DEPARTMENT OF POLITICAL AND SOCIAL SCIENCES

Panel Data Analysis

European University Institute

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Instructors:
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Office Hours: after class or by appointment Class Hours: 13:00-17:00 pm

Course Description

The increasing availability of longitudinal data - data with repeated measures for same units over time - provides many opportunities for research applications. For example, they allow for identification of the temporal order of events, nuanced descriptions of longitudinal patterns, and causal identification. This course focuses on the use of longitudinal data for causal identification purposes.
Longitudinal data requires advanced management techniques and specific methods of analysis. The seminar provides the necessary skills for critically understand, manage, and analyse longitudinal data with panel models that aim at causal identification.
The course begins by introducing key concepts, benefits and pitfalls of longitudinal and panel data analysis. Students are then taught to manipulate longitudinal data and panel analysis in Stata (syntax for R is available). This includes the implementation of random and fixed effects models for continuous and dichotomous outcomes as well as dynamic models. The course includes frontal classes and practical sessions designed to give students hands-on experience of working with real-world data.

Prerequisites

This course builds on ordinary least square (OLS) regression and extends it to data with a panel nature. Participants should be familiar with basic statistical concepts such as sample mean and sample variance and their properties. Participants should possess basic knowledge of regression analysis. Basic skills in Stata/R are also required.

- Introduction to Quantitative Methods
- Basic R/Stata knowledge

Course Objectives

This course is designed for researchers with a basic understanding and experience with longitudinal data but willing to deepen into the various statistical and econometric techniques related to panel analyses. By the end of the course researchers will be:

1. able to clean longitudinal data and set it up for analysis
2. understand and critically engage with terminology and concepts behind the use of longitudinal data for causal identification
3. understand and perform panel data analyses in Stata or R

Course dates

All classess take place from 13:00 to 17:00*

Week 1, 29/03. Lecture I
Location: *Sala Europa, Villa Schifanoia*

Week 2, 05/04. Lecture II-**Lab Session 1**
Location: *Seminar Room 2, Badia*

Week 3, 12/04. Lecture III-**Lab Session 2**
Location: *Seminar Room 2, Badia*
***Change of time:** **9.30-14.30h (with lunch break at 12.30h)**

Week 4, 19/04. Lecture IV-**Lab Session 3**
Location: *Seminar Room 2, Badia*

Week 5, 29/04. Lecture V-**Lab Session 4**
Location: *Theatre, Badia*

Class Structure

The class structure will be a lecture followed by a lab session covering the materials taught in the week prior. In the first week there will be no lab session. Students should complete each assignment in advance, although this is not mandatory. Lab sessions consists on solving hands-on exercises covering each week's topics.

Assessments

The assessment (1/0) is based on a take home exam building on the weekly problem sets and due a month (flexible) after the course ends. Researchers who work with panel data for their dissertation or term paper are encouraged to use their own data. The take home exam may be carried out in team with other researchers (for example, to advance on a collaborative project).

Researchers aiming for 20 credits should attend and actively participate in all(most) classes and submit the final exam.