Inference with vec type operators

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Abstract

In this work we consider models of the form $\mathbf{M} = \boldsymbol{\mu} + \overline{\mathbf{E}}$. These models have degree k and can be applied to symmetric stochastic matrices. The development of the models is based on spectral analysis of the respective average matrices. We also show how to use the operators of the type **vec** in the validation of the model. These operators enable us to present results that allow to perform inference for isolated matrices and structured families of matrices.

Keywords

Models for Symmetric Stochastic Matrices, vec type Operators, Structured Families.

References

[1] Areia, A., M.M. Oliveira and J.T. Mexia (2008). Models for a series of studies based on geometrical representation. *Statistical Methodology (Vol. 5, N. 3, pp. 277–88)*).

[2] Bilingsley, P. (1968).*Convergence of Probability Measure.* New York: John Wiley and Sons.

[3] Lehmann, EL. (1986). *Testing statistical hypotheses.* Reprint of the 2nd edn. New York: Wiley.

[4] Oliveira, M.M. and J.T. Mexia (2007). Modelling series of studies with a common structure. *Computacional Statistics and Data Analysis(N.51, pp 5876–5885)* .

[5] Silvey, SD. (1975). *Statistical inference.* New York: Chapman and Hall.