Integer-Valued Autoregressive Process in Random Environment

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An r-states random environment integer-valued autoregressive process is presented. This RrINAR process is based on a random environment process, defined as a Markov chain, which by taking its different values represents a selection mechanism of process marginals from the family of differently parameterized geometric distributions. This implies the non-stationarity of the finally introduced RrNGINAR model based on the negative binomial thinning. Here we present some essential properties of this process focusing on estimation procedures of model parameters. Also, the model motivation and interpretation is given by its application to specific real-life counting data, where it is compared to some other possible and competitive time series models.

References

[1] A. S. Nastić, P. N. Laketa, M. M. Ristić, Random Environment Integer-Valued Autoregressive process, Journal of Time Series Analysis, **37(2)** (2016), 267–287.

[2] P. N. Laketa, A. S. Nastić, M. M. Ristić, Generalized random environment INAR models of higher order, Mediterranean Journal of Mathematics, **15(1)** (2018), https://doi.org/10.1007/s00009-017-1054-z.

[3] A. S. Nastić, P. N. Laketa, M. M. Ristić, Random environment INAR models of higher order, RevStat: Statistical Journal, **17(1)** (2019), 35–65.