ABSTRACT

The main objective of this research study was to obtain joint estimation of parameters of Generalized Exponential Distribution when one of them was known. For the above-mentioned purpose, some additional information was attained by using previous knowledge.

We have developed some improved estimation strategies based on preliminary test and shrinkage preliminary principles for our problem. Two large sample test-statistics have also been proposed to test the shape parameter of Generalized Exponential Distribution. We have compared the performance of these estimators by computing their asymptotic distributional quadratic risk under the sequence of local alternatives. Using the notion of simulated relative efficiency, detailed Monte-Carlo simulation experiments were conducted to appraise the performance of the estimators numerically and couple of real-data examples are also furnished at the end.

Keywords: Uncertain prior information, Pretest estimation, Asymptotic distributional bias, Asymptotic distributional quadratic risk.