

**Gupta, Rameshwar D.; Kundu, Debasis**

**Generalized exponential distributions.** (English) Zbl 1007.62503

Aust. N. Z. J. Stat. 41, No. 2, 173-188 (1999).

Summary: The three-parameter gamma and three-parameter Weibull distributions are commonly used for analysing any lifetime data or skewed data. Both distributions have several desirable properties, and nice physical interpretations. Because of the scale and shape parameters, both have quite a bit of flexibility for analysing different types of lifetime data. They have increasing as well as decreasing hazard rate depending on the shape parameter. Unfortunately both distributions also have certain drawbacks. This paper considers a three-parameter distribution which is a particular case of the exponentiated Weibull distribution originally proposed by *G. S. Mudholkar* et al. [Technometrics 37, No. 4, 436–445 (1995; Zbl 0900.62531)] when the location parameter is not present. The study examines different properties of this model and observes that this family has some interesting features which are quite similar to those of the gamma family and the Weibull family, and certain distinct properties also. It appears this model can be used as an alternative to the gamma model or the Weibull model in many situations. One dataset is provided where the three-parameter generalized exponential distribution fits better than the three-parameter Weibull distribution or the three-parameter gamma distribution.

**MSC:**

62E10 Characterization and structure theory of statistical distributions  
62E15 Exact distribution theory in statistics  
62N05 Reliability and life testing

Cited in **13** Reviews  
Cited in **277** Documents

**Keywords:**

distribution of sum; exponentiated Weibull model; gamma distribution; hazard rate; maximum likelihood estimators; stochastic ordering; uniformly most powerful test; Weibull distribution

**Full Text:** [DOI](#)