JIAHUA CHEN, University of British Columbia

Adjusted Empirical Likelihood with High-Order Precision

Empirical likelihood is a popular nonparametric or semi-parametric statistical method with many nice statistical properties. Yet when the sample size is small, or the dimension of the accompanying estimating function is high, the application of the empirical likelihood method can be hindered by low precision of the chisquare approximation and by non-existence of solutions to the estimating equations. In this paper, we show that the adjusted empirical likelihood is effective at addressing both problems. With a specific level of adjustment, the adjusted empirical likelihood achieves the high-order precision of the Bartlett correction, in addition to the advantage of a guaranteed solution to the estimating equations. Simulation results indicate that the confidence regions constructed by the adjusted empirical likelihood have coverage probabilities comparable to or substantially more accurate than the original empirical likelihood enhanced by the Bartlett correction.