MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Rank-based estimating equation with non-ignorable missing responses

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Abstract

In this talk, a general regression model with responses missing not at random is considered. From a rank-based estimating equation, a rank-based estimator of the regression parameter is derived. Based on this estimator's asymptotic normality property, a consistent sandwich estimator of its corresponding asymptotic covariance matrix is obtained. In order to overcome the over-coverage issue of the normal approximation procedure, the empirical likelihood based on the rank-based gradient function is defined, and its asymptotic distribution is established. Extensive simulation experiments under different settings of error distributions with different response probabilities are considered, and the simulation results show that the proposed empirical likelihood approach has better performance in terms of coverage probability and average length of confidence intervals for the regression parameters compared with the normal approximation approach and its least-squares counterpart. A data example is provided to illustrate the proposed methods.

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