

## Chapter 18

# Analysis of Data from Complex Surveys

Laura M. Stapleton  
*University of Maryland, Baltimore County*

### SUGGESTIONS FOR FURTHER READING

Although it is hoped that this chapter has brought attention to the possible complexities of working with survey data, the reader is not expected to have obtained enough information to immediately analyze complex sample data appropriately. The following recommendations and suggestions for reading are intended to point the reader in the direction of becoming more familiar with the issues and options for estimation.

#### **Effects of complex sample design on statistical estimates and variance estimation:**

Lee, E. S., Forthofer, R. N., & Lorimor, R. J. (1989). *Analyzing complex survey data*. Newbury Park, CA: Sage Publications, Inc.

Lohr, S. L. (1999). *Sampling: Design and analysis*. Pacific Grove, Calif: Duxbury Press.

#### **Applied examples, comparing different variance estimation techniques:**

Korn, E. L., and Graubard, B. I. (1995). Analysis of large health surveys: Accounting for the sampling designs. *Journal of the Royal Statistical Society, 158*, (Series A), 263-295.

Thomas, S. L., and Heck, R. H. (2001). Analysis of large-scale secondary data in higher education research. *Research in Higher Education, 42*, 517-540.

**Technical details on variance estimation:**

Chambers, R. L., and Skinner, C. J. (Eds.) (2003). *Analysis of survey data*. Chichester, UK: Wiley.

Skinner, C. J., Holt, D., & Smith, T. M. F. (1989). *Analysis of complex surveys*. Chichester, UK: John Wiley & Sons.

Wolter, K. M. (1985). *Introduction to variance estimation*. New York: Springer-Verlag.

**Design effects and the effective sample size adjustment:**

Potthoff, R. F., Woodbury, M. A., & Manton, K. G. (1992). "Equivalent sample size" and "equivalent degrees of freedom" refinements for inference using survey weights under superpopulation models. *Journal of the American Statistical Association*, 87, 383-396.

**Replication techniques:**

Efron, R. and Tibshirani, R. J. (1993). *An introduction to the bootstrap*. London: Chapman & Hall.

Rao, J. N. K., Wu, C. F. J., & Yue, K. (1992). Some recent work on resampling methods for complex surveys. *Survey Methodology*, 18, 209-217.

Rust, K. F., & Rao, J. N. K. (1996). Variance estimation for complex surveys using replication techniques. *Statistical Methods in Medical Research*, 5, 283-310.

Shao, J., & Tu, D. (1995). *The jackknife and bootstrap*. New York: Springer-Verlag.