Quantile regression:
a gentle introduction to theory and applications using R
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- Conditional mean and conditional quantiles
- The bivariate quantile regression model
  - The case with a dummy regressor
  - The case with a nominal regressor
  - The case with a numerical regressor
- Inference on conditional quantiles
  - The case with a dummy regressor
  - The case with a nominal regressor
  - The case with a numerical regressor
  - The case of a multiple regression model
- The multivariate quantile regression model
- Sampling distribution of the quantile regression estimator
  - The case of i.i.d. errors
  - The case of i.ni.d. errors
  - The case of dependent errors
- Equivariance property, model validation, estimation of the response conditional distribution
- Looking insight the estimation procedure: the simplex algorithm

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Main references

Davino C, Furno M, and Vistocco D – *Quantile Regression: Theory and Applications*, Wiley Series in Probability and Statistics, Wiley, 2014

Hao L and Naiman DQ – *Quantile Regression*, Sage Publications, Inc., 2007

Fahrmeir L, Kneib T, Lang S and Marx B – *Regression. Models, Methods and Applications*, Springer, 2013

Fitzenberger B, Koenker R, Machado J.A.F. (Eds) – *Economic Applications of Quantile Regression*, Studies in Empirical Economics, Physic, 2002.

Koenker R – *quantreg: Quantile Regression*, R package version 5.29, url = https://CRAN.R-project.org/package=quantreg, 2016

Koenker R. – *Quantile Regression*. Cambridge University Press, 2005

Koenker R – Galton, Edgeworth, Frisch, and prospects for quantile regression in econometrics. Journal of Econometrics, 95, 347–374, 2000

Koenker R and Basset G – Regression Quantiles. *Econometrica*, Vol. 46, No. 1, 33–50, 1978

Recommendations

Install the complete version of R on your laptop and the following additional packages:

- quantreg
- tidyverse