

國立高雄大學統計學研究所

111 學年度書報討論題目暨摘要登記表

Application of Truncated Skellam Distribution to Zero-Inflated

Data Analysis

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Abstract

In this talk, we consider a truncated Skellam (TSK) model for zero-inflated data. The Skellam distribution is also called the Poisson difference distribution by which to model differences between counts. We term the two hidden Poisson variables of the Skellam model as assistance and resistance variables, which represents the positive and negative power to raise the counts of the data, respectively. We then truncate the negative Skellam counts as zeros in response to the zero-inflation of the count data. In our research, we estimate the TSK model by maximum likelihood (ML) method. Several simulation studies are also conducted to show the finite-sample performance of the ML estimators for the TSK model. A comparison with two existing method (the zero-inflated Poisson and hurdle models) for analyzing the zero-inflated data is also illustrated.

Keywords : truncated Skellam model, zero-inflation, maximum likelihood

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