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Bayesian Estimation of the Parameter and Reliability Function of an Inverse Rayleigh Distribution

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ABSTRACT

In this paper we obtain Bayes' estimators for the unknown parameter of an Inverse Rayleigh distribution (IRD). Bayes estimators are obtained under symmetric (squared error (SE) loss) and asymmetric linear exponential loss functions using a non-informative prior. The performance of the estimators is assessed on the basis of their relative risk under the two loss functions. We also obtain the Bayes estimators of the reliability function using both symmetric as well as asymmetric loss functions and compare its performance based on a Monte Carlo simulation study. Finally, a numerical study is provided to illustrate the results.

Keywords: Bayes' estimator, LINEX loss function, Reliability function, Risk function, Root Mean Square Error (RMSE), squared error loss function.