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Bayesian inference in generalized true random-effects model and Gibbs sampling

The paper investigates Bayesian approach to estimating generalized true random-effects model (GTRE) via Gibbs sampling. Simulation results show that under properly defined priors for transient and persistent inefficiency components the posterior characteristics of the GTRE model are well approximated using simple Gibbs sampling procedure. No model reparametrization is required and if such is made it leads to much lower numerical efficiency. The new model allows us to make more reasonable assumptions as regards prior inefficiency distribution and appears more reliable in handling especially nuisance datasets. Empirical application furthers the research into stochastic frontier analysis using GTRE by examining the relationship between inefficiency terms in GTRE, true random-effects (TRE), generalized stochastic frontier and a standard stochastic frontier model.