PROGRAM

Providing effective evaluation of economic, social and medical programs has become an increasingly important requirement for both public and private institutions. The Summer School seeks therefore to provide participants with the requisite tools, both theoretical and applied, for the correct implementation of modern micro-econometric methods for implementing program evaluation using Stata.

TStat’s summer programs are characterized by their theoretical and applied structure. 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 week, theoretical sessions are reinforced by case study examples, in which the course tutor discusses current research issues, highlighting 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, course leaders are able to bridge the “often difficult” gap between abstract theoretical methodologies, and the practical issues one encounters when dealing with real data.

Day 1 – 9.00-17.00

AN INTRODUCTION TO STATA

SESSION I: INTRODUCTION – GETTING STARTED
  o Stata’s GUI
  o File types in Stata
  o Working interactively in Stata
    a) Organizing one’s work in Stata
    b) Help
    c) Web resources in Stata – downloading updates and new commands via internet
  o Saving output: the log file
  o Interrupting Stata
  o Loading Stata databases
  o Saving databases in Stata
  o Exiting the software

SESSION II: PRELIMINARY DATA ANALYSIS
  o A preliminary look at the data: describe, summarize commands.
  o Abbreviations in Stata
  o Stata’s syntax
    a) Constrained commands
  o Summary statistics
  o Statistical Tables: table, tabstat and tabulate commands.

SESSION III: DATA MANAGEMENT
  o Renaming variables
  o Selecting or eliminating variables
  o The count command
  o sort command
  o Creating sub-groups: the prefix by
  o Creating new variables: generate
  o Operators in Stata
  o The command assert
  o Missing values in Stata
  o Modifying variables: replace, recode
  o Creating Labels: variable labels and value labels
  o Creating dummy variables
  o Commands restore - preserve
  o Command collapse

SESSION IV: DO FILES - AN OVERVIEW

SESSION V: IMPORTING DATA FROM SPREADSHEETS
  o The insheet and outsheet commands
  o Issues to watch out for when importing data
    a) Missing values
    b) String variables
    c) Date variables
  o Redefining missing values
  o destring command
  o tostring command

SESSION VI: GRAPHICS – AN INTRODUCTION
  o Stata’s syntax for two way graphs (bar, histogram, scatter)
  o Saving and exporting graphs
  o Useful graph commands
  o Personalizing a graph
  o Stata’s Graph Editor

Day 2 – 9.00-17.00

LINEAR REGRESSION MODEL
ENDOGENEITY AND INSTRUMENTAL-VARIABLES

SESSION I: ESTIMATION VIA OLS, IV, IV-GMM
  o Linear regression methodology
  o Regression with factor variables
  o Endogeneity and related bias
  o Instrumental variables estimators
  o Stata implementation

SESSION II: ENDOGENEITY TESTS AND ROBUSTNESS
  o Tests of over identifying restrictions
Testing for weak instruments
LIML and GMM-CUE estimation
Testing for i.i.d. errors in an IV context
Stata implementation

Day 3 – 9.00-17.00
NONPARAMETRIC REGRESSION AND LIMITED DEPENDENT VARIABLE MODELS

SESSION I: NONPARAMETRIC REGRESSION
- Nonparametric density estimation
- Nonparametric regression estimation
- Quantile regression
- Stata implementation

SESSION II: LIMITED DEPENDENT VARIABLE
- General linear models
- Binary outcome models
- Tobit and selection models
- Count data models
- Stata implementation

Day 4 – 9.00-17.00
ECONOMETRICS OF PROGRAM EVALUATION

SESSION I: INTRODUCTION TO THE ECONOMETRICS OF PROGRAM EVALUATION
- Concept of counterfactual causality
- Experimental and quasi-experimental settings
- Non-random sampling: selection on observables and selection on unobservables
- Definition of treatment effects: types of effects and potential outcome
- Notation and working hypothesis: SUTVA, CIA and CMI

SESSION II: OVERVIEW OF THE METHODS
- Available econometric methods: limits and advantages
- Stata for effective program evaluation: user-written commands and the TEFFEC package

SESSION III: LINEAR AND NON-LINEAR REGRESSION ADJUSTMENT
- The control function regression approach
- Non-linear models
- Stata implementation

Day 5 – 9.00-17.00
MATCHING, REWEIGHTING, AND INSTRUMENTAL-VARIABLES

SESSION I: MATCHING
- The selection on observable setting
- Identification conditions for Matching
- Matching in practice: tests and sensitivity analysis
- Stata implementation

SESSION II: REWEIGHTING
- The logic of reweighting
- Reweighting on the propensity score
- Analytical and bootstrap standard errors
- Stata implementation

SESSION III: INSTRUMENTAL-VARIABLES
- The logic of IV
- Endogeneity and consistent estimation
- Types of IV methods
- Stata implementation

Day 6 – 9.00-17.00
SELECTION MODELS, DIFFERENCE-IN-DIFFERENCES AND REGRESSION DISCONTINUITY DESIGN

SESSION I: SELECTION MODEL (HECKIT)
- Dealing with selection-on-unobservables
- Heckman selection model (Heckit)
- Stata implementation

SESSION II: DIFFERENCE-IN-DIFFERENCES (DID)
- DID: statistical setting statistico
- DID with longitudinal data
- DID with repent cross-section
- Stata implementation

SESSION III: REGRESSION DISCONTINUITY DESIGN (RDD)
- RDD as a local approximation of a natural experiment
- Sharp RDD: setting and estimation
- Fuzzy RDD: setting and estimation
- Stata implementation

SESSION IV: POLICY EVALUATION IN PRACTICE
- Ex-post policy evaluation: logical structure and statistical design
- The choice of the evaluation method
- Limitations and open questions

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