國立臺北大學商學院統計學系

專題演講

講　題：Model selection for semiparametric marginal mean regression accounting forwithin-cluster subsampling variability and informative cluster size.

主講人：沈仲維 副教授 (國立中正大學數學系)

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Abstract

We propose a model selection criterion for semiparametric marginal mean regression based on generalized estimating equations. The work is motivated by a longitudinal study on the physical frailty outcome in the elderly, where the cluster size, that is, the number of the observed outcomes in each subject, is "informative" in the sense that it is related to the frailty outcome itself. The new proposal, called Resampling Cluster Information Criterion (RCIC), is based on the resampling idea utilized in the within-cluster resampling method (Hoffman, Sen, and Weinberg, 2001, Biometrika 88, 1121-1134) and accommodates informative cluster size. The implementation of RCIC, however, is free of performing actual resampling of the data and hence is computationally convenient. Compared with the existing model selection methods for marginal mean regression, the RCIC method incorporates an additional component accounting for variability of the model over within-cluster subsampling, and leads to remarkable improvements in selecting the correct model, regardless of whether the cluster size is informative or not. Applying the RCIC method to the longitudinal frailty study, we identify being female, old age, low income and life satisfaction, and chronic health conditions as significant risk factors for physical frailty in the elderly. keywords: Clustered data; Longitudinal data; Resampling; Subsampling; Variable selection

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