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Efficient Estimation for Time Series Following Generalized Linear Models

We consider shrinkage and pretest estimation methods for time series following generalized linear models. Efficient estimation strategies are developed for when there are many covariates in the model and where some of them are not statistically significant. We investigate the relative performances of shrinkage and pretest estimators with respect to the unrestricted maximum partial likelihood estimator. Our Monte Carlo studies show that the shrinkage estimators have a significantly lower relative mean squared error as compared to maximum partial likelihood estimators when the shrinkage dimension exceeds two. The practical benefits of the proposed methods are illustrated using a real data example.