COMPUTATIONALLY INTENSIVE MULTIVARIATE NORMALITY TEST BASED ON MAHALANOBIS DISTANCE

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- *ABSTRACT: The multivariate normality tests have direct influence on the quality and reliability of most scientific research that apply multivariate analysis, since the procedures for inference consider the multivariate normal the appropriate model for the data or for the error distribution. Some multivariate normality tests have limitations and for large samples the best of them does not apply. Therefore, this work aimed to propose a new test for multivariate normality without limitation concerning the sample size and to evaluate its performance. The new procedure was a Monte Carlo test for multivariate normality based on distance. The performance was compared to the Royston's test for multivariate normality, considered the best test. To evaluate the properties of the new test Monte Carlo simulation was used. The type I error rates and power were evaluated. All procedures were implemented in the software R. The Monte Carlo multivariate normality test based on distance had great success in controlling the type I error rates and showed power roughly equivalent to the Royston's multivariate normality test for large samples and it also has the advantage of being unlimited regarding the sample size.*

- *KEYWORDS: Type I error; multivariate normality; power.*

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