

Bayesian Using Markov Chain Monte Carlo and Lindley's Approximation Based on Type-I Censored Data

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Abstract : These papers describe the Bayesian Estimator using Markov Chain Monte Carlo and Lindley's approximation and the maximum likelihood estimation of the Weibull distribution with Type-I censored data. The maximum likelihood method can't estimate the shape parameter in closed forms, although it can be solved by numerical methods. Moreover, the Bayesian estimates of the parameters, the survival and hazard functions cannot be solved analytically. Hence Markov Chain Monte Carlo method and Lindley's approximation are used, where the full conditional distribution for the parameters of Weibull distribution are obtained via Gibbs sampling and Metropolis-Hastings algorithm (HM) followed by estimate the survival and hazard functions. The methods are compared to Maximum Likelihood counterparts and the comparisons are made with respect to the Mean Square Error (MSE) and absolute bias to determine the better method in scale and shape parameters, the survival and hazard functions.

Keywords : weibull distribution, bayesian method, markov chain mote carlo, survival and hazard functions

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