

Bootstrap approximations of the mean squared error of empirical predictors

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Abstract. For linear mixed models with normal distribution, Prasad-Rao approximation of the mean squared error of the EBLUP is currently the most common reference. When dealing with empirical predictors obtained under generalized linear mixed models, the same formula can be applied after a suitable linearization of the model. In all cases, a conceptually simple, but with high computational cost, are resampling methods. Several bootstrap estimators are introduced, and they are empirically compared with Prasad-Rao formula, under different scenarios for the characteristic of interest including a logistic mixed model.

Key words: Resampling methods, bootstrap, linear mixed models, logistic mixed model, empirical predictor, mean squared error, small area estimation.

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