

## ABSTRACT

### ON THE MOMENTS, CUMULANTS, AND CHARACTERISTIC FUNCTION OF LOG-LOGISTIC DISTRIBUTION

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The characteristic of a probability distribution such as moment, cumulants, skewness, kurtosis, characteristic function and other are helpful on statistic analysis. This research will examine about moment, cumulant, and characteristic function of log-logistic distribution. Log-logistic distribution has two parameters which are  $\alpha$  as a shape parameter and  $\beta$  as a scale parameter. The moment of Log-logistic distribution was able to be determined by using moment generating function or definition of its expected value. The cumulants can be determined by moment that had been found before. Furthermore, we are able to determined skewness and kurtosis of log-logistic distribution. Although the characteristic function are retrieved from the expectation of  $e^{itx}$ , where  $i$  as a imaginary number. The norm value of characteristic function of log-logistic distribution is equal to 1, that means the characteristic function is a monoton function. To observe the curve of the probability density function, skewness, and kurtosis of log-logistic distribution by doing simulation using MATLAB.

**Keywords** : *Log-logistic Distribution, Moments, Cumulants, Characteristics Function.*