Waseda Seminar on Time Series & Statistics

Date: July 19, 2019

Venue: Waseda University, Nishi-waseda Campus Building 63-1

Meeting Room (Access map:

http://www.sci.waseda.ac.jp/eng/access)

Organizer: Masanobu TANIGUCHI

Supported by:

- JSPS KAKENHI Kiban (S) Grand-in Aid No. 18H05290 (M. Taniuguchi)
- Waseda Research Institute for Science &Engineering, Institute for Mathematical Science
- Waseda University, Rikou-Danwakai

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Talk (I) 15:00 – 16:00

Title: Report on " My Visit to Brussels"
&
Kolmogorov-Smirnov Tests for Laplace Spectral Density Kernels

Yuichi Goto[1*], Marc Hallin[2] , and Masanobu Taniguchi[1]
[1]Waseda Universy, Japan;
[2]Université libre de Bruxelles, Belgium

In the first part of this presentation, I report my visit to Brussels for two months. I talk about cultures, foods, sightseeing, students, actual condition of researchers, hard experiences, good experiences in Belgium, etc. with a number of photos.
In the second part of this presentation, a Kolmogorov-Smirnov (KS) test for Laplace spectral density kernels is considered. The Laplace spectral density kernels is a new type of spectral density, which characterize the collection of all marginal bivariate distribution in a given stationary time series, in the absence of moment assumptions. This test, thus, is a goodness-of-fit test for the collection of all bivariate marginals of an observed series. First, we derive the asymptotic null distribution of the KS statistic which, however, is not distribution-free. We therefore propose a numerical method, combined with the estimation of a covariance kernel, for the computation of critical values. Finally, we show that our testing procedure is consistent.

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Talk(II) 16:00 – 17:30

Title: On Hysteretic Vector Autoregressive Model with Applications

Cathy W. S. Chen[1*], Hong Than-Thi[1] and Mike K. P. So[2]
[1]Feng Chia University, Taichung, Taiwan;
[2]Hong Kong University of Science and Technology, Hong Kong

Abstract

This talk proposes a new hysteretic vector autoregressive (HVAR) model in which the regime switching may be delayed when the hysteresis variable lies in a hysteresis zone. We integrate an adapted multivariate Student-t distribution from amending the scale mixtures of normal distributions. This HVAR model allows for a higher degree of flexibility in the degrees of freedom for each time series. We use the proposed model to test for a causal relationship between any two target time series. Using posterior odds ratios, we overcome the limitations of the classical approach to multiple testing. Both simulated and real examples herein help illustrate the suggested methods. We apply the proposed HVAR model to investigate the causal relationship between the quarterly growth rates of gross domestic product of United Kingdom and United States. Moreover, we check the pairwise lagged dependence of daily PM2.5 levels in three districts of Taipei.

*: speaker

Buffet Party 18:00-