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Inference on breaks in weak location time series models with quasi-Fisher scores

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Based on Godambe's theory of estimating functions, we propose a class of cumulative sum (CUSUM) statistics to detect breaks in the dynamics of time series under weak assumptions. First, we assume a parametric form for the conditional mean, but make no specific assumption about the data-generating process (DGP) or even about the other conditional moments. The CUSUM statistics we consider depend on a sequence of weights that influence their asymptotic accuracy. Data-driven procedures are proposed for the optimal choice of the sequence of weights, in the sense of Godambe. We also propose modified versions of the tests that allow to detect breaks in the dynamics even when the conditional mean is misspecified. Our results are illustrated using Monte Carlo experiments and real financial data.

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