Abstract

This paper explores a new test statistic for testing exponentiality against exponential better than equilibrium life in convex (EBELC) class based on Laplace transformation. The selected critical values are tabulated for sample size 5(5)50. Pitman's asymptotic efficiencies of the test and Pitman's asymptotic relative efficiencies (PARE) are calculated. The powers of this test are estimated for some famous alternatives distributions in reliability such as Weibull, linear failure rate (LFR) and Gamma distributions. The problem in the case of right censored data is also touched. Finally, some applications to expound the usefulness of the proposed test in reliability analysis are discussed.

References

Testing Exponentiality against Exponential Better than Equilibrium Life in Convex based on Laplace Transformation


Index Terms

Computer Science

Applied Sciences

Keywords

Classes of life distributions; EBELEC; Testing Exponentiality; U-statistic; Pitman asymptotic efficiency; censored data; Laplace transformation.