Normality test based on Song's multivariate kurtosis

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Abstract

In statistical analysis, the test for normality is an important problem. The most widely applied tests of multivariate normality are based on Mardia's multivariate generalization of skewness and kurtosis. Mardia [1], Srivastava [3] and Song [2] gave definitions of the multivariate sample kurtosis. We consider the multivariate normality test based on the sample measure of multivariate kurtosis defined by Song [2]. We derive expectation and variance of Song's kurtosis and a new test statistic for assessing multivariate normality. Moments of Song's kurtosis are calculated easily using independency of random vectors. We investigate the accuracies of upper percentiles, type I error and of power for the test statistic via a Monte Carlo simulation for selected values of parameters.

Keywords

Multivariate normality test, Multivariate kurtosis, Asymptotic expansion.

References

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