

Diagnosics in Small Area Models

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Abstract

Small area estimation is becoming important in survey sampling due to a growing demand for reliable small area statistics from both public and private sectors. In this paper, we consider the HB(Hierarchical Bayes) estimator for small areas in Fay-Herriot model. Gibbs sampling is used to obtain the HB estimates and their posterior variances, and we use these posterior variances as a measure of precision for small area estimates.

As model diagnosis, we check the normality of the assumed random area effects and the fit of model. We use Bayes factors, posterior predictive densities and cross-validation predictive densities for model determination. As data diagnosis, we tried to find the influential data.