



Bayesian and Non-Bayesian Estimation of the Inverse Weibull Model Based on Generalized Order Statistics

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Author(s)

Ahmed H. Abd Ellah

ABSTRACT

The concept of generalized order statistics has been introduced as a unified approach to a variety of models of ordered random variables with different interpretations. In this paper, we develop methodology for constructing inference based on n selected generalized order statistics (GOS) from inverse Weibull distribution (IWD), Bayesian and non-Bayesian approaches have been used to obtain the estimators of the parameters and reliability function. We have examined Bayes estimates under various losses such as the balanced squared error (balanced SEL) and balanced LINEX loss functions are considered. We show that Bayes estimate under balanced SEL and balanced LINEX loss functions are more general, which include the symmetric and asymmetric losses as special cases. This was done under assumption of discrete-continuous mixture prior for the unknown model parameters. The parametric bootstrap method has been used to construct confidence interval for the parameters and reliability function. Progressively type-II censored and k -record values as a special case of GOS are considered. Finally a practical example using real data set was used for illustration.

KEYWORDS

Inverse Weibull Distribution; Generalized Order Statistics; Record Values; Progressive Type-II Censored; Balanced Type Loss Function; Bootstrap Estimation

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