



The New EG T-X Family of Distributions

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Abstract

The EG T-X family of distributions appeared in [1]. Inspired by [2], we introduce a new distribution called the New EG T-X family of distributions.

Keywords: Exponentiated Generalized; T-X Family of Distributions

AMS subject classification: 62Exx.

The EGT-X class of distributions

This class of distributions were introduced in [1].

Definition 1.1

A random variable X is said to follow the EG T-X class of distributions if the CDF is given by

G(x) = integral from 0 to x of (-log(1-(1-F^d(x))^c))^r dt = R{-log(1-(1-F^d(x))^c)}

where F(x) = 1 - F(x) is the survival function of the random variable X with CDF F(x), c, d > 0 are shape parameters, r(t) and R(t) are the PDF and CDF, respectively of the random variable T.

Remark 1.2

The PDF is obtained by differentiating the CDF

Figure 1

The new distribution

Definition 2.1

A random variable X is said to follow the New EG T-X class of distributions if the CDF is given by

G(x) = integral from 0 to x of (-log(1-(1-F^d(x))^c) / (1-(1-F^d(x))^c))^r dt = R{(-log(1-(1-F^d(x))^c) / (1-(1-F^d(x))^c))}

where F(x) = 1 - F(x) is the survival function of the random variable X with CDF F(x), c, d > 0 are shape parameters, r(t) and R(t) are the PDF and CDF, respectively of the random variable T.

Remark 2.2

The PDF is obtained by differentiating the CDF

Remark 2.3

The new distribution take inspiration from [Zubair Ahmad , M. Elgarhy and G. G. Hamedani. A new Weibull-X family of distributions: properties, characterizations and applications. Journal of Statistical Distributions and Applications (2018) 5:5]

Figure 2

Bibliography

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