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## Abstract

In this paper, a new distribution called New Generalized Extreme Value (NGEV) distribution is introduced. Also, the statistical properties of this model are studied, such as, quantiles, moment generating function and moments of order statistics. Moreover, maximum likelihood estimators of it's parameters are discussed. An application of NGEV distribution to a survival times in months of 20 acute myeloid leukemia patients data set is provided. Also, bivariate New Generalized Extreme Value BNGEV distribution is introduced a Marshall-Olkin type. Marginal and conditional distribution functions are studied. Furthermore, maximum likelihood estimates (MLEs) of the parameters are presented. An application of BNGEV distribution to an UEFA Champion0s League data set is provided and the profiles of the log-likelihood function of parameters of NGEVD and BNGEVD are plotted.

## References

1. Kundu, D. and Gupta, R. D. (2009). Bivariate generalized exponential distribution. *Journal of Multivariate Analysis*, vol. 100, no. 4, 581-593.
2. Marshall, A.W. Olkin, I. A. (1967). A multivariate exponential distribution. *Journal of the American Statistical Association*. 62, 30-44.
3. Sarhan, A. and Balakrishnan, N. (2007). A new class of bivariate distributions and its mixture. *Journal of the Multivariate Analysis*. 98, 1508-1527.
4. El-Bassiouny, A. H., El-Damcese, M., Mustafa, A., and Eliwa, M. (2015). Bivariate exponentiated generalized Weibull- Gompertz distribution. arXiv preprint arXiv:1501.02241.
5. El-Gohary, A., El-Bassiouny, A. H. and El-Morshedy, M. (2016). Bivariate exponentiated modified Weibull extension distribution. *Journal of Statistics Applications & Probability* 5, No. 1, 1-12.
6. Ammar M. Sarhan, David C. Hamilton, Bruce Smith and Debasis Kundu. (2011). The bivariate generalized linear failure rate distribution and its multivariate extension. *Computational Statistics and Data Analysis* 55, 644-654.
7. A. Z. Afify, Z. M. Nofal, and N. S. Butt, "Transmuted complementary weibull geometric distribution," *Pakistan Journal of Statistics and Operation Research*, vol. 10, no. 4, pp. 435–454, 2014.
8. Meintanis, S. G. (2007). Test of fit for Marshall–Olkin distributions with applications. *Journal of Statistical Planning and Inference* 137,3954–3963.
9. Mudholkar GS and Srivastava DK (1993). Exponentiated Weibull family for analyzing bathtub failure-rate data, *IEEE Transactions on Reliability*, 42, 299–302.

### Index Terms

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### Keywords

Extreme value distribution, Exponentiated Weibull distribution, Moment generating function, Joint cumulative distribution function, Maximum likelihood estimation