Inference in linear models with doubly exchangeable distributed errors

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Abstract

We study the general linear model (GLM) with doubly exchangeable distributed error for m observed random variables. The doubly exchangeable general linear model (DEGLM) arises when the $m-$dimensional error vectors are "doubly exchangeable" (defined later), jointly normally distributed, which is a much weaker assumption than the independent and identically distributed error vectors as in the case of GLM or classical GLM (CGLM). We estimate the parameters in the model and also find their distributions. We show that the testings of intercept and slope are possible in DEGLM as a particular case using parametric bootstrap as well as multivariate Satterthwaite approximation.

Keywords

Doubly exchangeable covariance structure, Linear model, Parametric bootstrap, Multivariate Satterthwaite approximation.

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