The Moran coefficient for non-normal data: revisited with some extensions

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Abstract

The distributional properties of the Moran coefficient index (MC) measuring spatial autocorrelation were investigated by many authors, see e.g. [1]. The properties of MC for non-normal random variables were analysed by Griffith in [2]. The general idea of that paper was to extend Pitman-Koopmans theorem for the mean and the variance of this index. The principal conclusion was that under independence assumption and big enough sample size the Pitman-Koopmans theorem results can be extended to some non-normal random variables. The independence and identically distributed property reduced the necessary sample size for this extension, as did the properties of symmetry and normal approximation.

In the paper we continue the analysis performing simulations for randomly generated variables for the following distributions: beta, gamma, hypergeometric, inverse hypergeometric, log-normal, exponential, negative binomial, and t Student, as well as their mixtures and using Box-Cox power transformation.

Keywords

Moran coefficient, Normality.

References

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