

Statistical Inference on Stress-strength Reliability for Inverse Chen and Bivariate Rayleigh Distributions

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This research addresses the problem of reliability estimation in a stress-strength setting, in which stress and strength variables are independent having inverse Chen distribution. The reliability of k-component parallel and series systems is estimated using maximum likelihood and Bayesian methods. In addition, the multi-component stress-strength model with a bivariate distribution is considered. In this case, stress is assumed to follow generalized Rayleigh and the bivariate strength to follow Rayleigh distribution. The maximum likelihood and Bayesian techniques are employed to estimate reliability in this situation. Applying Lindley's approximation method, Bayes estimator is obtained. Simulation studies are conducted to estimate mean squared error in all the above situations.

Key words and Phrases: Stress-strength models, Multi-component system, Ranked set sampling, Maximum likelihood estimator, Bayes estimator, Lindley's approximation.