

中央研究院統計科學研究所

學術演講

講題：Model Averaging Prediction for Possibly Nonstationary
Autoregressions

演講人：Dr. Chu-An Liu (劉祝安 博士)

Institute of Economics, Academia Sinica

時間：2024-10-16(Wed.) 14:00-15:30

地點：Auditorium, B1F, Institute of Statistical Science ; The tea
reception will be held at 13:40.

備註：Online live streaming through Cisco Webex will be available.

Abstract

As an alternative to model selection (MS), this paper considers model averaging (MA) for integrated autoregressive processes of infinite order. We derive a uniformly asymptotic expression for the mean squared prediction error (MSPE) of the averaging prediction with fixed weights and then propose a Mallows-type criterion to select the data-driven weights that minimize the MSPE asymptotically. We show that the proposed MA estimator and its variants, Shibata and Akaike MA estimators, are asymptotically optimal in the sense of achieving the lowest possible MSPE. We further demonstrate that MA can provide significant MSPE reduction over MS when the model misspecification bias is algebraic decay. These theoretical findings are extended to integrated AR models with deterministic time trends and are supported by Monte Carlo simulations and real data analysis.



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