SMALL AREA ESTIMATION FOR A STUDY VARIABLE HAVING MANY ZERO VALUES

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Any real sample survey is carried out in order to estimate parameters not only for finite population, but also for many domains. Of course, these domains may be taken into account when constructing a stratified sample design. If it is not possible for some reasons, then it may occur that the sample size for design-based estimator in some domains may be too small to obtain sufficiently accurate estimate, or may be no sampled elements in some domains at all. The usage of auxiliary information at the estimation stage may improve the situation. The generalised regression estimator is one of the possibilities. The model-based estimator is another possibility. Estimation methods for the areas having small sample size (small areas, [4]) is a very popular topic of survey sampling nowadays. We will talk about model-based small area estimation for a study variable having many zero values ([2,3]). Bayesian inference will be used for this ([1,5]).

References

1. Geweke J. (2003), *Contemporary Bayesian Econometrics and Statistics*, University of Iowa.

2. Greene W. H. (2003), Econometric Analysis. Prentice Hall, Upper Saddle River.

3. Krapavickaitė D. (2011), Some models for estimation of total of a study variable having many zero values, *Lith. Mathemm. J.*, 51(3), p. 370-384.

4. Rao J. N. K. (2003), *Small Area Estimation*, Hoboken, John Wiley and Sons.

5. Statisticat, LLC (2014). *LaplacesDemon: Complete Environment for Bayesian Inference.* R package version 14.04.05, URL http://www.bayesian-inference.com/software.