

1125-VP-2741 **Ramadha D Piyadi Gamage*** (prdilha@bgsu.edu), **Wei Ning** and **Arjun K Gupta**.
Adjusted Empirical Likelihood for Long-memory Time Series Models.

Empirical likelihood method has been applied to short-memory time series models by Monti (1997) through the Whittle's estimation method. Yau (2012) extended this idea to long-memory time series models. Asymptotic distributions of the empirical likelihood ratio statistic for short and long-memory time series have been derived to construct confidence regions for the corresponding model parameters. However, computing profile empirical likelihood function involving constrained maximization does not always have a solution which leads to several drawbacks. In this paper, we propose an adjusted empirical likelihood procedure to modify the one proposed by Yau (2012) for autoregressive fractionally integrated moving average (ARFIMA) model. It guarantees the existence of a solution to the required maximization problem as well as maintains same asymptotic properties obtained by Yau (2012). Simulations have been carried out to illustrate that the adjusted empirical likelihood method for different long-time series models provides better confidence regions and coverage probabilities than the unadjusted ones, especially for small sample sizes. (Received September 20, 2016)