

FRANKLIN & MARSHALL COLLEGE
and
MILLERSVILLE UNIVERSITY

A Virtual Joint Colloquium in Mathematics

Thursday, September 24th, 2020, 4:00–5:00pm EDT

<https://fandm.zoom.us/j/99693312773>

Dr. Patrick Stewart, Millersville University

Statistical inferences based on the empirical likelihood

Abstract: A confidence interval based on the traditional normal approximation (NA) may lead to poor coverage probabilities, especially when the observations are highly skewed and the sample size is small to moderate. The empirical likelihood (EL), a powerful nonparametric method, was proposed to construct confidence intervals under such a scenario. This talk will investigate the performance of NA vs EL with data containing many zeroes since data containing many zeroes are popular in statistical applications, such as survey data. We will also examine three modified versions of the EL: the adjusted empirical likelihood (AEL), the transformed empirical likelihood (TEL), and the transformed adjusted empirical likelihood (TAEL) for data with various sample sizes and various proportions of zero values. Asymptotic distributions of the likelihood-type statistics have been established as the standard chi-square distribution. Simulations are conducted to compare the methods under different distributions. Real data has been given to illustrate the procedure of constructing confidence intervals.

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