

Autoregressive Process Modeling via the Lasso Procedure

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Key words: Autoregressive model, Estimation consistency, Lasso procedure, Model selection, Prediction consistency.

The Lasso is a popular model selection and estimation procedure for linear models that enjoys nice theoretical properties. In this paper, we study the Lasso estimator for fitting autoregressive time series models. We adopt a double asymptotic framework where the maximal lag may increase with the sample size. We derive theoretical results establishing various types of consistency. In particular, we derive conditions under which the Lasso estimator for the autoregressive coefficients is model selection consistent, estimation consistent and prediction consistent. Simulation study results are reported.