SPS Seminar 2ⁿᵈ term 2018-2019

Causal Inference

Organizer: Professor Elias Dinas

Register online

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Description

Either explicitly or implicitly, the goal of most empirical research is to interpret causally the co-occurrence of interesting phenomena. Addressing causality, however, has been notoriously difficult without the luxury of experimental data. This course will introduce you to an authoritative framework of causal inference in social sciences, i.e. the potential outcomes framework. This framework will be the basis to then examine in detail a set of methods that allow you to make convincing causal claims without working with experimental data. We will look at three such designs:

1. Instrumental Variables;
2. Regression Discontinuity Design; and
3. Difference-in-Differences estimation.

We will also look at a fourth estimation method, which, similar to regression, assumes that selection is conditional on observables: Matching. It differs from regression in ways that make it valuable and helpful, as we will explain in the course.

For every method, the following structure will be employed: first, a running example from the literature will provide the motivation and intuition. We will then proceed with the formal identification derivation and finally we will focus on estimation strategies and robustness checks. For each method there will be a hands-on lab section, where we will apply these methods with real data. We will use both R and Stata throughout.

We will also delve into non-standard approaches to inference and we will specifically look at:
a) how to address the problem of clustering;
b) boostrapping techniques; and
c) randomization inference.

Finally, we will spend two hours on synthetic control methods. We will also look briefly at mediation analysis, trying to illustrate why it is more difficult than it seems at first sight. Specific examples and readings will be provided for this section.

Schedule

Tuesday	8 January	16:00-18:00	Seminar Room 2
Thursday	10 January	15:00-19:00	Seminar Room 2
Friday	11 January	13:00-17:00	Seminar Room 2
Tuesday	15 January	15:00-17:00	Seminar Room 2
Thursday	17 January	15:00-19:00	Seminar Room 2
Friday	18 January	13:00-17:00	Seminar Room 2

Main texts:
Angrist, Joshua and Jörn-Steffen Pischke. 2009. Mostly Harmless Econometrics: An Empiricist's Companion. Princeton: Princeton University Press.

Secondary texts:
Angrist, Joshua D., and Jörn-Steffen Pischke. 2014. Mastering 'Metrics: the path from cause to effect. Princeton University Press.

Morgan, Stephen L. and Christopher Winship. 2007. Counterfactuals and Causal Inference: Methods and Principles for Social Research. Cambridge: Cambridge University Press.

Gerber, Alan S. and Donald P. Green. 2012. Field Experiments. London: Norton.

These books can be found on the reserved shelf of the EUI library or via electronic access

Design-specific articles and papers will be provided during the course.

Assessment:
Replicate one design-specific paper or use your own data to implement one of the methods we will learn. Deadline will **be three weeks since the end of the course**.