

Inference and Optimum Censoring Scheme for Progressively Type-I Interval Censored Inverse Gaussian Distribution Plans

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Abstract

This work considers statistical inference for inverse Gaussian distribution based on progressively type-I interval censored data. In particular, the estimates are obtained by the maximum likelihood method, method of moment and Bayesian method. Maximum likelihood estimate (MLE) cannot be obtained analytically. The EM algorithm is used to obtain the MLEs. A simulation study is conducted to judge the performance of the estimators. The Bayes estimates are computed by Metropolis-Hastings algorithm. A real data set is analyzed for illustration. The estimated survival function obtained by the parametric method is compared with that obtained by non-parametric method. Next, the method of finding the optimum censoring scheme is discussed. Determination of optimum censoring scheme is an important practical issue in industry. This work considers different optimality criteria for determination of optimum censoring schemes.

Keywords: Fisher information matrix, maximum likelihood estimate, EM algorithm, method of moments, Bayes estimation, optimum censoring scheme.