DEPARTMENT OF APPLIED MATHEMATICS
應 用 數 學 系

The Hong Kong Polytechnic University
Department of Applied Mathematics

Colloquium

Network Influence Analysis

By

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Abstract

Due to the rapid development of social networking sites, the spatial autoregressive (SAR) model has played an important role in social network studies. However, the underlying structure of SAR implicitly assumes that all nodes (or actors or users) within the network have the same influential power measured by the common autocorrelation parameter. Hence, the classical SAR is unable to identify influential nodes. This paper proposes the adaptive SAR model by introducing the network influence index, which includes the classical SAR model as a special case. Using this proposed model without imposing any specific error distribution, we apply Lee's (2004) quasi-maximum likelihood approach to estimate the unknown parameters of the index, which can then be used to characterize the influential power of each node. The asymptotic properties of parameter estimates are established and three test statistics for assessing the homogeneity of the network influence indices are presented. The usefulness of the adaptive SAR model and its associated network index are illustrated via simulation studies and an empirical investigation of the spillover effects in Chinese mutual fund cash flows.

Date : 4 May, 2020 (Monday)
Time : 15:00-16:00 (Hong Kong Standard Time GMT +8)
Venue: Online Talk via Zoom
*** The Talk will be given in English.**

*** * * ALL ARE WELCOME * * ***

For enrolment, please send your name and email (zoom's account) to chingching.lu@polyu.edu.hk on or before 3 May 2020, Sunday.