

Estimating the Difference in the Percentiles of Two DeltaLognormal Independent Populations

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Abstract. In this study, estimating the difference in the percentiles of two delta-lognormal independent populations was of interest. We used several parameters in a simulation study to compare two delta-lognormal independent populations in terms of percentiles. By simulation, it was found that the coverage probabilities were sufficiently small with a small sample size ($n = 10$, $m = 10$ and $n = 50$, $m = 10$), but when the size of the sample was large, the coverage probabilities increased in all three cases in this study. When applying our method to a real-life weather situation, we found that the rainfall data from the Ping River in Northern Thailand (Fang and Chiang Dao, Chiang Mai province) followed delta-lognormal distribution using the confidence interval of delta-lognormal distribution percentiles and that the coverage probability was well estimated.