中央研究院統計科學研究所

學 術 演 講

講 題：Assessing Ecstasy Risk in Kaohsiung City: A Zero-Inflated Poisson
Model Approach with Spatiotemporal Analysis

演 講 人：Prof. Hong-Ding Yang

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時 間： 2024-05-13(Mon) 10:30-12:00

地 點：Auditorium, B1F, Institute of Statistical Science；The tea
reception will be held at 10:10.

備 註：Lecture in Mandarin. Online live streaming through Cisco Webex will
be available.

Abstract

This study explores the application of the zero-inflated Poisson model for analyzing ecstasy incidents in Kaohsiung City, incorporating the spatiotemporal correlation of data. We introduce a risk assessment method within the Bayesian hierarchical model framework, preceded by selecting explanatory variables based on the Deviance Information Criterion (DIC). Additionally, quantile regression is incorporated into the model to understand data distribution under different percentiles. Markov Chain Monte Carlo (MCMC) methods generate essential parameters and random effect terms, establishing a risk assessment criterion for ecstasy incidents. Furthermore, this method is compared with alternative approaches to evaluate its effectiveness. Based on the ecstasy data, the proposed methodology provides a refined understanding of the spatiotemporal distribution of ecstasy incidents and introduces a risk assessment tool for relevant authorities.

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