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Integer-valued moving average modelling of the number of transactions in stocks

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Abstract

The Integer-valued Moving Average Model (INMA) is advanced to model the number of

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Acknow

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Notes

¹ The INMA(∞) can also be obtained from the INAR(1), i.e. $y_t = \alpha \circ y_{t-1} + \varepsilon_t$ and $y_t = \alpha^t \circ y_0 + \sum_{i=1}^t \alpha^{t-i} \circ \varepsilon_i$ are equal in distribution. As a large t gives that $\alpha^t \approx 0$ and $\beta_i = \alpha^i$.

² Pairs of thinning operations of the type α and β , for $\alpha, \beta < 1$, are independent (McKenzie, [1988](#)). Assumptions of this type can be relaxed (cf. Brännäs and Hall, [2001](#)).

³ The experiments are performed using Fortran codes. Poisson random deviates are generated by the POIDEV function (Press et al., [1992](#)), while the binomial thinning is performed by the BNLDEV function.

⁴ $\beta_k < 0.01$ for $k \geq 32$ for $\gamma_1 = -0.1$, the sum is 1.87 for $k \geq 16$ and $\gamma_1 = -0.2$, 1.61 for $k \geq 11$ and $\gamma_1 = -0.3$, and 1.45 for $k \geq 8$ and $\gamma_1 = -0.4$.

⁵ Note that for a count data INAR(1) model with a unit root the observed sequence of observations can not decline. Adding a MA part to the INAR(1) does not alter this feature. As is obvious from [Fig. 3](#) there are ups and downs in the present time series, so that a unit root can not logically be supported by the data.

⁶ In some representations



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INARMA Modeling of Count Time Series

Source: Multidisciplinary Digital Publishing Institute

Estimating the parameters of a BINMA Poisson model for a non-stationary bivariate time series

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Integer-Valued Self-Exciting Threshold Autoregressive Processes

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Parameter estimation for binomial AR(1) models with applications in finance and industry

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INAR(p) MODELS

Source: Wiley

Local influence in Poisson autoregression

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Thinning-based models in the analysis of integer-valued time series: a review

Source: SAGE Publications

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Quasi-Maximum Likelihood Estimation for Long Memory Stock Transaction Data—Under Conditional Heteroskedasticity Framework

Source: Blekinge Tekniska Högskola, Institutionen för industriell ekonomi

Inferential methods for an unconstrained nonstationary BINMA time series process with Poisson innovations

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