

Changepoint detection and estimation using self-normalization and regularization

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Abstract

Atomic pursuit estimation techniques and self-normalized testing procedures are proposed and discussed for dealing with detection and estimation of significant changepoints in complex data structures. The complexity of the data may involve sophisticated and nontrivial structures (nonlinearity, lack of smoothness, etc.), heteroscedasticity, dependency, non-stationarity, or extreme data represented by different data forms, such as, for instance, multivariate surfaces and time series, panel data, or run-off triangles common for actuaries.

The main focus is given on the overall methodological framework: important statistical properties are derived and the some interesting cons&prons are discussed. Finite sample properties are investigated via simulation study and real data examples.

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