

ST565: Time Series Project 0

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A New Topic: Outlier Detection (and possibly Intervention Analysis) in Time Series

What we plan on doing

- Investigate what models are out there to detect outliers
- describe additive and innovational outlier types
- Describe an algorithm for detecting those outliers
- Iterative procedures
- Basic implementation through the use of the R package “tsoutliers”
- Experiment analysis

How we plan to present it

We will submit the written paper.

References we plan to use

- R package “tsoutliers”
- Book: “Time Series Analysis: Univariate and Multivariate Methods”, By: “William W. S. Wei”. Chapter 9: Intervention Analysis and Outlier Detection
- Paper: “Joint Estimation of Model Parameters and Outlier Effects in Time Series”, By “Chung Chen and Lon-Mu Liu”, Journal of the American Statistical Association, Vol. 88, No. 421 (Mar., 1993), pp. 284-297”

An idea for an example.

- The Industrial Production Indices (IPI) dataset in the manufacturing sector of several European Countries, monthly data for 13 years, for the 2000-2013 period
- This time series should cover the 2008 economic crisis