Normal approximations for *vec*, trace and determinant of noncentral Wishart matrices

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Abstract

Wishart matrices play an important role in normal multivariate statistical analysis. In this work we present an alternative approach which has been already used for normal vectors and is now applied to Wishart matrices, considering their *vec*, trace and determinate. The normal approximations we present hold when the norm of the non centrality parameters diverges to $+\infty$. Thus we have an attraction to the normal model, for increasing predominance of non centrality and not for increasing sample dimensions. Starting with the well behaved central matrices, and after going through the heavy noncentral Wishart matrices we obtain very convenient limit distributions when, as stated above, non centrality increases. Moreover, simulations showed that the threshold for the limit normal distributions is quite acceptable.

Keywords

Asymptotic linearity, Limit normality, Noncentral Wishart distributions, *vec*, Trace, Determinant.

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