

## Poisson-Lindley INAR(1) Processes: Some Estimation and Forecasting Methods

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**Abstract.** This paper focuses on different methods of estimation and forecasting in first-order integer-valued autoregressive processes with Poisson-Lindley (PLINAR(1)) marginal distribution. For this purpose, the parameters of the model are estimated using Whittle, maximum empirical likelihood and sieve bootstrap methods. Moreover, Bayesian and sieve bootstrap forecasting methods are proposed and predicted value for  $h$ -step ahead of the series is obtained. Some simulations and a real data analysis are applied to compare the presented estimations and the prediction methods.

**Keywords.** Autoregressive, Estimation, Integer-Valued Time Series, Poisson-Lindley Distribution, Prediction.

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## 1 Introduction

Time series analysis is one of the most important statistical techniques when dealing with the study of real data sets. Although this method is applied for decades, analyzing

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