

A COMPARISON OF SOME ESTIMATORS OF THE SEASONAL ACF FOR VARIOUS PAR MODELS

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SUMMARY

This article investigates the seasonal autocorrelation function (SACF) of the periodic autoregressive model of order two (PAR(2)). Some results are derived for the computation of this model which is generalized to the varying order PAR model as well as higher order PAR model. Three estimators of the SACF are provided, namely the moment estimator and two other robust estimators. Some of these estimators were previously studied by Smadi and Al-Quraan (2012) for the PAR(1) model. Then, using Monte-Carlo simulation, the behaviors of both estimators in the presence of some additive outliers are investigated via bias and MSE. It is observed that for the selected PAR(2) and varying order PAR models the moment estimator is highly affected by outliers. This fact was previously observed by several studies. In view of simulation results, a proposed estimator based on trimming technique is found to overpower the other two estimators in the presence of outliers.

Keywords and phrases: Periodic autoregression, Varying order PAR model, Robust estimation, Seasonal autocorrelations, Monte-Carlo simulation.

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