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A Bayesian Approach for ZMPS-GARMA Model Applied to Influenza Count Data Time Series

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The paper aims to develop Zero-Modified (e.g., Inflated or Zero Deflated) models for time series with discrete data. The models introduced in this paper is an extension of Zero-Modified models of the Power Series family. The main advantage of the proposed model is the suitability of these models to fit time series data with both characteristics (zero-inflation and zero-deflation) present in the same time series. Inference methods based on the Bayesian approach, together with Hamiltonian Monte Carlo (HMC) techniques were considered. The paper also provides a relevant application for a real problem by modeling and forecast the series of notifications of the number of deaths from Influenza in the city of São Paulo, Brazil.

Palavras-chave: Hamiltonian Monte Carlo; Influenza notification; Power Series distribution; Zero-Modified model; ZMPS-GARMA models.

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