FLORENCE SCHOOL OF BANKING AND FINANCE

ROBERT SCHUMAN CENTRE

EXECUTIVE TRAINING COURSE

PROGRAMME

Panel data for banking sector analysts

10 March - 11 April 2025

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Introduction

This course provides a comprehensive introduction to panel data analysis, with a focus on micro-econometric applications featuring large cross-sectional datasets. It also explores advanced techniques and extensions relevant to practitioners and researchers.

Key topics include common estimators—random effects, fixed effects, and first differencing—with an emphasis on robust inference and specification testing. The course further delves into advanced methods, such as handling heterogeneous slopes and trends, instrumental variables techniques, and the estimation of dynamic models. Fixed effects estimation and inference for datasets with a large number of time periods, applicable to more aggregated data, are also explored.

Participants will learn how to address challenges associated with unbalanced panels and test for non-random sample selection. Time permitting, the course will introduce nonlinear models for binary and nonnegative outcomes.

The statistical package Stata will be used throughout the course to demonstrate practical applications of these methods, including case studies in the banking sector.

Faculty | Jeffrey Wooldridge (Michigan State University)

Format | Online

This course combines self-paced learning with interactive live online sessions, providing a flexible and engaging experience accessible directly from your own devices.

In the first phase, participants will progress through video lectures at their own pace, complemented by small work assignments designed to reinforce theoretical concepts through practical application.

The second phase features live online lab sessions, where participants will engage in hands-on exercises using Stata. These sessions are led by the course instructor and supported by teaching associates to provide real-time guidance and support.

The format emphasizes interaction and collaboration, with ample opportunities for Q&A and peer engagement. Participants will benefit from personalised feedback and close support from instructors and teaching assistants throughout the course.

Level | Intermediate, Advanced

Approach | Quantitative

Learning objectives:

- Apply random effects, fixed effects, first differencing, and instrumental variables versions to estimate basic linear panel data models using Stata.
- Conduct robust specification tests to evaluate and select the most appropriate estimation methods.
- Analyze the impact of additional heterogeneity in panel data models and justify the choice of estimation methods based on model complexity.
- Address the unique challenges of large-T panel data sets and implement effective solutions in Stata.
- Identify the implications of unbalanced panel data and devise strategies to mitigate their effects.
- Evaluate pooled and joint estimation methods for nonlinear models and develop tailored approaches to balance trade-offs based on specific contexts.

Topics covered:

- Random Effects, Fixed Effects, First Differencing
- Robust Inference and Robust Specification Tests
- Instrumental Variables
- Heterogeneous Trend and Slope Models
- Dynamic Models
- Large-T Panels
- Correlated random effects approaches to panel data
- Unbalanced panels and detecting sample selection problems
- Nonlinear Panel Data Models

10 MARCH

Start of the course

Access to all course modules

11 MARCH

15:30 - 17:00 **Welcome class**

13 MARCH

15:00 - 17:00 **TA-led Office hours**

20 MARCH

15:30 - 17:30 **First live class: recap of modules 1-6 + Q&A**

25 MARCH

15:00 - 17:00 **TA-led Office hours**

26 MARCH

15:00 - 17:00 **Second live class: recap of modules 7-16 + Q&A**

3 APRIL

15:00 - 17:00 **Third live class: Lab 1**

17:00 - 18:30 **TA-led Office hours**

10 APRIL

15:00 - 17:00 **Fourth live class: Lab 2**

11 APRIL

End of the course

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