



逢甲大學統計學系



學術專題演講

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School of Nursing

The State University of New York, University at Buffalo

時間：108年06月14日 星期五 14:00-16:00

地點：商 1011 室(商學大樓十樓)

講題：A Semiparametric Zero-inflated Bernoulli Regression Model

Abstract

When the observed proportion of zeros in a data set consisting of binary outcome data is larger than expected under a regular logistic regression model, it is suggested frequently to use a zero-inflated Bernoulli (ZIB) regression model. A spline-based ZIB regression model is proposed to describe the potentially non-linear effect of a continuous covariate. The unknown smooth function is approximated by a spline that can be expressed as a linear combination of B-spline basis functions. It is shown that the spline estimator of the nonparametric component is uniformly consistent and achieves the optimal convergence rate under the smoothness condition. The regression parameter estimators are shown to be asymptotically normal and efficient. A spline-based semiparametric likelihood ratio test is established, and a direct and consistent variance estimation method is proposed based on the least-squares method. Extensive simulations are conducted to investigate the finite-sample performance of the proposed method. The practical use of the proposed methodology is illustrated with a real-life data set.

敬請張貼

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