PEIYUN JIANG

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EDUCATION

Ph.D. in Economics | ***Economic Theory and Economic Statistics*** — April 2017 – February 2021
Hitotsubashi University — Tokyo, Japan

M.A. in Economics | ***Economic Theory and Economic Statistics*** — April 2015 – March 2017
Hitotsubashi University — Tokyo, Japan

B.A. in Management | ***Major: Financial Management, Minor: Japanese*** — September 2010 – June 2014
Huazhong University of Science and Technology — Wuhan, China

RESEARCH INTERESTS

Structural changes, Time series analysis, Panel data models

WORK EXPERIENCE

Specially Appointed Research Associate — April 2021 – Current
Hitotsubashi Institute for Advanced Study (HIAS), Hitotsubashi University — Tokyo, Japan

Research Assistant — 2017, 2019
Department of Economics, Hitotsubashi University — Tokyo, Japan

TEACHING ASSISTANT

Advanced Econometrics (Graduate) — Fall, 2018 – 2020
Hitotsubashi University

Statistics I (Undergraduate) — Spring, 2019 – 2020
Hitotsubashi University

Introductory Econometrics (Undergraduate) — Fall, 2016 – 2017
Hitotsubashi University

Intermediate Econometrics (Graduate) — Spring, 2016 – 2018
Hitotsubashi University

CONFERENCES AND PRESENTATIONS

The 15th International Symposium on Econometric Theory and Applications (SETA2019) — June 2019
"Monitoring parameter changes in models with a trend" — Osaka, Japan

Kansai Keiryo Keizaigaku Kenkyukai (KKKK) — January 2019
"Monitoring parameter changes in models with a trend" — Miyazaki, Japan

1st International Conference on Econometrics and Statistics (EcoSta 2017) — June 2017
"Some properties of the modified CUSUM tests" — Hong Kong, China

SCHOLARSHIPS AND AWARDS

Nomura Foundation Scholarship — 2019 – 2020

Best Presentation Award, Kansai Keiryo Keizaigaku Kenkyukai — January 2019

Mitsubishi UFJ Scholarship — 2018

Hitotsubashi University Foundation Scholarship for International Students — 2016

PUBLICATIONS AND RESEARCHES

Peiyun Jiang and Eiji Kurozumi, "A new test for common breaks in heterogeneous panel data models", May 2021

Recently, the issues related to structural changes have shifted from time series models to panel data models. One of the main reasons is that the failure of consistency of the break point estimates in time series models has been overcome in panel frameworks, due to a common break assumption that break point occurs in each series at the same location. In practice, however, the time points and/or the impact of the changes are likely to vary significantly across individuals, but no test has been proposed to evaluate the validity of the common breaks assumption. This paper contributes to the literature in three ways. First, I fill in the gap to introduce a test for the null hypothesis that the panels exhibit a common break against the alternative that break dates can vary across units. I derive the asymptotic distribution of the statistic under the null and the consistency of the test under the alternative hypothesis. The second major contribution is that I investigate the statistical properties of the estimated common break point when common break assumption fails. It is verified that the common break estimate cannot be consistent for each series, but will be restricted in a specific region. Third, the proposed test delivers monotonic power as the magnitude of breaks rises. Monte Carlo simulations show good size performance for large T. Moreover, the test can successfully reject the null hypothesis of common break against various types of alternatives and has nontrivial power for large breaks.

Peiyun Jiang and Eiji Kurozumi, "Monitoring parameter changes in models with a trend", *Journal of Statistical Planning and Inference*, Volume 207, Pages 288-319, July 2020. https://doi.org/10.1016/j.jspi.2020.01.004

Nowadays, since data arrive steadily and cheaply in practice, Chu et al. (1996) introduced a sequential test to continuously monitor if the current model is still adequate to describe the new data. In applications, macroeconomic time series are sometimes better characterized by trend stationary series with possible change(s) in deterministic. In this paper, we develop a CUSUM-type monitoring procedure based on the ordinary least squares residuals for detecting structural changes in models with a trend. A proper boundary function is designed to control the size. We derive the asymptotic properties of the CUSUM detecting statistic under the null and alternative hypotheses. Since the sequential tests generally reject the null hypothesis of no change possibly with a delay after the break, we investigate the asymptotic distribution of the delay times for the CUSUM test as well as the fluctuation one proposed by Qi et al. (2016) in a model with an early change. We further extend the CUSUM monitoring procedure to models with higher order polynomial trends. Then, We compare the CUSUM and fluctuation tests in a small simulation study and apply them to macroeconomic time series. The results confirm that the CUSUM test is good at detecting an early change soon after the training period and has a shorter detection time than the fluctuation test, while the fluctuation test is suitable for a late break. This research was awarded the Best-Presentation Award at the 26th Kansai Keiryo Keizaigaku Kenkyukai.

Peiyun Jiang and Eiji Kurozumi, "Power properties of the modified CUSUM tests", *Communications in Statistics-Theory and Methods*, Volume 48, Issue 12, Pages 2962-2981, 2019. https://doi.org/10.1080/03610926.2018.1473598

The CUSUM test has played an important role in theory and applications related to structural change, but its drawback is that it loses power when the break is orthogonal to the mean of the regressors. We propose two versions of the modified CUSUM test to avoid power loss when detecting such structural changes and investigate the limiting power properties of these tests under a fixed alternative. We demonstrate that the modified tests are superior to the classic tests in terms of both asymptotic theory and finite samples when detecting an orthogonal structural shift.

SKILLS

Languages: English, Japanese, Chinese(Native)
Programming: GAUSS, MATLAB, Eviews, OxEdit
Document Creation: LaTex