



High Dimensional Nonstationary Time Series

IRTG 1792 Short Course

Lung-Fei Lee

The value of martingale process

The econometric development of spatial econometric models relies on large sample statistic theories. These theories extend time series asymptotic theories, which form important parts on statistical foundations for spatial econometrics.

In addition to statistic foundation, another important component is on theoretical economics consideration. Dependent variables of a spatial econometric model can be regarded as the Nash equilibrium of some complete information games. Moran's I test for spatial dependence is based on a statistic with a linear-quadratic form.

Scores of the ML and moments for 2SLS and GMM are also in linear-quadratic form. A statistic with a linear-quadratic form can be characterized as a sum of martingale differences, so the central limit theorem for martingale difference arrays is crucial for asymptotic distributions of such statistics.

For linear spatial models, statistics on linear-quadratic forms are the basis of spatial econometrics. For nonlinear spatial models, near-epoch dependent random fields play a crucial role. We illustrate the value of martingale process for tests and estimation for linear spatial econometric models.

03.08.2018 | 10:00-13:00

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HUB, SPA 1 | Room 401



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Professor Lung-Fei Lee, Department of Economics, The Ohio State University. Professor Lee was born in China and is a naturalized American citizen. He has his B.Sc. in Mathematics from the Chinese University of Hong Kong, 1971; Masters in Pure Mathematics and Statistics from the University of Waterloo, Canada, 1972 and 1974; and a Ph.D. in Economics, University of Rochester, New York, USA, 1977. His research areas are in microeconometrics, spatial econometrics, and econometric models of interactions.

