

Quantile regression for panel data and sample selection models

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Manuel Arellano

Outline

- 1 Quantile methods
 - 1.1 Medians, quantiles and optimal predictors
 - 1.2 Quantile regression (QR)
 - 1.3 Large sample results
 - 1.4 Censored quantile regression

- 2 Sample selection in quantile regression
 - 2.1 The parametric selection model
 - 2.2 A quantile selection model
 - 2.3 Identification
 - 2.4 Rotated check-function estimation

- 3 Quantiles and panels
 - 3.1 QR with fixed effects in large panels
 - 3.2 Bias reduction
 - 3.3 QR with random effects in short panels
 - 3.4 Simulation-based estimation

- 4 Dynamic quantile models
 - 4.1 Autoregressive models
 - 4.2 Predetermined variables
 - 4.3 Models with time-varying unobservables
 - 4.4 Nonlinear dynamic systems

Scope and readings/overviews

The lectures will provide an introduction to quantile regression and recent applications to sample selection and panel data estimation problems.

Arellano, M. and S. Bonhomme (2017): “Nonlinear Panel Data Methods for Dynamic Heterogeneous Agent Models”, *Annual Review of Economics*, 9, 471-496.

Arellano, M. and S. Bonhomme (2017): “Sample Selection in Quantile Regression: A Survey”. In: R. Koenker, V. Chernozhukov, X. He and L. Peng (eds.): *Handbook of Quantile Regression*, Chapman and Hall/CRC.

Chamberlain, G. (1994): “Quantile Regression, Censoring, and the Structure of Wages”. In C. Sims (ed.): *Advances in Econometrics, Sixth World Congress*, vol. 1, Cambridge.

Koenker, R. and K. F. Hallock (2001): “Quantile Regression”, *Journal of Economic Perspectives*, 15(4), 143–156.

Koenker, R. (2005): *Quantile Regression*, Cambridge University Press.