

敬請張貼

淡江大學統計學系



學術演講



講題：Exploring spatial nonstationarity for continuous nonnegative response data

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摘要

Geographically weighted regression (GWR) has been a popular tool applied in many disciplines to explore spatial nonstationarity (or heterogeneity) with respect to data relationships for georeferenced data. However, GWR is typically limited to analyzing continuous dependent variables assumed to follow a symmetric normal distribution. In many fields, nonnegative continuous data are frequently observed and may come with substantial amounts of zeros followed by a right-skewed distribution of positive values. When dealing with such type of outcomes, GWR may not provide adequate insights regarding spatially varying regression relationships. This study intends to extend GWR based on compound Poisson distribution, thus allowing for not only the exploration of relationship heterogeneity but also the accommodation of spatial nonnegative continuous response variables. We first present the model specification of the proposed method and then discuss the associated modeling issues, such as bandwidth and tests for spatial nonstationarity. We evaluate the performance of this new technique through simulations. Finally, we conclude the study with an empirical illustration based on a dataset of dengue fever in Tainan, highlighting the applicability and utility of the proposed approach.

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