



Inference and testing for structural change in time series of counts model

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We consider here together the inference questions and the change-point problem in Poisson autoregressions (see Tjøstheim, 2012). The conditional mean (or intensity) of the process is involved as a non-linear function of its past values and the past observations. Under Lipschitz-type conditions, it is shown that the conditional mean can be written as a function of lagged observations. In the latter model, assume that the link function depends on an unknown parameter θ_0 . The consistency and the asymptotic normality of the maximum likelihood estimator of the parameter are proved. These results are used to study change-point problem in the parameter θ_0 . We propose two tests based on the likelihood of the observations. Under the null hypothesis (i.e. no change), it is proved that both those test statistics converge to an explicit distribution. Consistencies under alternatives are proved for both tests. Simulation results show how those procedure work practically, and an application to real data is also processed.

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