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Comparison of Some Parametric and Nonparametric Type One Sample Confidence Intervals for Estimating the Mean of a Positively Skewed Distribution

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Several researchers considered various interval estimators for estimating the mean of a skewed distribution. Since they considered in different times and under different simulation conditions, their performance are not comparable as a whole. In this article, an attempt has been made to review some existing estimators and compare them under the same simulation condition. In particular, we consider and compare both classical (Student- t , Land- t , Cheb- t , Johnson- t , Chen- t , Hall- t , median- t , Zhou and Dinh, empirical likelihood, etc.) and nonparametric (bootstrap- t , nonparametric bootstrap, empirical likelihood bootstrap, bias corrected acceleration bootstrap, Hall bootstrap- t , empirical Hall bootstrap, etc.) interval estimators for estimating the mean of a positively skewed distribution. A simulation study has been made to compare the performance of the estimators. Both average widths and coverage probabilities are considered as a criterion of the good estimators. Under the large sample sizes, the performances of the estimators are not different. However, they differ significantly when the sample sizes are small and data are from a highly skewed distribution. Some real-life data have been analyzed to illustrate the findings of the article. Based on the simulation study, some possible good interval estimators have been recommended for the practitioners. This article will provide more choices for the practitioners to use best possible interval estimators among many that have been used by several researchers at different times and situations.