

Title: Bootstrap Procedures in an Iteratively Estimated Spatial-Temporal Model

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Abstract:

Two bootstrap procedures for inference in a spatial-temporal model estimated using a hybrid of the backfitting algorithm and the Cochrane-Orcutt procedures are proposed. Crop yield data are utilized to illustrate the proposed methods.

Employing blocks of consecutive observations in the bootstrap proved to be optimal in terms of stability and efficiency of estimates. Minimal changes in the empirical distributions, both the parameter estimates associated with the covariate and temporal effects, between iterations are observed.

Testing for goodness-of-fit of some known distribution to the empirical distribution is further done. This simplifies the computational routines by invoking approximated statistical inference in an iteratively estimated set of parameters.