Some modifications of the autoregressive component in modeling non-negative time series of counts

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Modeling time series of counts is a challenging task in many fields of science. The important part in that research is devoted to the integer-valued autoregressive (INAR) models. INAR models are composed of two components: the survival and the innovation process. The survival process is the autoregressive component of the INAR models. The focus of our research is based on proposing different modifications of this process. As it can be seen on real data sets, the influence of previous values on the current one may vary during the evolution of the observed process. Thus, we discuss models which take into consideration this fact. We have investigated models which incorporate the structural break point, as well as the models which introduce the additional variable into the autoregressive component which decreases or increases the influence of the survival process. The models are tested and compared with some similar models on real data sets.