Abstract

In this paper, we presented a new test statistic for testing exponentiality against new better than renewal used in the RP order $\text{NBRU}_{rp}$ based on moment inequality. Pitman's asymptotic efficiency, The Pitman asymptotic relative efficiency (PARE) are studied for other tests. Critical values are tabulated for sample size $n=5(1)30(5)50$, the power of the test are calculate. Also we proposed a test for testing exponentiality versus $\text{NBRU}_{rp}$ for right censored data and the power estimates of this test are also simulated for some commonly used distributions in reliability. Finally, real data are given to elucidate the use of the proposed test statistic in the reliability analysis.


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Index Terms

Computer Science Applied Mathematics

Keywords

Life distributions, $NBRU_{rp}$ aging class, moment inequalities, exponentiality U-statistic, asymptotic normality, efficiency, Monte Carlo method, power and censored data.