Modelling of the ARMA models residuals using autocopulas

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The 'k-lag auto-copula' is a 2-dimensional joint distribution function of the bivariate random vector (Y_t , Y_{t-k}) of time lagged values of random variables that generate time series [4]. In the contribution we extend the idea to the use of auto-copulas (originally used by Rakonczai [4] for tests of the residual independence of time series models) also for investigation of the residuals dependence structures of the linear ARMA (AutoRegressive Moving-Average) time series models (see [1]). We model the residual dependence of ARMA time series models with auto-copulas (Archimedean, Extreme Value and their convex combinations, see [2], [3]). The fitting quality (both in-the-sample and out-of-the-sample) of the resulting models was considerable improved for a large class of economic time series.

References

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