

A Class of Semiparametric Estimator for Long-Range Dependent Multivariate Processes

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In this work we investigate the finite sample performance of a certain class of Gaussian Semiparametric Estimators (GSE) for the memory parameter in long-range dependent multivariate time series. The class of models considered here satisfies simple conditions on the spectral density function, restricted to a small neighborhood of the zero frequency. This includes, but is not limited to, the class of VARFIMA models. We present a simulation study to assess the finite sample properties of the proposed estimator in the context of bivariate VARFIMA(0, \mathbf{d} , 0) processes for which the innovation's joint distribution is Gaussian, but the marginals are not. Marginal distributions considered here present heavier tails than the standard Gaussian distribution and include the Student's t , the Logistic and the hyperbolic-Secant distributions.

Keywords: Multivariate processes; Long-range dependence; Semiparametric estimation.