

Integer-Valued Transfer Function Models for Counts That Show Zero Inflation

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Abstract

This study introduces a class of transfer function models that accommodates exogenous variables with a delay parameter, which is in the response of the system to delay. We propose zero-inflated integer-valued transfer function models with generalized Poisson or negative binomial distribution that can describe overdispersion, a large proportion of zeroes, and relation with exogenous variables. We employ Bayesian adaptive Markov chain Monte Carlo (MCMC) methods for inference and model selection. We conduct a simulation study to evaluate the effectiveness of the proposed methods and apply them to real examples.

(This is a joint work with Cathy W.S. Chen and Aljo Clair Pingal)

Keywords: Integer-valued time series; Markov chain Monte Carlo method; Generalized Poisson; Negative binomial; Zero counts.