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Estimation methods for the generalized inverted exponential distribution under type II progressively hybrid censoring with application to spreading of micro-drops data. (English)


Summary: In this article, we consider the statistical inferences of the unknown parameters of a generalized inverted exponential distribution based on the Type II progressively hybrid censored sample. By applying the expectation-maximization (EM) algorithm, the maximum likelihood estimators are developed for estimating the unknown parameters. The observed Fisher information matrix is obtained using the missing information principle, and it can be used for constructing asymptotic confidence intervals. By applying the bootstrapping technique, the confidence intervals for the parameters are also derived. Bayesian estimates of the unknown parameters are obtained using the Lindley’s approximation. Monte Carlo simulations are implemented and observations are given. Finally, a real data set representing the spread factor of micro-drops is analyzed to illustrate purposes.

MSC:

62N02 Estimation in survival analysis and censored data
62P30 Applications of statistics in engineering and industry; control charts

Keywords:
bootstrap method; EM algorithm; generalized inverted exponential; Lindley’s approximation; micro-drops; type II progressively hybrid censoring

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References:


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