partnership for economic policy pep

# Preliminary PMMA training program

This four-day training 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, logic, tobit, *etc.* will next be reviewed. The first part of the workshop will end with a review of advanced microeconometric techniques (CMP Stata package).

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

**Wednestday April 30:** 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

**Thursday May 1:** 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 model (IV) and the CMP approach

12:30-2:00 Lunch.

2:00-3:30 Lab work

3:30-3:45 Coffee break.

3:45-4:30 Lab work

**Friday May 2:** 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 Theory: Propensity score matching

3:30-3:45 Coffee break

3:45-4:30 Lab work: Getting familiarized with Stata procedures

**Saturday May 3:** PROPENSITY SCORE MATCHING

9:00-10:30 Theory: Propensity score matching (continued)

10:30-11:00 Coffee break

11:00-12:30 Lab work: PSCORE, PSMATCH2, *etc.*

12:30-2:00 Lunch

2:00-3:30 Theory: Regression discontinuity design

- Fuzzy *vs* Sharp designs
- Essential heterogeneity models
- Examples from the literature

3:30-3:45 Coffee break

3:45-4:30 Lab work: RD packages

## 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. The chapters are available here as a single PDF file.

2. In preparation for Days 3–4, 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 Santa Cruz.

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. An accompanying Web site is also available. Please consult it from time to time as it will be updated regularly. The web site will be used to provide additional information if necessary.

Last update: April 18, 2014.