

Applied Econometrics

with 

Syllabus

Authors

- Christian Kleiber
Quantitative Methods Unit
Faculty of Business and Economics
Universität Basel
E-mail: `Christian.Kleiber@unibas.ch`
URL: `https://wwz.unibas.ch/kleiber/`

- Achim Zeileis
Department of Statistics
Faculty of Economics and Statistics
Universität Innsbruck
E-mail: `Achim.Zeileis@uibk.ac.at`
URL: `https://eeecon.uibk.ac.at/~zeileis/`

Overview

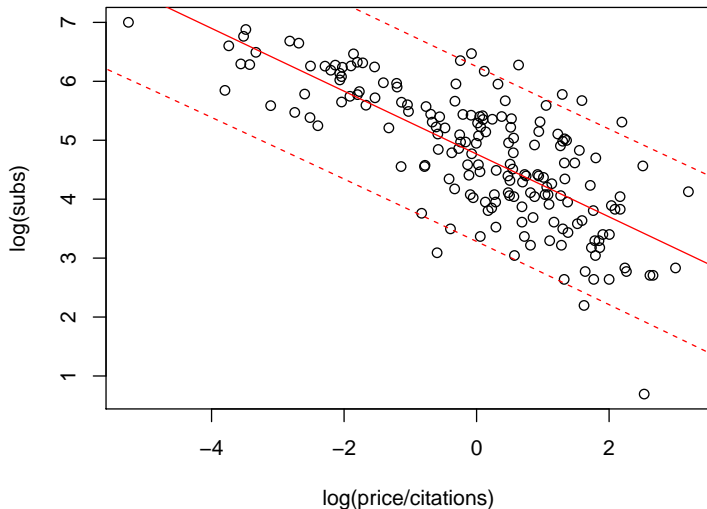
- Introduction
- Basics
- Linear regression
 - Simple/multiple linear regression
 - Partially linear models
 - Linear regression with time series data
 - Linear regression with panel data
 - Systems of linear equations
- Diagnostics and alternative methods of regression
 - Regression diagnostics
 - Diagnostic tests
 - Robust standard errors and tests
 - Resistant regression
 - Quantile regression

Overview

- Models of microeconometrics
 - Generalized linear models
 - Binary dependent variables
 - Regression models for count data
 - Censored dependent variables
- Time Series
 - Infrastructure and “naive” methods
 - Classical model-based analysis
 - Stationarity, unit roots, and cointegration
 - Time series regression and structural change
- Programming your own analysis
 - Simulations
 - Bootstrapping a linear regression
 - Maximizing a likelihood
 - Reproducible econometrics using Sweave()

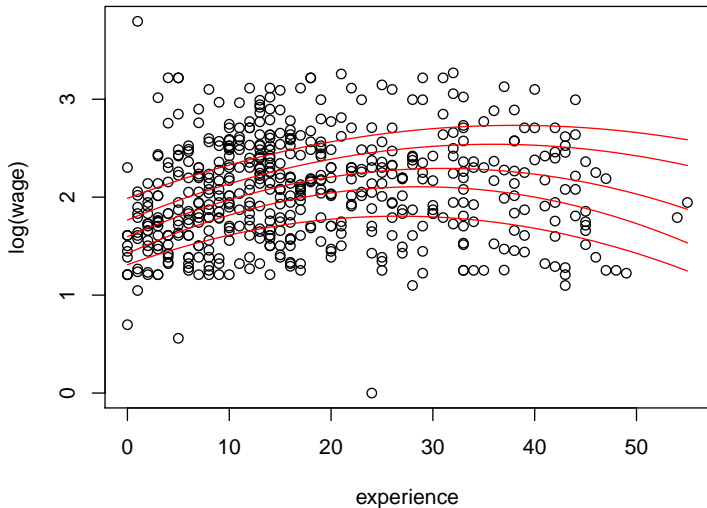
Linear regression

Demand for economics journals



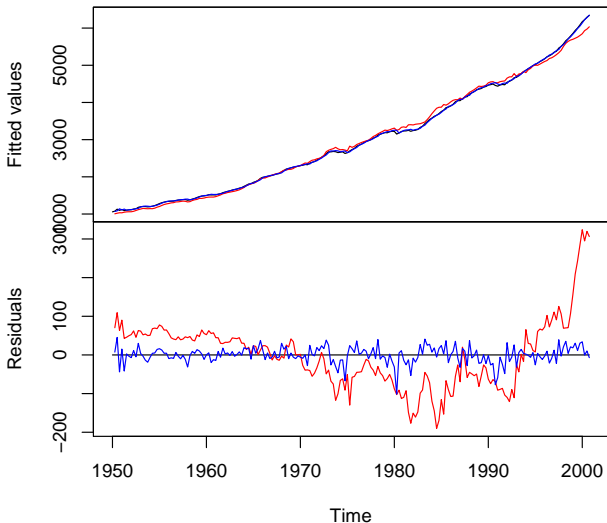
Quantile regression

Quantile regression for a wage equation



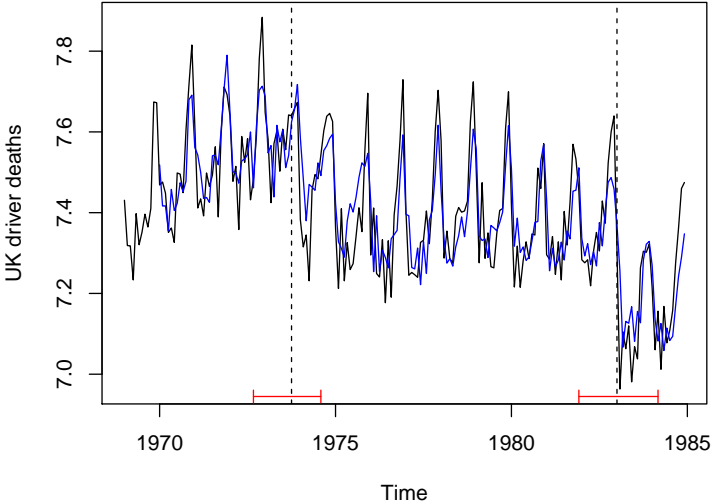
Time series regression

US consumption functions



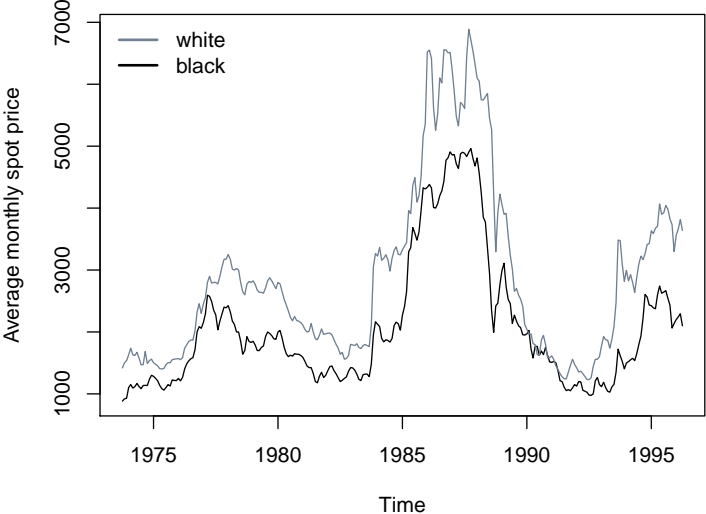
Structural change analysis

Change in seatbelt legislation in the UK



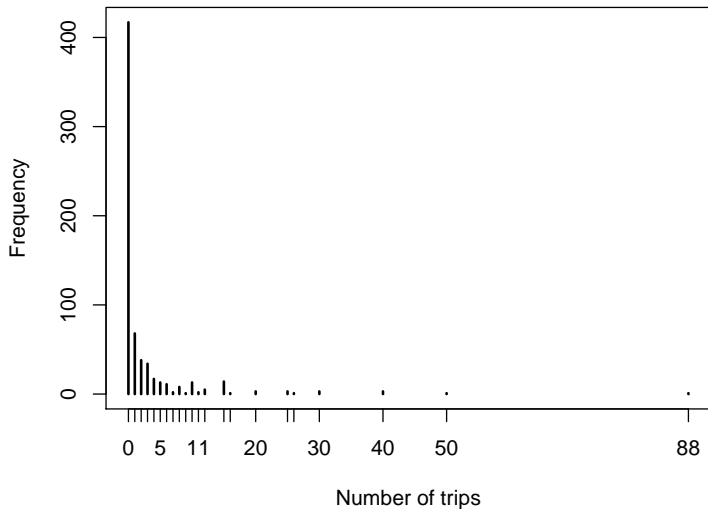
Cointegration

European pepper prices



Regression models for count data

Recreational trips to Lake Somerville



R

- Open-source software, freely available under GPL
- Current version: 3.3.3
- Homepage
<https://www.R-project.org/>
- Comprehensive R Archive Network
<https://CRAN.R-project.org/>
- Econometrics task view:
<https://CRAN.R-project.org/view=Econometrics>
- Extension package **AER** (Applied Econometrics with R)
<https://CRAN.R-project.org/package=AER>
- Integrated development environment RStudio:
<https://www.RStudio.com/products/RStudio/>.

Books

- Kleiber C and Zeileis A (2008), *Applied Econometrics with R*, New York: Springer-Verlag.

For methodological background:

- Baltagi BH (2002). *Econometrics*, 3rd edition. Berlin: Springer-Verlag.
- Greene WH (2003). *Econometric Analysis*, 5th edition. Upper Saddle River, NJ: Prentice Hall.
- Stock JH and Watson MW (2007). *Introduction to Econometrics*, 2nd edition. Boston: Addison Wesley.