

VI Residential SUMMER SCHOOL

PROGRAM EVALUATION IN ACTION

Florence, 24-29 August 2020

Providing effective evaluation of economic, social and public health programs has become an increasingly important requirement for both public and private institutions. Program evaluation allows us to assess the effectiveness of a specific program or intervention, and to use the subsequent results to identify how we can improve the future implementation of the program. As such program evaluation can be an extremely valuable tool for managers and evaluators looking to improve the quality of their programs and improve participation outcomes for the individuals involved. TStat's residential summer school offers participants a unique opportunity to acquire the requisite toolset, both theoretical and applied, for the correct implementation of effective modern micro-econometric methods for implementing evidence-based program evaluation using Stata. As such, the program has been developed to encompass both: standard statistical methods of program evaluation: regression-adjustment, matching, selection-models and difference-in-differences methodologies; and the more advanced econometric techniques: for example, instrumental variables, synthetic control method, and regression discontinuity design.

The School opens with an optional introductory one data introduction to the statistical software Stata module to enable participants unfamiliar with the statistical software Stata to acquire the necessary introductory toolset to enable them to fully participant in the applied sessions during the course of the week.

In contrast to previous editions of the school, the 2020 edition includes a supplementary evening Case Study Group session during which participants have the opportunity to present and discuss their own research agendas related to applied program evaluation. Course leaders will be available to discuss with participants the appropriates of the methodologies adopted in their case study, the interpretation of the results obtained and also to indicate potential problems to be aware of given the characteristics of the underlying data, as well as providing feedback and guidance on possible future developments of individual research agendas. The school closes with a Q & A style session entirely dedicated to real world program evaluation case-studies, where the participants will have the opportunity to actively engage with the course tutor in a current program evaluation case study.

In common with TStat's training philosophy, throughout the course of the week theoretical sessions are reinforced by both case study examples, in which the course tutors discuss current research issues, highlight the potential pitfalls and advantages of individual techniques, and an applied (hands-on) segment during which participants have the opportunity to implement these newly acquired techniques using real data under the watchful eye of the course tutor. Specific attention is given to both the intuition behind the choice and implementation of a specific technique, given the analysis in

SUMMER SCHOOL CODE

I-SS10

DATE AND LOCATION

Florence, 24-29 August 2020
CISL Studium Center
Via Della Piazzola, 71
I-50123 Florence
<http://www.centrostudi.cisl.it>

PREREQUISITES

Participants are expected to have a working knowledge of Stata and an intermediate knowledge of econometrics, and in particular knowledge of Ordinary Least Squares, Logit and Probit regression models and instrumental variable analysis.

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hand 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 trying to implement such techniques on real data.

At the end of the school participants are expected to be able to master complex evaluation design by: identifying the type of data required in their specific policy framework; evaluating which specific econometric method is more appropriate for the analysis in hand; and finally extracting policy recommendations from the obtained results. Participants should leave the course being in a position to autonomously implement, with the aid of the Stata routines utilized during the sessions, the techniques discussed during the course of the school.

TARGET AUDIENCE

Managers, researchers and professionals working in public and private institutions needing to undertake econometric program evaluation analysis using micro data. Although these methodologies are commonly used to evaluate economic policy interventions in, for example, the labour market, investment activities of enterprises, education policy, regional development, etc., they can in fact be used across a variety of studies, such as Public Health sector or interventions in the Banking sector or Financial markets, which aim to estimate the ex-post impact of a given intervention or project on specific targets.

PROGRAMME

MODULE A | DAY 1 - STATA IN JUST ONE DAY!

SESSION I: INTRODUCTION GETTING STARTED

1. Stata's GUI
2. File types in Stata
3. Working interactively in Stata
4. Saving output: the log file
5. Interrupting Stata
6. Loading Stata databases
7. The Log Output File
8. Saving databases in Stata
9. Exiting the software

SESSION II: PRELIMINARY DATA ANALYSIS

1. A preliminary look at the data: *describe*, *summarize* commands
2. Abbreviations in Stata
3. Stata's syntax
4. Summary statistics
5. Statistical Tables: *table*, *tabstat* and *tabulate* commands

SESSION III: DATA MANAGEMENT

1. Renaming variables
2. Selecting or eliminating variables
3. The *count* command
4. *sort* command
5. Creating sub-groups: the prefix *by*
6. Creating new variables: *generate*
7. Operators in Stata
8. The command *assert*

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SESSION IV: IMPORTING DATA FROM SPREADSHEETS

9. Missing values in Stata
 10. Modifying variables: *replace*, *recode*
 11. Creating Labels: variable labels and value labels
 12. Creating dummy variables
1. *Import Excel* and *Export Excel* commands
 2. The *insheet* and *outsheet* commands
 3. Reading in Text Data Files
 4. Issues to watch out for when importing data
 - Missing values
 - String variables
 - Date variables
 5. Redefining missing values
 6. *destring* command
 7. *tostring* command
 8. dealing with “messy” strings

SESSION V: GRAPHICS - A BRIEF INTRODUCTION

1. Stata’s syntax for two way graphs
2. Saving and exporting graphs
3. Useful *graph* commands
4. Personalizing a graph
5. Stata’s Graph Editor

APPENDIX A

1. Merging data bases
2. *do* files

APPENDIX B: MORE ADVANCES ISSUE (time permitting)

1. *do* files
2. Merging data bases
3. *e-class* and *r-class* variables
4. *collapse* command
5. *preserve* command
6. *restore* command

MODULE B | DAY 2 - THE BASICS OF EVIDENCE-BASED PROGRAM EVALUATION

SESSION I: AN INTRODUCTION TO PROGRAM EVALUATION

1. Mastering evidence-based program evaluation: an overview
2. The concept of counterfactual causality
3. Experimental and quasi-experimental settings
4. The selection bias problem
5. Selection on observables and selection on unobservables
6. Definition of treatment effects: types of effects and potential outcome
7. Notation and working assumptions
8. Available econometric methods: limits and advantages
9. Stata for effective program evaluation: user-written commands and the *teffects* package

SESSION II: WORKING UNDER OBSERVABLE SELECTION USING REGRESSION ADJUSTMENT

1. Program evaluation under observable selection
2. The control-function regression approach
3. Linear and non-linear Regression-Adjustment (RA)
4. Stata implementation with the commands *teffects ra* and *ivtreatreg*

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ESTIMATION OF ATE

Selection on observables
(ML: Conditional Mean Independence)

Selection on unobservables
(treatment endogeneity)

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DAY 3 - GETTING A BIT MORE MODEL-FREE VIA MATCHING AND REWEIGHTING

SESSION I: MASTERING THE MATCHING APPROACH

1. Why the Matching Approach can be superior to the Regression Adjustment?
2. The rationale and usefulness of the Matching method
3. The propensity score: definition, properties, usefulness
4. Matching identification of treatment effects
5. Matching on the covariates versus Matching on the propensity score
6. Matching in practice: how to run tests and robustness checks
7. Implementation in Stata

SESSION II: EMPOWERING YOUR SKILLS BY REWEIGHTING

1. From Matching to Reweighting: a short but instructive journey
2. Reweighting as a general approach to program effect's evaluation
3. Reweighting on the propensity score
4. Advantages and limits of using a Reweighting procedure
5. Implementation in Stata

DAY 4 - RELAXING THE ASSUMPTION OF OBSERVABLE SELECTION USING INSTRUMENTAL-VARIABLES (IV) AND SELECTION MODELS

SESSION I: THE "WHY" AND THE "HOW" OF INSTRUMENTAL-VARIABLES

1. The causal logic of instrumental variables: definition and simple examples
2. Treatment endogeneity and consistent estimation of program effects
3. Types of IV methods
4. Implementation in Stata

SESSION II: DIGGING INTO THE IV APPROACH WITH THE LOCAL AVERAGE TREATMENT EFFECT

1. The Local Average Treatment Effect (LATE) setting: an illustrative example
2. The relation between LATE and IV
3. A primer into Regression Discontinuity Design (RD)
4. Stata implementation

SESSION III: ALTERNATIVES TO IV AND THE SELECTION MODELS

1. Dealing with unobservable selection when an IV is not available
2. The Heckman selection model and its generalization
3. Implementation in Stata

DAY 5 - DIFFERENCE-IN-DIFFERENCE

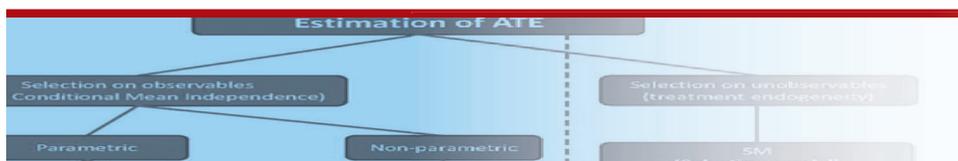
SESSION I: UNDERSTANDING AND MASTERING THE DIFFERENCE-IN-DIFFERENCES

1. Difference-in-differences (DID) program evaluation setting
2. DID with longitudinal data
3. DID with repeated cross-section
4. The analysis of pre- and post-treatment effects
5. Implementation in Stata

SESSION II: SYNTHETIC CONTROL METHOD

1. The Synthetic Control Method (SCM): setting
2. Parametric and nonparametric SCM with Stata implementation
3. The placebo test and its graphing
4. Stata applications on real datasets

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WINE MEETS PROGRAM EVALUATION: EVENING SUPPLEMENTARY WORKGROUP

During this informal early evening gathering, participants are given the opportunity to come together to discuss, via a poster or short presentation, their own research and/or program evaluation projects, whilst enjoying an offering of Tuscan Tapas and a glass of Tuscan wine.

DAY 6 - PROGRAM EVALUATION IN PRACTICE

SESSION I: A TEMPLATE FOR AN EFFECTIVE EVIDENCE-BASED PROGRAM EVALUATION

1. Designing an ex-post program evaluation: an overview
2. Description of the main steps of analysis from data collection to reporting
3. The use of the results for policy making
4. Reporting and communicating program evaluation results

SESSION II: PROGRAM EVALUATION CASE-STUDY

1. Implementing evidence-based program evaluation techniques: a case-study
2. The potential and limitation of program evaluation: a discussion
3. Summing-up and concluding remarks

PARTICIPANTS' Q & A SLOT

In this concluding session participants are offered the opportunity to delve deeper into specific arguments of interest, when we open up the floor to questions and discussions of specific aspects of program evaluation relevant to their research work.

COURSE REFERENCES

- A Gentle Introduction to Stata, 6th Ed., Alan Acock (2018) Stata Press
- Data Analysis Using Stata, 3rd Ed., Ulrich Kohler, Frauke Kreuter (2012) Stata Press
- Data Management Using Stata: A Practical Handbook, Michael N. Mitchell, (2010) Stata Press
- The Workflow of Data Analysis Using Stata, J. Scott Long (2009) Stata Press
- Mostly Harmless Econometrics: An Empiricist's Companion, Joshua D. Angrist e Jorn-Steffen Pischke (2008) Princeton University Press
- Microeconometrics Using Stata, Colin Cameron and Pravin K. Trivedi (2010) Stata Press
- Econometric evaluation of socio-economic programs: theory and applications, Giovanni Cerulli (2015) Springer Verlag

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Selection on observables
(CMI - Conditional Mean Independence)

Selection on unobservable
(treatment and control)

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REGISTRATION FEES

ENTIRE WEEK (MODULES A plus B, 6 days)

Full-Time Students*: € 1620.00

Academic: € 2640.00

Commercial: € 3900.00

MODULE B (5 days)

Full-Time Students*: € 1350.00

Academic: € 2200.00

Commercial: € 3250.00

*To be eligible for student prices, participants must provide proof of their full-time student status for the current academic year. Residential costs for full time students are completely sponsored by TStat Training through our **Investing in Young Researchers Programme**. Participation is however restricted to a maximum of 3 students.

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 full-time students and €250.00 for Academic and Commercial participants, is required to secure a place and is payable upon registration. The number of participants is limited to 15. Places will be allocated on a first come, first serve basis.

Course fees cover: i) teaching materials (copies of lecture slides, databases and Stata routines used during the summer school; ii) a temporary licence of Stata valid for 30 days from the day before the beginning of the school; iii) half board accommodation (breakfast, lunch and coffee breaks) in a single room at the CISL Studium Centre or equivalent (6 nights for entire school, 5 nights for Modules B). Participants requiring accommodation the night of the final day of the school, are requested to contact us as soon as possible.

To maximize the usefulness of this summer school, 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 summer school must return their completed registration forms by email (training@tstat.eu) to TStat by the **1st August 2020**.

Further details regarding our registration procedures, including our commercial terms and conditions, can be found at <https://www.tstattraining.eu/training/program-evaluation-action/>

COURSE LEADERS

Dr. Una-Louise BELL
TStat Training ! TStat S.r.l.

Dr. Giovanni CERULLI
National Research Council of Italy

Dr. Roberto GABRIELE
University of Trento

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