

# Conditional least squares estimation of the parameters of Random environment INAR models of higher order

Aleksandar S. Nastić<sup>1</sup> and Petra N. Laketa<sup>2</sup>

<sup>1</sup>Department of Mathematics, Faculty of Sciences and Mathematics, University of Nis,  
anastic78@gmail.com

<sup>2</sup>Department of Mathematics, Faculty of Sciences and Mathematics, University of Nis,  
petra.laketa@pmf.edu.rs

Two different random environment INAR models of higher order,  $\text{RrNGINAR}_1(p)$  and  $\text{RrNGINAR}_{\max}(p)$ , are presented as the newer approach in modeling non-stationary nonnegative integer-valued autoregressive processes. Their interpretation is given, in order to better understand the circumstances of these models applications on random environment counting processes. The estimation statistics defined using conditional least squares method are newly introduced and their properties are tested on the replicated simulated data obtained by the  $\text{RrNGINAR}$  models constructed with different parameter values. Obtained CLS estimates are presented and discussed.