Models for stochastic symmetric matrices

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Abstract

In this work we study the matrices of a structured family of stochastic symmetric matrices. This matrices are all of the same order k and correspond to the treatments of a base design. The most interesting case is when the matrices in the family have a dominant first eigenvalue. We then study the action of the factors in, on the components of the first structure vector. We will consider briefly the models for these matrices and then we show how to carry out inference for the structured family.

Keywords

structured families, symmetric matrices, transversal analysis.

References

[1] Dias, C. (2013). *Modelos e Familias de Modelos para Matrizes Estocasticas Simetricas.* Tese de Doutoramento, Universidade de Evora.

[2] Rohatgi, V. K. (1976). *An Introduction to Probability and Mathematical Statistics.* John Wiley and Sons, New York.

[3] Silvey, S.D. (1975). *Statistical inference.* Chapman and Hall,New York.

[4] Schott, J.R. (1997). *Matrix Analysis for Statistics.*Jonh Wiley and Sons, New York.

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

[6] Ito, P.K. (1980). Robustness of Anova and Macanova Test Procedures, P. R. Krishnaiah (ed). *Handbook of Statistics1.* Amsterdam, North Holland, pp. 199-236