CES LECTURES

Professor Steve Pischke

London School of Economics and Political Science (LSE)

Gives a series of lectures on

Topics in Causal Inference

1 Regression Basics – How to Specify Causal Regressions?

2 Welcome to the Machine – Machine Learning for Causal Inference

3 Timing is Everything – Harvesting Event Study Evidence

Dates: Tuesday, 15/04/2025, 10:15 – 11:45

Wednesday, 16/04/2025, 10:15 – 11:45

Thursday, 17/04/2024, 10:15 – 11:45

Location: ~~CES, Schackstr. 4, 2nd floor, seminar room (214)~~

new location: A120, Geschwister-Scholl-Platz 1, LMU main building

Registration for PhD and MQE students: For an official recognition and confirmation of participation of the lecture in your transcript, registration at My ECONPAS the CES Lectures is mandatory. Please adhere to the registration deadline for this course as no registration is possible after this date.
If you cannot register at MyECONPAS please contact the MGSE PhD Office mgse-phd@econ.lmu.de.

CES Lectures 15.-17. April 2025

Topics in Causal Inference

Jörn-Steffen Pischke

Lecture 1: Regression Basics – How to Specify Causal Regressions

> This lecture will review the basic concepts of omitted variables bias, measurement error, bad controls and uncorrelated covariates, and robustness checks in the context of causal regression models.

Lecture 2: Welcome to the Machine – Machine Learning for Causal Inference

> This lecture will introduce basic machine learning concepts and discuss whether these methods are helpful for causal regression modelling.

Lecture 3: Timing is Everything – Harvesting Event Study Evidence

> This lecture discusses the rich event-study models that have become the workhorse of differences-in-differences analysis. It scrutinises recent advances in the methodological literature focusing on model specification, attention to the validity of the parallel trends assumption, some healthy scepticism about DD standard errors, and the potential perils of heterogeneity.

Reading List

Lecture 1:

J.D. Angrist and J.S. Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion*, Princeton University Press, 2009, chapter 3

Griliches, Z., "Estimating the Returns to Schooling - Some Econometric Problems," *Econometrica*, vol. 45, January 1977, 1-22

Z. Pei, J.S. Pischke and H. Schwandt, "Poorly Measured Confounders are More Useful on the Left Than on the Right," *Journal of Business and Economic Statistics*, vol. 37, 2019, 205-216.

Lecture 2:

Mullainathan, S. and J. Spiess, "Machine Learning: An Applied Econometric Approach," *Journal of Economic Perspectives*, vol. 31, 2017, 86-106.

Belloni, A, V. Chernozhukov, and C. Hansen, "High-Dimensional Methods and Inference on Structural and Treatment Effects," *Journal of Economic Perspectives*, vol. 28, May 2014, 29-50.

Belloni, A, V. Chernozhukov, and C. Hansen, "Inference on Treatment Effects after Selection among High-Dimensional Controls," *Review of Economic Studies*, vol. 81, 2014, 608–650.

Chernozhukov, V. et al, "Double/Debiased Machine Learning for Treatment and Structural Parameters," *Econometrics Journal*, vol. 21, 2018, C1–C68.

Angrist, J. D., and B. Frandsen. "Machine Labor." *Journal of Labor Economics*, vol 40(S1), 2022, S97–S140.

Lecture 3:

Wolfers, J., "Did Unilateral Divorce Laws Raise Divorce Rates? A Reconciliation and New Results," *American Economic Review*, vol. 96, 2006, 1802-1820.

Kirill Borusyak, Xavier Jaravel, Jann Spiess, Revisiting Event-Study Designs: Robust and Efficient Estimation, *The Review of Economic Studies*, Volume 91, Issue 6, November 2024, 3253–3285

Roth, Jonathan. "Pretest with Caution: Event-Study Estimates after Testing for Parallel Trends." *American Economic Review: Insights*, 4(3), 2022, 305–22.