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The Shiryaev-Roberts Control Chart for Markovian Count Time Series

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The research examines the zero-state and the steady-state behavior of the Shiryaev-Roberts (SR) procedure for Markov-dependent count time series, using the Poisson INARCH(1) model as the representative data-generating count process. For the purpose of easier evaluation, the performance is compared to existing CUSUM results from the literature. The comparison shows that SR performs at least as well as its more popular competitor in detecting changes in the process distribution. In terms of usability, however, the SR procedure has a practical advantage, which is illustrated by an application to a real data set. In sum, the research reveals the SR chart to be the better tool for monitoring Markov-dependent counts.

Keywords

Statistical process control; count time series; Shiryaev-Roberts

Special/invited session

Primary author: OTTENSTREUER, Sebastian

Presenter: OTTENSTREUER, Sebastian

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