

## Preliminary Microeconomic measurement and analysis training program

This five-day workshop is part of the “PEP support program”. Its aim is to provide potential supported research teams with micro-econometric tools that will prove useful to conduct their project. The course will cover topics that will also be useful in future research endeavours.

### Description

The workshop begins by reviewing basic econometric models. Topics such as endogeneity issues and instrumental variables estimators will be covered. Qualitative models such as probit, logit, tobit, etc. will next be reviewed. The first part of the workshop will end with a review of bootstrapping techniques.

The second part of the workshop will build upon previously covered material but will focus on particular techniques that can be used to address endogeneity or selectivity issues: Difference-in difference estimators (OLS, Tobit, etc.), Propensity score matching, regression-discontinuity design, etc.

Classroom presentations will be held in the morning. The afternoons will be devoted to laboratory training.

### Course Outline

#### Thursday May 2: REVIEW OF STANDARD LINEAR AND QUALITATIVE MODELS

9:00-10:30 Theory:

- Endogeneity in the linear regression model, IV and GMM estimation
- Difference in difference models
- Qualitative dependent variables modeling:
  - Dichotomous dependent variables, the standard probit (normit and logit) model(s)

10:30-11:00 Coffee break.

11:00-12:30 Theory:

- Ordinal dependent variable, the ordinal probit model
- Nominal dependent variable, the multinomial logit model
- Special topics: Goodness of fit and endogeneity in the probit model (ivprobit)

12:30-2:00 Lunch.  
2:00-3:30 Introduction to STATA  
3:30-3:45 Coffee break.  
3:45-4:30 Lab work

### **Friday May 3: MORE ADVANCED TOPICS**

9:00-10:30 Theory:

- Modeling count data, the poisson model
- Special topics: Bootstrap techniques

10:30-11:00 Coffee break.  
11:00-12:30 Special topics: Implementing a two stage estimation (IV) stata command for bootstrap purposes  
12:30-2:00 Lunch.  
2:00-3:30 Lab work  
3:30-3:45 Coffee break.  
3:45-4:30 Lab work

### **Saturday May 4: THE FUNDAMENTAL PROBLEM OF PROGRAM EVALUATION**

9:00-10:30 Theory:

- Causal Inference and counterfactuals.
- Selection bias
- Attrition bias
- Experimentation as a solution

10:30-11:00 Coffee break  
11:00-12:30 Theory: Solutions

- Before-After estimators
- Two-step Heckman model
- Instrumental variables estimators

12:30-2:00 Lunch  
2:00-3:30 Lab work: Getting familiarize with the data and Stata programs

3:30-3:45 Coffee break

**Sunday May 5:** PROPENSITY SCORE MATCHING

9:00-10:30 Theory: Propensity score matching (probit, logit, hazard, bootstrap)

10:30-11:00 Coffee break

11:00-12:30 Theory: Essential heterogeneity models

12:30-2:00 Lunch

2:00-3:30 Lab work: PSCORE, PSMATCH2, etc.

3:30-3:45 Coffee break

3:45-4:30 Lab work: ATT and HET packages

**Monday 6:** REGRESSION DISCONTINUITY DESIGN

9:00-10:30 Theory: Fuzzy vs Sharp designs

10:30-11:00 Coffee break

11:00-12:30 Theory: Examples from the literature

12:30-2:00 Lunch

2:00-3:30 Lab work: RD package

3:30-3:45 Coffee break

3:45-4:30 Lab work: World Bank Stata programs

**Instructors**

Jorge Dávalos, Guy Lacroix

**Requirements**

1. In preparation for Days 1–2 of the training course, participants must read Chapters 4, 11, 14, 16, and 20 of Cameron and Trivedi, *Microeconometrics: Methods and Applications*.
2. In preparation for Days 3-5, participants are expected to have read chapters 1–9 of the document entitled "Impact Evaluation in Practice". The document is available in French, Spanish and in English.
3. Stata ado files and data files are available here in a ZIP archive. They should be downloaded and installed prior to arrival in Cape Town.



The workshop will be held in English, but participants are free to ask questions in French or Spanish. For the benefit of all, instructors will respond in English. A companion Web site will be made available to participants.

Last update: April 2, 2013.