focus is the concepts involved in weighting a sample with illustrations showing how survey weights are constructed to accomplish their vital role in survey inference. Students having a general knowledge of survey sampling will benefit most from the course, although this is not a strict requirement.

The course begins by discussing the four important issues in survey inference that survey weights are intended to address. These are: (a) corrections of the sampling distributions for unequal selection probabilities, (b) compensation for nonresponse error, (c) compensation for potential frame coverage error and (d) variance stabilization. The construction of base weights, nonresponse adjustments, post-stratification adjustments, and final sampling weights are explained analytically and illustrated using the National Survey of Adolescent and Child Well-being sample. Several common methods for developing nonresponse and post-stratification adjustments are given. Other topics discussed are the effects of weighting on the variance of estimates, weight trimming, and using weights in data analysis.

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