

Comparing EBLUP and C-EBLUP for Small Area Estimation¹

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Abstract

Several methods for small area estimation have been proposed in the literature. See Rao (2003). However, research is still continuing on the important problem of identifying small area estimation techniques that are efficient and also simple to implement, with estimation of mean squared error an outstanding problem. We describe the C-EBLUP or calibrated approach to small area estimation introduced in Chambers (2005). This approach uses calibrated sample weights for estimation of small area means under linear mixed models, and also includes a simple estimator of the mean squared error of the calibrated estimator. In this paper we present results from a Monte-Carlo study that compares the mean squared error estimates generated under the C-EBLUP approach with those generated under the well know EBLUP-based method of Prasad and Rao (1990). Our results show that the proposed C-EBLUP mean squared error estimator performs well and represents a real alternative to the usual prediction based estimator. We also note that in case of model misspecification, the C-EBLUP approach appears to provide a more robust set of small area estimates.

Key Words: Small area, Calibrated weighting, Prediction approach, MSE estimation, model-based estimation.

¹ Prepared for in SAE 2005 Conference on “Challenges in Statistics Production for Domains and Small Areas” to be held at University of Jyväskylä, Jyväskylä, Finland, 28-31 August.