Syllabus Econometrics, A.A. 2021/22 – Instructor Enrico Rettore

1. Instrumental Variables

Why do we bother: simultaneity, omitted regressors, measurement errors, dynamic models.

The algebra of IV; the role of the exclusion restriction.

Exact-/over-identification.

Matrix notation.

IV as control function.

Asymptotic distribution.

Generalized Method of Moments.

Testing: endogeneity, overidentification, weak instruments.

Limited Information Maximum Likelihood (LIML)

2. Panel data models

Random effect vs fixed effect

Consistency and sampling variance of alternative estimators.

Hausman test.

First-diff estimator.

Unobserved heterogeneity vs true state dependence: dynamic models.

Weak vs strong exogeneity.

IV and GMM solution.

3. Discrete choice models

The latent index model.

Linear probability, Probit, Logit.

ML estimation.

Marginal effects.

Goodness-of-fit.

Diagnostics.

Discrete choice with panel data:

incidental parameter problem, Chamberlain estimator.

Heterogeneity vs state dependence

4. Limited dependent variable models

The latent index model (again…).

Truncation and censoring.

Tobit model.

Marginal effects.

Diagnostics; generalized residuals.

Panel data.

5. Sample selection models

Generalizing the Tobit model.

Correcting for sample selection.