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NON-LINEAR INAR(1) MODELS

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ABSTRACT

Integer-valued autoregressive models play a significant role in the study of count time series. These models are composed of the survival and the innovation component. In this study we discuss models with a non-linear structure, where the non-linearity is achieved by modifying the survival component. Namely, the idea is to introduce some additional processes into the survival component in order to control the influence of the previous values on the current one. Although autoregression is inherent in the series, we aim to enhance or diminish its effect by incorporating this additional process. Its affect on the model is with a certain probability. The methods for the parameters estimation are presented and their efficiency is investigated on simulated data sets. The application of the model is discussed through some real data sets.

Keywords INAR · Binomial thinning operator · Negative binomial thinning operator

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