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Title: Empirical Bayes estimation of small area means under unmatched two-fold subarea models

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Abstract:

We propose an empirical Bayes (EB) approach to estimation of small subarea means under a two-fold subarea-level model consisting of a sampling model and an unmatched linking model. The best predictors of subarea means are derived under arbitrary distributional assumptions on random effects of the linking model assuming the model parameters are known. The empirical best predictors, or EB estimators, of the subarea means then are obtained by plugging in the maximum likelihood estimators of the model parameters. In addition, a semiparametric bootstrap approach is proposed to estimate the mean squared error of the EB subarea estimator.