

O Programa de Pós-Graduação em Estatística convida para:

WEBINAR

Hypothesis test in Skew-Normal regression for small sample sizes, usual test work?

Prof. Jeniffer Duarte Sanchez (UFC)

Quinta-feira, 08/09/2022 às 14:30hs de Brasília

O seminário é público e poderá ser assistido pelo Link

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Resumo

Hypothesis testing allows us to make inferences about the purpose of our study from a sample to a population. We can consider the likelihood ratio test, the gradient test, a more recent test, or the signed likelihood ratio test. The distribution of these statistical tests is based on asymptotic results under the null hypothesis. In the case of small samples, the asymptotic distribution leaves us with misleading conclusions, one way to get around this problem is to correct the statistical test to improve its convergence to its asymptotic distribution. The data on which we are interested in making inferences, some of which come from health-related, environmental, engineering, etc. may be asymmetrical, the skew-normal model is the first model to be considered for fitting this type of data.

In skew-normal regression models, there are no studies for small samples, meaning small samples with sample sizes smaller than fifty. The behavior of the previously mentioned test statistics was analyzed, which gave rise to the need to propose corrections for them. A corrected statistical test was proposed for the signed likelihood ratio statistic, based on an approximate ancillary statistic, in addition to a Bartlett bootstrap correction for the likelihood ratio statistic and a Bartlett-type bootstrap correction for the gradient statistic. A Monte-Carlo simulation study was performed to analyze the size and power of tests for different combinations of parameters and sample sizes. Corrected statistical tests perform better in terms of size and perform similarly in terms of power when compared to their peers.

