De Gooijer, Jan G.
The marginal distribution function of threshold-type processes with central symmetric innovations. (English) [Zbl 07491690]
Statistics 56, No. 1, 1-33 (2022)

Summary: This paper addresses the problem of finding exact and explicit (closed-form) expressions for the stationary marginal distribution of threshold-type time series processes, their associated moments, autocovariance and autocorrelation coefficients. The innovation process of the models under consideration follows three central symmetric distribution functions: Gaussian, Laplace, and Cauchy. Theoretical results for both two- and three-regime threshold-type models are derived. Various examples give rise to a deeper understanding of certain features of the stationary process structure. Exact results for the stationary density, central moments, and autocorrelations of threshold-type processes are compared with approximate density and moment results obtained through an existing numerical methods.

MSC:
62E15 Exact distribution theory in statistics
62E17 Approximations to statistical distributions (nonasymptotic)
62M10 Time series, auto-correlation, regression, etc. in statistics (GARCH)

Keywords:
autocovariance coefficient; Markov chain; moments; numerical method; probability density function

Full Text: DOI

References:


[22] Li, D.; Tong, H., On an absolute autoregressive model and skew symmetric distributions, Statistica, 80, 177-198 (2020)


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