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THE EXTENDED-EXPONENTIAL DISTRIBUTION: PROPERTIES, ESTIMATION METHODS, AND APPLICATIONS

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SUMMARY

This paper is presenting a new flexible probability distribution which named as Khalil new generalized exponential (KNGEx) distribution. We introduce its mathematical properties. The hazard function of the KNGEx distribution can be increasing, decreasing, and inverted bathtub. The parameters of the distribution are estimated using eight classical methods. Simulation studies based on complete sample are done. Finally, two applications to medicine and engineering data sets are presented. The analyzed data revealed that the proposed distribution could potentially be very useful in describing and modeling both data sets as compared to many other competing distributions.

Keywords and phrases: Anderson–Darling estimation; Cramér–von Mises estimation; data analysis; exponential distribution; statistical model; simulation; Rényi entropy.

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