

Microeconometrics in Stata offers participants with a comprehensive applied and theoretical overview of the principle methodologies implemented in the analysis of microeconomic data. More specifically, the course focuses on instrumental variable analysis, non-linear least squares estimation, binary variable models, multi-nominal models, Tobit models and count data models, panel data models, IV estimators, GMM estimators and quantile regression models.

Although the course is entitled an “Microeconometrics in Stata”, given that the examples discussed relate to economic data, the techniques developed through the courses are of course widely adopted in other social sciences.

In common with TStat’s course 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 course, theoretical sessions are reinforced by case study examples, in which the course tutor discusses and highlights potential pitfalls and the advantages of individual techniques.

**WHO SHOULD ATTEND?** Researchers and professionals working in biostatistics, economics, epidemiology, finance, psychology, social and political sciences needing to acquire the necessary statistical requisites required to independently conduct empirical analysis using micro data.

**COURSE REQUISITES** It is assumed that course participants have at some point followed a basic course in econometrics or statistics. Previous exposure to Stata or other statistical software packages would also be an advantage.

## PROGRAM

### PRELIMINARY TOPICS

- Stata 14 – a quick review
- Linear and non-linear models in Econometrics
- Estimators and tests for linear models with endogenous variables: Instrumental Variables and Generalized Method of Moments (*ivregress*, *ivreg2*, *gmm*, *treatreg*)
- Estimators and tests for non-linear models
- Estimating marginal effects with margins

### COUNT MODELS

- **The Poisson model**
  - Estimators: Non-Linear Least Squares (*nl*), GMM (*gmm*), Maximum likelihood (*poisson*)
  - Endogenous regressors (*gmm* and *ivpoisson*)
- **Overdispersion: the Negative Binomial Model (*nbreg*)**

### DISCRETE DEPENDENT VARIABLE MODELS

- **Univariate models**
  - Linear Probability Model, Probit and Logit (*regress*, *probit*, *logit*)
  - Ordered models (*oprobit*, *ologit*)

- **Multivariate models**

- Bivariate and multivariate Probit models (*biprobit*, *mvprobit*, *cmp*)
- Multinomial models

- **(Conditionally) independent latent heterogeneity in probit models**

- Estimation of average partial effects

- **Endogenous regressors in probit models**

- The control function approach (CFA) to continuous endogenous regressors: test and estimation
- Bootstrap standard errors and covariance matrix in the CFA
- Maximum likelihood estimation with continuous endogenous regressors (*ivprobit*)
- A multivariate probit solution to binary endogenous regressors (*biprobit*, *mvprobit*, *cmp*)

### PROBIT AND LOGIT PANEL-DATA MODELS

- **The ancillary parameter problem in non-linear models with correlated latent heterogeneity (LH)**

- **Logit and probit panel data models with LH**
  - Models with independent LH: Random effect models (*xtlogit*, *xtprobit*)
  - Models with correlated LH: Fixed effect models
  - The Chamberlain-Mundlak approach for probit models
  - The Fixed effect logit model (*xtlogit*)

- **Sample selection**
  - Tests and corrections a la Heckman (*heckman*) for linear models
  - Tests and corrections for linear panel-data models
  - Attrition in panel-data models: Inverse Probability weighting (IPW)
  - Bootstrap standard errors with IPW

## MODELS WITH CENSORING AND SAMPLE SELECTION

- **Censoring**
  - Tobit models: ML and Two-step Least Squares (*tobit*)
  - The CFA to continuous endogenous regressors: test and estimation
  - Maximum likelihood estimation with continuous endogenous regressors (*ivtobit*)
  - Panel data tobit models with LH

## QUANTILE REGRESSION

- **Introduction**
  - Conditional quantile function: definition and properties
- **Estimation**
  - Marginal effects and relationship with linear regression
  - The linear quantile model (*qreg*, *bsqreg*, *sqreg*)

## USEFUL REFERENCES

- Microeconometrics Using Stata, Cameron e Trivedi, StataPress (2009)
- Microeconometrics: Methods and Applications, Cameron e Trivedi, Cambridge University Press (2005)
- Econometric Analysis of Cross Section and Panel Data, Wooldridge, MIT Press (2010)

## LOGISTICS

The course will be held in Frankfurt am Main on the 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> of July 2016, from 9:00 am to 5:00 pm.

## REGISTRATION FEES

Academic € 1225,00 • Commercial € 1800,00 • Students € 650,00  
All fees are subject to VAT (applied at the current Italian rate of 22%).

The number of participation is limited to 10. Places, will be allocated on a first come, first serve basis.

The course fee covers: course materials and a temporary licence of Stata valid for 30 days from the beginning of the course; light lunch and coffee break. The course materials comprise the theoretical handouts, along with the Stata do-files, ado-files and data-sets required to replicate all the empirical demonstrations implemented in the course sessions under the guidance of the course leader.

### Please note:

- A 15% discount will be applied to all additional participants from the same company or institution enrolling on the same course.
- TStat's Training Packages: individuals attending more than one of our training courses during the course of 2016 are entitled to a 15% discount off subsequent course fees.

Individuals interested in attending the training course, must return their completed registration forms either by email ([training@tstat.eu](mailto:training@tstat.eu)) or by fax (+39 0864 206014) to TStat by the 20<sup>th</sup> of May 2016.

# ITALIAN STATA DISTRIBUTOR

TStat S.r.l. Via Rettangolo, 12-14 - 67039 Sulmona AQ - Tel. +39 0864 210101 - Fax +39 0864 206014  
Email: [training@tstat.eu](mailto:training@tstat.eu) • Web: <http://www.tstat.it>