SYLLABUS: BAVARIAN GRADUATE PROGRAM IN ECONOMICS

Causal Effects in Applied Economics: March 13-18, 2022

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Goal: Familiarize participants with the theory and application of modern econometric evaluation techniques, including guided lab sessions (Stata). [I do not mind if you want to use R, but I will illustrate things in Stata.]

Applications shown in class will be mainly drawn from Economic History, Political Economy and Labour Economics. But the methods are useful across the full range of Economics sub-fields.

LECTURE NOTES will be provided

Background: I will assume a working knowledge of probability and statistics – including manipulations involving conditional expectations and the basic limit theorems, such as the law of large numbers and the central limit theorem. Underlying the statistical properties is matrix algebra and multivariable calculus, including how these are combined with probability. I will not emphasize derivations but some of the material is easier to follow if you have facility with matrix algebra. I will also assume that are familiar with ordinary least squares (OLS) regressions and have some very basic idea of instrumental variables (IV) estimation.

Sunday, March 13, 2022

19:00 Welcome Meeting/Dinner

Monday-Thursday Daily Schedule:

8:00-9:00 Breakfast

9:00-10:30 First Session (Lecture)

10:30-11:00 Coffee Break

11:00-12:30 Second Session (Lecture)

12:30-14:00 Lunch

14:00-15:30 Third Session (Lecture)

15:30-16:00 Coffee Break

16:00-17:30 Fourth Session (Lecture/Problem Session)

17:30 -19:00 Free Time

19:00 Dinner
Friday 18th March Schedule:

8:00-9:00 Breakfast
9:00-10:30 First Session (Lecture)
10:30-11:00 Coffee Break
11:00-12:30 Second Session (Lecture)
12:30-13:30 Lunch
13:30-15:00 Third Session (Lecture/Problem Session)

Format of sessions:
Some sessions will review the theoretical background, other sessions will deal with (re-) estimation of published papers and understanding the identification strategy and how it is implemented in Stata code. We will re-estimate some classical papers as well as more recent work, some of which covers less commonly used material (e.g. synthetic control groups, basic machine learning) which turns out to be useful in various contexts. A potential list of papers to be covered, sorted by “method”:

**Instrumental-variables estimation:**

**main paper for Stata analysis:**
http://qje.oxfordjournals.org/content/124/2/531.short

**additional reading(s):**
http://www.jstor.org/stable/2117766

http://www.nber.org/papers/w4483

**Difference-in-differences:**

**main paper for Stata analysis:**
http://www.jstor.org/stable/29730152

More recent developments (still need to decide how much to cover): https://asjadnaqvi.github.io/DiD/docs/reading/04_literature/

**Propensity Score Matching:**

main paper for Stata analysis:

additional reading(s):

**Regression-Discontinuity Design:**

main paper for Stata analysis:

additional reading(s):


**Synthetic Control Groups:**

main paper for Stata analysis:

additional reading(s):
Basic machine learning:

main paper for Stata analysis:
https://doi.org/10.1093/epolic/eix012

(If time permits) Bounding:

bounding for regression analysis:


bounding for matching estimates:
http://www.stata-journal.com/article.html?article=st0121