

Detection of instabilities in regression models

Marie Hušková

Charles University, Prague, Czech Republic

Abstract

The talk will focus on detection of changes (more generally instabilities) in regression models and partially in time series. It starts with a toy example including an application to change detection in dependence of discharges on precipitation.

Then the talk will focus on polynomial regression with dependent errors and than continues with extensions to time series with trending regression. Finally, certain class of functional linear models when data are arriving sequentially (he so called on-line procedures) are presented.

The talk will cover theoretical results, simulation results as well as applications for all considered setups.

Keywords Change point problem, Off-line and on-line procedures, Finite dimensional data and functional data, Regression models.

References

- [1] Aue, A., Horváth, L., Hušková, M., Kokoszka, P. (2008). Testing for changes in polynomial regression *Bernoulli* 14, 637–660.
- [2] Aue, A., Horváth, L., Hušková, M. (2012). Segmenting mean-nonstationary time series via trending regressions. *Journal of Econometrics* 168, 367–381
- [3] Aue, A., Hoermann, S. Horváth, L., Hušková, M. (2014). Dependent functional linear models with applications to monitoring structural change. *Statistica Sinica* 24, 1042–1073.