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## ADVANCED ECONOMETRICS FOR BUSINESS STUDIES

Period: a.y. 2023/24 – II sem.

Instructor:  
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### Course description

The use of empirical methods in management research has seen a tremendous increase in the past two decades. Hence, it is growingly important for PhD students to master a varied toolkit of empirical methods to analyze their research questions, and critically read others' research. Building on and expanding knowledge acquired in previous methodological courses in the BA&M PhD program, the goal of this course is to dive into the problem of causal inference, and learn the main empirical methods useful to discern the direction of causality in management research. In particular, the course will cover: (i) review of basic principles of inference and linear regression models; (ii) theory of the main techniques aimed at uncovering causality (and the main challenges to this end); (iii) exercises and data applications. The reading list includes selected chapters of Angrist & Pischke (2009) "Mostly harmless econometrics", and a number of academic articles.

### Class format and teaching approach

Sessions are based on a combination of teaching covering the basic methods, and class discussions of the assigned articles (marked with \* in the reading list below). The discussion on each paper will start with a short presentation by some of the students, and will be followed by a joint discussion on the empirical approaches adopted to tackle the research question of the paper. Collectively, the goal of the course is to acquire a solid understanding of a number of empirical methods, and develop a critical understanding of their strengths and limitations. Furthermore, in order to improve the ability to use data, students will be asked to solve data assignments.

### Evaluation and grading policy

Students will be evaluated according to the following criteria:

<b>Course requirements</b>	<b>Weight</b>
Final written exam	33%
Data assignments	33%
Paper presentation and class discussions	33%

## Sessions and readings

### The problem of causality

- **Causal framework**
  - Angrist & Pischke (2009): Chapter 2
- **Experimental approaches**
  - TBD

### Instrumental variable regressions

- **Properties of IVs, and estimation strategy**
  - Angrist & Pischke (2009): Chapter 4
  - TBD

### Differences-in-differences

- **General framework**
  - Angrist & Pischke (2009): Chapter 5
  - Flammer C., Ioannou I. 2020. Strategic management during the financial crisis: How firms adjust their strategic investments in response to credit market disruptions. *Strategic Management Journal* \*
  - TBD
- **Recent Advances**
  - TBD

### Computing standard errors

- Angrist & Pischke (2009): Chapter 8
- Bertrand M., Duflo E., Mullainathan S. 2004. How much should we trust differences-in-differences estimates? *Quarterly Journal of Economics*
  - Abadie A., Athey S., Imbens G., Wooldridge J. 2023. When should you adjust standard errors for clustering? *Quarterly Journal of Economics*

### Synthetic control method

- Abadie A. 2020. Using synthetic controls: Feasibility, data requirements, and methodological aspects. *Journal of Economic Literature*
  - Connelly B., Li Q., Shi W., Lee K.B. 2020. CEO dismissal: Consequences for the strategic risk taking of competitor firms. *Strategic Management Journal* \*

### Regression discontinuity design

- Angrist & Pischke (2009): Chapter 6
- Bradley D., Kim I., Tian X. 2017. Do unions affect innovation? *Management Science* \*



### **Quantile, multinomial and count models**

- **Quantile regressions**

- Angrist & Pischke (2009): Chapter 7
- Levine R., Rubinstein Y. 2017. Smart and illicit: Who becomes an entrepreneur and do they earn more? *Quarterly Journal of Economics* \*

### **Alternative methods**

- **Machine learning**

- Bandiera O., Prat A., Hansen S., Sadun R. 2020. CEO behavior and firm performance. *Journal of Political Economy* \*

<b>Faculty bio</b>
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Miguel Espinosa is Assistant Professor at Bocconi University, and Research Affiliate at CEPR, CESifo and LEAP. He received a PhD in Economics from the London School of Economics. His work has appeared in leading journals such as *Econometrica* and *Management Science*.