Applied Panel Data Analysis

Instructor: Professor Dr Volker Ludwig, TU Kaiserslautern

Course outline

The workshop covers basic and advanced methods of panel data analysis for social research from an applied perspective. The focus is on individual data from panel surveys (large N, small T). Panel data offer important advantages over cross-sectional data, in particular, the identification of causal effects with relatively weak assumptions and the analysis of individual life-course trajectories. Special methods for panel data analysis are however needed to make use of these advantages. The workshop gives an applied overview. The starting point is the linear fixed effects (FE) regression model and its advantages compared to alternative models (random effects). The course furthermore covers the modelling of impact functions and growth curves with practical advice for researchers. Finally, useful extensions will be presented, notably the linear FE model with Individual Slopes (FEIS) and the FE logistic regression model (FE Logit). In the workshop, the structure of regression models is explained. The application of statistical models is demonstrated with Stata and real data examples.

Prerequisites

Knowledge of cross-sectional linear and logistic regression is assumed. Knowledge of Stata is an advantage.
Time Schedule and Topics covered

Monday 04.04.2022: Basics of Panel data analysis
    - Structure of Panel data, Fixed and Random Effects models

Tuesday 05.04.2022: Estimation of Impact Functions
    - Time-constant and time-varying treatment effects

Wednesday 06.04.2022: Growth Curve Models
    - Age-Period-Cohort Problem, Group-specific growth curves

Thursday 07.04.2022: Further Linear Panel models
    - Fixed Effects Individual Slopes (FEIS) and Random Slopes (RS) models

Friday 08.04.2022: Nonlinear Panel Models
    - Fixed Effects Logit (FE Logit) model, Event History Analysis with repeated Events
Literature

Basics
(Basics of the course are contained here.)
(Applied textbook, covering main linear and nonlinear models. Short and sweet.)
(The econometric standard textbook for regression analysis. Very detailed, very concise.)

Further reading

About the trainer
Volker Ludwig is Assistant Professor for Applied Sociology at the Technische Universität Kaiserslautern. His research interests include family research, labor market research and social research methods, in particular survey methods and statistical analysis of longitudinal data.