Advanced Research Design (ARD)

Seminar, 2nd term 2018-2019

Organised by Fabrizio Bernardi

Please register online

Contact: Jennifer.Dari@EUI.eu

Course Outline
This course is primarily meant for researchers who want to develop causal hypotheses in their prospectus and want to learn how to put them to the test. The course touches on a series of designs suitable for identifying causal relations rather than correlations, including natural experiments, regression discontinuity, Diff-in-Diff, instrumental variables and siblings and twins designs. The readings offer many applications of these designs aimed at spurring participants’ imagination.

The reference texts for the seminar are:
- Thad Dunning, Natural experiments in the social sciences. A design based approach. CUP 2012 http://biblio.eui.eu/record=b1759366~S5

Classes and topics:
- Week 1: introduction to cause seeking designs & practical arrangements [8 January]
- Week 2: potential outcome framework and directed acyclic graphs [15 January, FB]
- Week 3: Endogenous selection bias or the problem of colliders [22 January, FB]
[from week for 4: presentations and response papers]
- Week 4: difference in difference [29 January]
- Week 5: natural experiments [5 February]
- Week 6: unexpected events during survey design [12 February]
- Week 7: regression discontinuity [26 February]
- Week 8: instrumental variables [5 March]
- Week 9: twins and siblings [12 March]
- Week 10: caveats and implication analysis [22 March]

Requirements
In order to obtain the 20 credits participants, in addition to attending regularly, are required:

1) to give a class presentation on an application of one of the research designs discussed in the course. Ideally this presentation is linked to your research. I expect a clear exposition of the research question, the challenges to causal identification and the core assumptions of the research
design and a preliminary discussion of the data. I do not expect results (that could come later in the form of a non compulsory term paper).

2) from Week 4 onward, to prepare brief comments (about 1 page) on at least two of the recommended readings for each session. These comments should contain ideas on how to apply the designs presented in each week’s readings to your research questions or to research questions in your field of research or ideas on how to replicate the same designs to other data or settings. These comments should be posted on the course folder by the Sunday preceding the class. A selection of these comments will be discussed in class.

3) to make the short assignments for Week 1 and 3 and post them on the course folder by the Sunday preceding the class.

Schedule
The seminar takes place on Tuesdays at 11:00-13:00, in Seminar Room 4 in the Badia, and will run from Tuesday 8 January to Tuesday 12 March (note no class on the 19th of February). The full list of the seminar sessions is the following:

| Session 1: Tuesday 8 January | 11:00 – 13:00 | Seminar Room 4 |
| Session 2: Tuesday 15 January | 11:00 – 13:00 | Seminar Room 4 |
| Session 3: Tuesday 22 January | 11:00 – 13:00 | Seminar Room 4 |
| Session 4: Tuesday 29 January | 11:00 – 13:00 | Seminar Room 4 |
| Session 5: Tuesday 5 February | 11:00 – 13:00 | Seminar Room 4 |
| Session 6: Tuesday 12 February | 11:00 – 13:00 | Seminar Room 4 |
| Session 7: Tuesday 26 February | 11:00 – 13:00 | Seminar Room 4 |
| Session 8: Tuesday 5 March | 11:00 – 13:00 | Sala del Capitolo |
| Session 9: Tuesday 12 March | 11:00 – 13:00 | Seminar Room 4 |
| Session 10: Friday 22 March | 13:00 – 15:00 | Seminar Room 2 |

SYLLABUS (please note that the reading list may still be subject to change)
Week 1. Introduction to cause seeking designs & practical arrangements (Tuesday 8 January 2019)

Compulsory readings


Other readings


Assignment

I expect you to do the compulsory readings in the syllabus for class 1 during the Christmas break, and to send Jennifer by the previous Sunday night a page or so presenting the research question of your dissertation (or one sub-question derived from it, or one new question you are interested in) and then following Angrist & Pischke fundamental prescription that you find in their chapter 1: imagining you are in a world with no constraints – ethical, financial, temporal etc, -- can you conceive an ideal experiment that could answer that question?”
Week 2. Potential outcome framework and - Fabrizio Bernardi (Tuesday 15 January 2019)
A whiteboard (old fashion presentation)

Compulsory reading


Other readings (Optional)


Week 3. Endogenous selection bias or the problem of colliders (Tuesday 22 January 2019)


Other readings


Assignment

Read the two compulsory reading and one among other readings of your choice. Look for an example of an article in your research area that controls for a collider (“who is without sin cast the first stone”..). Wrote a short comment (1 page) and represent the causal structure of the problem using a graphical causal model.
Week 4. Difference in difference and synthetic cohorts (Tuesday 29 January 2019)

**Introduction**


**Other readings (for comments)**


**Guide to practice**
http://scunning.com/mixtape.html
Week 5. Natural experiments (Tuesday 5 February 2019)


**Other readings (for comments)**


Week 6: Unexpected Event during survey design (Tuesday 12 February 2019)

Jordi Muñoz, Albert Falcó-Gimeno and Enrique Hernández (2018), Unexpected Event during Surveys Design: Promise and Pitfalls for Causal Inference, unpublished manuscript

**Other readings**


Week 7. Regression discontinuity (Tuesday 26 February 2019)


**Other readings (for comments)**


**Guide to practice**

Week 8: Instrumental variables (Tuesday 5 March 2019)

Firebaugh, G. p. 153-158


Thad Dunning, *Natural experiments in the social sciences. A design based approach*. CUP 2012 http://biblio.eui.eu/record=b1759366~S5 Chapter 4 87-102

A cartoon (for fun) http://www.facebook.com/manucartoons/photos/a.272391142801786.66184.108300902544145/27239179468449/?type=3&theater

Other readings (for comments)


**Week 9. Twins and siblings (Tuesday 12 March 2019)**

Firembaugh, G. 131-145


**Other readings (for comments)**


Week 10. Implication analysis (Friday 22 March 2019)


Other readings

Durkheim E. 1897. Suicide. [The whole book is a great read. It relies on implications which Durkheim derives from various conjectures on what might be causes of suicide; read especially chapter 4, on Imitation] [In the original French the book can be found here http://www.gutenberg.org/ebooks/40489; in English here http://archive.org/details/suicidestudyinso00durm]


http://themonkeycage.org/2013/06/14/is-theory-getting-lost-in-the-identification-revolution

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