

ABSTRACT

The efforts have been made to develop a new more flexible model for lifetime data. This new model has been developed by compounding the Modified Burr-III distribution with Geometric distribution and will be known as Modified Burr-III Geometric distribution. The density and distribution functions of the proposed distribution have been derived. Some sub-models of the proposed distribution have been discussed. Many other properties such as parameters behavior, survival function, hazard function, Mill's ratio, quantile function, random number generation, moments about origin, central moments, incomplete moments, negative moments, cumulants, some generating functions, reliability and few measures of uncertainty (i.e. entropies) have been derived. The measures of central tendency such as mean, median and mode have been derived. Besides that, the measures of dispersion, skewness and kurtosis of the proposed distribution have been introduced. The plots of skewness and kurtosis for different values of parameters have been constructed. The order statistics and mixture of the proposed distribution have also been studied. Moreover, maximum likelihood estimators of unknown parameters of the proposed distribution by using expectation-maximization algorithm have been derived. Last but not the least, application of the proposed distribution on two real life data sets have been given and it has been ensured that the proposed distribution fits well than the modified Burr-III and Burr-III distributions.