

Closeness Comparisons among Lindley, Weibull and Gamma Distributions

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Abstract

The main aim of this paper is to study the closeness of Weibull, gamma and Lindley distributions. These distributions are used quite effectively for analyzing skewed lifetime data. Here, we consider three techniques involving the likelihood ratio test (LRT), asymptotic LRT and minimum Kolmogorov distance (KD) as optimality criteria for diagnosing the appropriate fitting model among the three distribution for a given data set. The probability of correctly selection based on the considered optimality criteria among these families of distributions is computed for various choices of sample sizes and shape parameters. A real data set is presented and analyzed to assess the performance of the techniques used here.

Keywords: Lindley distribution; Maximum likelihood estimator; Hazard function; Asymptotic distributions; Likelihood ratio test; Probability of correct selection.

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