

Workshop
**Generalized Propensity Score Matching
and its Implementation in Stata**

LECTURER

Michela Bia, Ph.D.
(LISER)

DATE AND TIME

November 30, 2016
9:00 – 17:00 (s.t.)

VENUE

University of Potsdam
Campus Griebnitzsee
House 7, Room 241

About the Workshop

This workshop examines advanced techniques for causal inference, with a focus on generalized propensity score based methods. Much of the work on propensity score analysis has focused on the case where the treatment is binary, but in many empirical studies, treatments may take on many values, implying that participants in the study may receive different treatment levels. In such cases, focus is on assessing the heterogeneity of treatment effects arising from variation in the amount of treatment exposure, that is, on estimating a dose-response function (DRF). In this workshop we build on the work by Hirano and Imbens (2004), who introduced the concept of the Generalized Propensity Score (GPS) and employed it to estimate the DRF of a continuous treatment, within the potential outcome approach to causal inference (Rubin 1974, 1978). In particular, we will focus on parametric (Hirano and Imbens, 2004; Bia and Mattei, 2008) and semiparametric techniques (Bia, Flores-Lagunes, Flores and Mattei, 2014) to estimate the DRF.

- Introduction to the theory (potential outcome approach, generalized propensity score based methods)
- Applications to real data using Stata
- Round table and open discussion

Prerequisites

Participants are assumed to be familiar with descriptive and inferential statistics. They should have statistical and statistical software background (e.g. Stata and R softwares). This course will use Stata as the main software package.

Registration

Please register for participation by writing an E-Mail to pohle@empwifo.uni-potsdam.de by November 25, 2016, at the latest. The maximal number of participants will be 20. Students and researchers from all Universities in Brandenburg and Berlin are welcome, but PCQR members and their staff take precedence.

About The Lecturer

Michela Bia is currently Team Leader of the “Program Evaluation Research Unit” of the Platform “Transversal Coordination” at the Luxembourg Institute of Socio-Economic Research (LISER). She received a Ph.D. in Applied Statistics from the University of Florence in 2007, and worked from 2007 to 2009 as researcher at Laboratorio Revelli of Collegio Carlo Alberto in Turin. She has been teaching statistics and econometrics at the University of ‘Piemonte Orientale’, Turin, Milan, and Pompeu Fabra University. In 2010, she received a Post-Doc Position at LISER supported by the Fond National de la Recherche, (FNR) of Luxembourg, to develop semiparametric and nonparametric techniques for the estimation of direct and indirect causal effects in policy evaluation. Her main fields of interest are Causal Inference, Program Evaluation, Nonparametric Methods, and Labour Market. Her works have been published in *The Stata Journal*, *Statistical Methods and Applications*, and *Advances in Latent Variables*. The corresponding softwares developed are downloadable from the Boston College Department of Economics. She has been recently awarded a European Social Fund (ESF) project for the “Evaluation of Active Labour Market Policies in Luxembourg” (covered period: October 2015-July 2018).

Links to further information about the lecturer: <https://www.liser.lu/?type=module&id=22&tmp=389> and about the project: <http://michelabia.weebly.com/competitive-fund.html>.

References

- Bia M., Flores C., Flores-Lagunes A., Mattei A. 2014. A Stata package for the application of semiparametric estimators of dose-response functions. *Stata Journal*, 14, 580-604.
- Bia M., and A. Mattei. 2008. A Stata Package for the estimation of the dose-response function through adjustment for the generalized propensity score. *Stata Journal* 8, 354-373.
- Hirano K., and G. W. Imbens. 2004. The Propensity Score with Continuous Treatments. In *Applied Bayesian Modeling and Causal Inference from Incomplete-Data Perspectives*, ed. A. Gelman and X.-L. Meng, 73-84.
- Rubin D. B. 1974. Estimating causal effects of treatments in randomized and nonrandomized studies. *Journal of Educational psychology* 66, 668-701.
- Rubin D. B. 1978. Bayesian inference for causal effects: the role of randomization. *The Annals of Statistics* 6, 34-58.