Introduction on panel data analysis

g.cutuli@unitn.it

Course Content: micro panel data contain information on many cross-selection units (usually individuals) observed at regular time points (usually every year). The course will introduce the rationale and functioning of panel data and the main techniques required for regression-based panel data analysis.

Course Objectives: to develop the skills necessary to understand and assess the application of micro panel data analysis reported in the applied sociological and economic literature; and to enable participants to apply micro panel data techniques to their own research questions.

The course is a practical introduction to panel data analysis and requires some familiarity with quantitative methods and the statistical programme Stata

-Introduction on panel data

- What are panel data?
- Why use panel data?
- Handling panel data in Stata – some basic commands.
- Patterns of observations in panel data (non-response and attrition)
- Within and between variation
- Transitions

-Linear regression analysis

- Inference using panel data
- Unobserved heterogeneity
- Within and between group regression, a brief guide on assumptions and use
- Linear regression analysis: random effects
- Fixed effects regression
- Testing the FE and RE assumptions
- Hausman test
- Mundlak approach and related models

-Binary response models

- Conditional (fixed-effects) logit
- Random effects probit and logit
- Dynamic binary response models
- Wooldridge specification for initial condition problem
- Genuine state dependence

Introduction on further methods

- advanced dynamic probit specification
- hybrid models
- distributed fixed-effect
- individual slope fixed effect specifications)
- alternative use of repeated cross sections: pseudo-panels and related models

Some potential references and research examples (to be integrated or modified during the seminar):

Allison, P. (2009) Fixed Effects Regression Models, Vol. 160. Los Angeles: Sage (FE)

Bell, A., Jones, K. Fairbrother, M. (2016) Fixed and Random effects models: making an informed choice. Working Paper. (REWB)

Biegert, T. (2017) Welfare benefits and unemployment in affluent democracies: the moderating role of the institutional insider/outsider divide. American Sociological Review, 82 (5). pp. 1037-1064 (PSEUDO-PANEL)

Borgen, N. (2016) Fixed effects in unconditional quantile regression," Stata Journal, StataCorp LP, vol. 16(2), pages 403-415, June. (UQFE)

Brüderl, J., Ludwig, V. (2012) Useful Stata Commands for Longitudinal Data Analysis (STATA)

Brüderl, J., Ludwig, V. (2015) Fixed-effects panel regression, Sage Handbook Regression Analysis and Causal inference (FE, FEIS, GC)

Cantalini, S., Härkönen J. Dahlberg, J. (2017) Does postponing Pay Off? Timing of Parenthood, Earnings Trajectories, and Earnings Accumulation in Sweden 1990-2012 (FEIS)

Hai-Anh,D. Lanjouw, P., Luoto, J., McKenzie.D. (2014) Using Repeated Cross-Sections to Explore Movements in and out of Poverty". Journal of Development Economics, 107: 112-128

Halaby, C. (2005) Panel Models in Sociological Research: Theory into Practice, ARS 30:1, 507-544 (PANEL INTRO)

Grotti, R., Cutuli, G. (2018) Xtpdyn, a community contributed command for fitting dynamic random effects probit model with unobserved heterogeneity using Stata, The Stata Journal, (4) 2018 (GSD-UH)

Longhi, S., Nandi, A. (2015) A practical guide to Using Panel Data (PANEL INTRO)

Rabe-Hesketh, S. Skrondal, A. (2012) Multilevel and Longitudinal Modeling Using Stata, Stata Press

Wooldridge, J. M. (2005) Simple solutions to the initial conditions problem in dynamic, nonlinear panel data models with unobserved heterogeneity. J. Appl. Econ., 20: 39–54 (GSD)