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Seminário

Grupo de Probabilidades e Estatística

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Structural Breaks in Overdispersed INAR Models

Magda Monteiro

Escola Superior de Tecnologia e Gestão de Águeda & CIDMA, Universidade de Aveiro

Abstract

Count time series arise in several domains, such as healthcare, finance, and transportation. A popular framework for modeling such data is the INAR (Integer-valued Autoregressive) models, due to their ability to accommodate their discrete nature and to incorporate important features such as equidispersion or overdispersion. However, these models often assume time-invariant parameters, an assumption frequently violated in real-world applications, such as when shifts due to policy changes or phases of an epidemic occur.

In this seminar we will focus on an INAR model framework to handle structural breaks, where structural changes in model parameters can be identified through several procedures that will be compared. A comprehensive simulation study is conducted under varying conditions, including different proportions lengths of distinct parts in the time series and diverse distributional characteristics of the data. Finally, the proposed approach is applied to a real-world dataset involving health indicators, illustrating the practical value of the methodology.

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