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ON ESTIMATING STRESS-STRENGTH RELIABILITY WHEN STRESS IS CENSORED AT STRENGTH

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SUMMARY

Hanagal (1997) considered the problem of estimation of reliability in a stress-strength model when the stress and strength variables follow bivariate exponential (BVE) model of Marshall-Olkin(1967) when stress is censored at strength. In this article, the reliability of stress-strength model is estimated using the method of maximum Likelihood when stress is censored at strength, where the sample is drawn from a bivariate population modelled by bivariate exponential (BVE) distribution of Freund (1961) and bivariate Pareto (BVP) distribution of Veenus and Nair (1994). Here, if X is a random strength of a component subjected to a random stress Y then reliability of a component is given by $R = P[Y < X]$. Simulation experiment is performed to estimate the mean squared error of the estimators of reliability. The asymptotic confidence interval for reliability is derived.

Keywords and phrases: Bivariate Pareto distribution; Bivariate Exponential Freund distribution; Maximum likelihood estimators; Asymptotic confidence interval; Stress-strength model.

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