PANEL DATA ANALYSIS IN STATA
Frankfurt am Main, 25-28 May 2020

Panel data contains information on many cross-sectional units, which are observed at regular intervals across time. Panel data, by its very nature, can therefore be highly informative regarding heterogeneous subjects and thus it is increasingly used in econometrics, financial analysis, medicine and the social sciences.

This introductory course offers participants the opportunity to acquire the necessary theoretical background and the applied skills to enable them to: i) independently employ micro panel data techniques to their own research topics, and ii) to understand and evaluate micro panel data analyses published in the academic literature.

The focus is on the techniques adopted for the analysis of a typical micro panel-data set with a large number of individuals and a small number of time periods. Such techniques include: fixed and random effects models; robust inference; instrumental-variables estimators; sample selection and attrition; non-linear models. In the closing sessions, the more recently developed Extended-Regression-Model (ERM) command to simultaneously control for issues of endogeneity and sample selection are discussed.

In common with TStat's training philosophy, each individual session is composed of both a theoretical component (in which the techniques and underlying principles behind them are explained), and an applied (hands-on) segment, during which participants have the opportunity to implement the techniques using real data under the watchful eye of the course tutor. Throughout the workshop, theoretical sessions are reinforced by case study examples, in which the course tutor discusses and highlights potential pitfalls and the advantages of individual techniques. The intuition behind the choice and implementation of a specific technique is of the utmost importance. In this manner, the course leader is able to bridge the "often difficult" gap between abstract theoretical methodologies, and the practical issues one encounters when dealing with real data. At the end of the course, participants are expected to be able to autonomously implement the theories and methodologies discussed during the workshop.

WORKSHOP CODE

D-EF10/4

DATE AND LOCATION

Frankfurt am Main, 25-28 May 2020

TARGET AUDIENCE

The panel data workshop is of particular interest to Master and Ph.D. Students, researchers in public and private research centres and professionals working in the following fields: Agricultural Economics, Economics, Finance, Management, Public Health, Political Sciences and the Social Sciences seeking to acquire the "introductory" applied and theoretical toolset to enable them to undertake independent empirical research using panel data.

https://www.tstattraining.eu/training/microeconometric-panel-data-analysis-stata/

PANEL DATA ANALYSIS IN STATA

PREREQUISITES

Participants are required to have a good working knowledge of the OLS regression model and the statistical software Stata. Knowledge at the argoments illustrated in TStat's course Introduction to Microeconometrics with Stata (https://www.tstattraining.eu/training/microeconometrics-stata/) will also prove to be a advantage.

PROGRAM

SESSION I:
INTRODUCTION

1. Panel data: benefits for estimation and inference
2. Preliminary commands: *xtset, xtdescribe*

SESSION II:
LINEAR PANEL DATA MODELS WITH EXOGENOUS VARIABLES

1. One-way and two-way fixed effect estimators: *xtreg, fe*
2. Random Effects Estimators: *xtreg, re, xtmixed*

SESSION III:
LINEAR PANEL DATA MODELS WITH EXOGENOUS VARIABLES: ROBUST INFERENCE

1. Robust covariance estimators
2. The first-difference estimator
3. Testing for non *i.i.d.* errors
4. Testing Random Effects against Fixed Effects:
   - non-robust approach using *Hausman*
   - robust approach using Mondlak auxiliary regression (Wooldridge, 2010)

SESSION IV:
LINEAR PANEL DATA MODELS WITH EXOGENOUS VARIABLES

1. Fixed and Random Effect IV Estimators: *xtivreg*
2. Hausman and Taylor's estimator: *xthtaylor*

SESSION V:
NON-LINEAR PANEL DATA MODELS

1. The incidental parameter problem in non-linear models
2. Poisson panel data models: *poisson, xtpoisson*
   - Random effects
   - Correlated effects (conditional poisson)
3. Probit panel data models: *probit, xtprobit, oprobit, xtoprobit*
   - Random-effect models
   - Correlated effects modelled as group means (a la Mundlak)
4. Logit panel data models: *logit, xtlogit, ologit, xtologit*
   - Random effects
   - Correlated effects (Conditional Logit)
5. Tobit and interval regression models: *tobit, xttobit, intreg, xtintreg*
   - Random effects
   - Correlated effects modelled as group means (a la Mundlak)
6. Postestimation analysis:
   - Average marginal effects: *margins*
   - Goodness-of-fit measures: *predict*

SESSION VI:
LINEAR PANEL DATA MODELS WITH SAMPLE SELECTION

1. Estimators for linear random-effect models with sample selection:
   - *xtheckman*
2. Estimators for linear fixed-effect models with sample selection:
   - procedures in Wooldridge (2010)
   - Attrition: procedures in Wooldridge (2010)

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PANEL DATA ANALYSIS IN STATA

SESSION VII:
PANEL DATA MODELS WITH
ENDOGENOUS REGRESSORS AND
TREATMENT ASSIGNMENT AND
SAMPLE SELECTION

Extended linear models (*xteregress*)
Extended Probit models (*xteprobit, xteoprobit*)
Extended interval regression models (*xteintreg*)

USEFUL READINGS

- Microeconometrics using Stata, Revised Edition, (2010) di A. C. Cameron e P. K. Trivedi, Stata Press
- Econometric Analysis of Cross Section and Panel Data (2010) di J. Wooldridge, MIT Press

REGISTRATION FEES

Students*: € 1160.00
Academic: € 1930.00
Non-Profit/Public Research Centres: € 2170.00
Commercial: € 2410.00

*To be eligible for student prices, participants must provide proof of their full-time student status for the current academic year.

Fees are subject to VAT (applied at the current Italian rate of 22%). Under current EU fiscal regulations, VAT will not however applied to companies, Institutions or Universities providing a valid tax registration number.

Please note that a *non-refundable deposit* of €100.00 for students and €200.00 for Academic, Non-Profit/Public Research Centres and Commercial participants, is required to secure a place and is payable upon registration. The number of participants is limited to 12. Places will be allocated on a first come, first serve basis.

Course fees cover: teaching materials (handouts, Stata *do files* and datasets to used during the course), a temporary licence of Stata valid for 30 days from the beginning of the workshop, light lunch and coffee breaks.

To maximize the usefulness of this workshop, we strongly recommend that participants bring their own laptops with them, to enable them to actively participate in the empirical sessions.

Individuals interested in attending this workshop must return their completed registration forms by email (training@tstat.eu) to TStat by the 5th May 2020.

Further details regarding our registration procedures, including our commercial terms and conditions, can be found at https://www.tstattraining.eu/training/microeconomectric-panel-data-analysis-stata/

CONTACTS

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