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Communications in Statistics - Simulation and Computation > Volume 38, 2009 - Issue 3

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Original Articles

Sample Size and the Accuracy of the Generalized Lambda Distribution

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Pages 631-637 | Received 10 Sep 2008, Accepted 31 Oct 2008, Published online: 05 Feb 2009

66 Cite this article ▲ https://doi.org/10.1080/03610910802592846



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Abstract

The Generalized Lambda Distribution is a popular tool for generating random numbers following a wide range of non normal, asymmetric distributions. In this article, we assess the accuracy of the technique in replicating moments across a range of "sample sizes." We find that accuracy is highly dependent on sample size, particularly with respect to the third and fourth moments. Generally, acceptable accuracy is

n 2 500 observations but this finding depends critically

on the s

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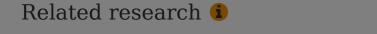
Notes

¹Table values focus on the skewness and kurtosis (with mean 0 and standard deviation 1). The λ_1 and λ_2 parameters determine the location and spread of the data, and can be adjusted to different values without affecting the λ_3 and λ_4 parameters. The tables also consider positive skew, and negative skew is accomplished by flipping the λ_3 and λ_4 values.

²We are grateful to an anonymous referee for these insights.

³The tables in Karian and Dudewicz (2000) are based on (m $_1$ = 0, m $_2$ = 1), but changing m $_1$ to 1.0 requires nothing more than substituting λ_1 from the table with (λ_1 + 1). We use m $_1$ = 1 to avoid division by zero.

⁴The random seed is unique to each simulation but identical across each case. Results were computed using other random number generators with little effect on the findings.



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