

國立政治大學統計學系 學術演講

主講人：陳怡如副教授(淡江大學統計學系)

題目：Geographically weighted regression modeling for multiple outcomes

時間：民國 111 年 3 月 7 日 (星期一) 下午 1 : 30

地點：國立政治大學逸仙樓 050101 教室

摘要：

Geographically weighted regression (GWR) has been a popular tool applied in various disciplines for georeferenced data to explore spatial nonstationarity with respect to data relationships. Such a technique, however, typically restricts the analysis to a single outcome variable and a set of explanatory variables. When analyzing multiple interrelated response variables, GWR fails to provide sufficient information of the data as it only allows separate modeling for each response variable. In this study, we address the gap by presenting a geographically weighted multivariate multiple regression (GWMMR) technique. The proposed method allows to not only explore spatial nonstationarity but also account for correlations across multivariate responses. We first formulate the model specification of GWMMR and then draw the associated inference properties. Several modeling issues are also discussed, and the model performance is evaluated with simulations. Finally, we apply GWMMR to the stop-and-frisk data published by the New York Police Department as an empirical illustration.

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