The Hong Kong University of Science and Technology

Seminar on Business Data Science
Department of ISOM

High Dimensional Beta Test with High Frequency Data

By

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Time: 2:00pm – 3:00pm
Venue: Room 6045 (LSK Business Building)

Abstract

This is the first paper about the high dimensional beta tests with high frequency financial data, which allow the number of regressors be larger than the number of observations within each estimation block and can grow to infinity in asymptotics. In this paper, the sum-type test and max-type test have been proposed, where the sum-type test is suitable for the dense alternative and the max-type test is suitable for the sparse alternative. By showing the asymptotic independence between the sum-type test and max-type test, a Fisher's combination test is proposed, which is robust to both dense and sparse alternatives. The limiting null distributions of the three proposed tests are derived and the asymptotic behavior of their powers are also analyzed. Monte Carlo simulations demonstrate the validity of the theoretical results developed in this paper. Empirical study with real high frequency financial data shows the robustness of the proposed Fisher's combination test under both dense and sparse alternatives. This is the joint work with Long Feng, Per Mykland and Lan Zhang.

Bio

Dachuan Chen is currently an assistant professor at the School of Statistics and Data Science, Nankai University. His research interests include financial econometrics, high frequency data analysis and high-dimensional statistics. He received his Ph.D. degree in Business Administration from University of Illinois at Chicago in May 2019. His research has been published in top journals of econometrics and statistics, e.g., Journal of Econometrics, Journal of Business & Economic Statistics and Journal of American Statistical Association. In 2018, he won the Stevanovich Student Scholarship from the University of Chicago (UoC), as the first non-UoC recipient. He was a visiting scholar in the Department of Statistics, University of Chicago during 2015 and 2016.

All interested are welcome!
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