

GRADUATE SEMINAR

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Inferences on Parameter Estimation and Testing the Ratio of Variances of Delta-Log-normal Distributions

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Abstract: Data derived with zero and non-negative outcomes are frequently used in real-life scenarios - public health, medical sciences, environmental sciences, natural disasters, fisheries sciences, food sciences etc. A delta-lognormal distribution is appropriate when the data contain both zero and positive values. In that case, the probability δ for zero observations follows a binomial distribution, $0 < \delta < 1$, while the non-zero observations fit a lognormal distribution with the remaining probability $1-\delta$. In the first part of our study, we will discuss and compare the performances of the several test statistics based on the Classical and Bayesian methods for testing the ratio of the variances of two delta-lognormal distributions. In the second part, we will derive the parameters of the asymptotic normality by the Delta-method and hence, compare them with the true probabilistic characteristics of the estimators by the method of statistical simulations.

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