



Contribution ID : 3

Type : not specified

Sparse Pairwise Likelihood Inference for Multivariate Time Series Models

venerdì 30 giugno 2023 09:30 (20)

Multivariate time series data is becoming an increasingly common research topic. Unlike univariate time series, the temporal dependence of a multivariate series includes both serial dependences and interdependences across different marginal series. Consequently, as the number of component series increases, multivariate time series models become overparameterized. In addition, there are many cases where the conditional distribution of the multivariate series given its past might have a complicated form. Given these challenges we develop methodology by replacing the full likelihood function by a pairwise likelihood that only requires the specification of bivariate marginals instead of the multivariate distribution. Clearly, the computational task of maximization of the pairwise likelihood is much simpler than maximization of the full likelihood function but still it poses the problem of combining all estimators. For this purpose, we rely on maximization of an approximate weighted least squares estimation criterion subject to a shrinkage penalty that allows for model selection. The suggested approach provides a general framework for multidimensional time series since it can be applied to both continuous and discrete time series but also to mixed mode time series data.

Primary author(s) : PEDELI, Xanthi (Athens University of Economics and Business, Department of Statistics)

Co-author(s) : FOKIANOS, Konstantinos (University of Cyprus, Department of Mathematics and Statistics); KARLIS, Dimitris (Athens University of Economics and Business, Department of Statistics)

Presenter(s) : PEDELI, Xanthi (Athens University of Economics and Business, Department of Statistics)

Session Classification : Sixth Session