國 立 中 央 大 學

統 計 研 究 所

學 術 演 講

主 講 人：陳瓊梅 教授（國立陽明大學公共衛生研究所）

講　　題：**Semiparametric Transformation Models for Left-Truncated and Interval-censored Data without or with a Cure Fraction**

時　　間：**108年01月08日（星期二） 上午10：00～11：00**

地　　點：中央大學鴻經館**M429**室

茶　　會：**上午 09：30～10：00**　　地　點：鴻經館 **510** 室

ABSTRACT

Interval censoring and truncation arise often in cohort studies, longitudinal and sociological research. In this article, we formulate the effects of covariates on left-truncated and mixed case interval-censored (LTIC) data without or with a cure fraction through a general class of semiparametric transformation models. We propose the conditional likelihood approach for statistical inference. For data without a cure fraction, we propose a computationally efficient EM algorithm, facilitated by a gamma-Poisson data augmentation, for obtaining the conditional maximum likelihood estimator (cMLE). For data with a cure fraction, we consider a semiparametric mixture cure model, which combines a logistic regression formula for the uncured probability with the class of transformation models for the failure time of uncured individuals. To overcome the computational complexity due to the presence of a cure fraction, we propose a novel expression for the conditional likelihood function and then create a new complete-data likelihood function. Based on this, we develop a computationally stable EM algorithm for obtaining the cMLE. We show that the cMLEs for the regression parameters are consistent and asymptotically normal. Based on the profile likelihood, we apply an EM-aided numerical differentiation method to compute the asymptotic variance estimates. We demonstrate the performance of our procedures through intensive simulation studies and application to the datasets from the Cardiovascular Disease Risk Factors Two-Township Study. (This is joint work with Pao-Sheng Shen, Hsin-Jen Chen and Wen-Harn Pan)

◎敬請張貼

歡迎參加◎