Chang, Fang; **Rekkas, Marie**; **Wong, Augustine**

Improved likelihood-based inference for the $MA(1)$ model. (English) Zbl 1250.62044

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Summary: An improved likelihood-based method is proposed to test for the significance of the first-order moving average model. Compared with the commonly used tests which depend on the asymptotic properties of the maximum likelihood estimate and the likelihood ratio statistic, the proposed method has remarkable accuracy. Application of the method to a data set on book sales is presented to demonstrate the implementation of the method. Simulation studies are subsequently performed to illustrate the accuracy of the method compared to the traditional methods. Additionally, a simple and effective correction is used to deal with the boundary problem.

MSC:

62M10 Time series, auto-correlation, regression, etc. in statistics (GARCH)
65C60 Computational problems in statistics (MSC2010)

Keywords:

moving average model; likelihood analysis; p-values

Full Text: DOI