35854   Natural and Field Experiments

module number
35854
module title
Natural and Field Experiments
module coordinator
Prof. Dr. Stefan Bauernschuster

examination number	credit points (ECTS)	hours per week (SWS)
271100, 03-12-VL-002	5	2+2
availability	**duration**	**recommended semester**
Every winter semester	1 semester	1

workload
Lecture 2 SWS (30 hours class instruction; 45 hours self-study) Uebung 2 SWS (30 hours class instruction; 45 hours self-study) Calculation is based on: every hr./sem.-week corresponds to 60 minutes. One semester is presumed to be 15 weeks, i.e. 14 course + 1 exam week
module applicability
Modulgruppe A: Core Courses
reference to the LPO I
recommended requirements
Solid knowledge in (undergraduate) statistics/econometrics
obligatory requirements
language
English

content
This course provides an introduction to applied microeconometric program evaluation and thereby creates a valuable basis for understanding a wide range of empirical work not only in economics but also in management, sociology, or political science. Understanding how specific policies/historical events/institutions affect human beings is at the very heart of empirical research in social sciences. Although these questions appear universally, the answers are complicated by the fact that the clean identification of cause and effect goes far beyond the demonstration of naive correlations. This course introduces empirical methods that explicitly aim at distinguishing naive correlation from actual causation. Among the methods discussed are fixed effects strategies, difference-in-differences approaches, instrumental variable techniques, regression discontinuity designs, and field experiments with random assignment to treatment. After a theoretical introduction to the respective methods, seminal empirical research papers applying these methods are discussed in detail. These research papers improve our understanding of how we can apply microeconometric techniques to answer policy relevant questions in a causal way.

Table of contents:
Chapter 1: The experimental ideal Chapter 2: Regression, correlation, and causality Chapter 3: Fixed effects Chapter 4: Difference-in-differences Chapter 5: Instrumental variables Chapter 6: Regression Discontinuity Designs Chapter 7: Field experiments

intended learning outcomes (ILOs)

Students who have successfully participated in "Natural and Field Experiments" are able to

- distinguish between naïve correlations and causal effects
- recognize the importance of the clean identification of cause and effect for policy advice
- understand microeconometric techniques tailored for estimating causal effects and explain their main features and key identifying assumptions
- use this knowledge to critically evaluate the validity of the methods in a variety of applied empirical research papers and discuss them with their peers
- apply quasi-experimental methods to sample data sets and perform microeconometric analyses using Stata

teaching methods

Classroom lecture with interactive elements (Vorlesung mit Seminarcharakter)
Uebung with tutorials and student presentations

required attendance

examination (type of examination, scope)

Final exam (90 minutes)
or portfolio (final exam (90 minutes) and oral presentation)

overall grade relevance

100% final exam or 80% final exam and 20% oral presentation

possibility of retake exam

reading list

- Angrist, J. (1998), Estimating the Labor Market Impact of Voluntary Military Service Using Social Security Data on Military Applicants, Econometrica, 66(2), 249-288.
- Angrist, J. (1990), Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records, American Economic Review, 80(3), 313-336.
- Angrist, J. & Krueger A. (1991), Does Compulsory School Attendance Affect Schooling and Earnings? Quarterly Journal of Economics, 106(4), 979-1014.
- Angrist, J., Pischke, J.-S. (2009), Mostly Harmless Econometrics, Princeton & Oxford: Princeton University Press .
- Angrist, J., Pischke, J.-S. (2015), Mastering Metrics, Princeton & Oxford: Princeton University Press.
- Ashenfelter, O. & Krueger, A. (1994), Estimates of the Economic Returns to Schooling from a New Sample of Twins, American Economic Review, 84(5), 1157-1173.
- Bauernschuster, S., Hener, T., Rainer, H. (2017), When Labor Disputes Bring Cities to a Standstill: The Impact of Public Transit Strikes on Traffic, Accidents, Air Pollution and Health, American Economic Journal: Economic Policy, 9 (1), 1-37.
- Becker, S. & Wößmann, L. (2009), Was Weber Wrong? A Human Capital Theory of Protestant Economic History, Quarterly Journal of Economics, 124(2), 531-596.
- Bound, J. & Solon, G. (1999), Double Trouble: On the Value of Twins Based Estimation of the Return to Schooling, Economics of Education Review, 18, 169-182.

- Card, D. & Krueger, A.B. (1994), Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania, American Economic Review, 84(4), 772-793.
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- Cunningham, S. (2021), Causal Inference: The Mixtape, New Haven: Yale University Press.
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- Goodman-Bacon, A. (2021), Difference-in-Differences with Variation in Treatment Timing, Journal of Econometrics, 225(2), 254-277.
- Harrison, G., List, J. (2004), Field Experiments, Journal of Economic Literature, 42(4), 1009-1055.
- Havnes, T., Mogstad, M. (2011), Money for Nothing? Universal Child Care and Maternal Employment, Journal of Public Economics, 95(11-12), 1455– 1465.
- Imbens, G., Lemieux, T. (2008), Regression Discontinuity Designs: A Guide to Practice, Journal of Econometrics, 142- 615-635.
- Lalive, R. (2008), How do Extended Benefits Affect Unemployment Duration? A Regression Discontinuity Approach, Journal of Econometrics, 142, 785-806.
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- LaLonde, R. (1986), Evaluating the Econometric Evaluation of Training Programs with Experimental Data, American Economic Review, 76(4), 604- 620
- Lemieux, T., Milligan, K. (2008), Incentive Effects of Social Assistance: A Regression Discontinuity Approach, Journal of Econometrics, 142, 807- 828.
- Levitt, S., List, J. (2009), Field Experiments in Economics: The Past, the Present, and the Future, European Economic Review, 53(1), 1-18.
- List, J. (2006), Field Experiments: A Bridge between Lab and Naturally Occurring Data, Advances in Economic Analysis & Policy, 6(2), Art.8.
- List, J. (2011), Why Economists Should Conduct Field Experiments and 14 Tips for Pulling One Off, Journal of Economic Perspectives, 25(3), 3-16.
- Miguel, E., Kremer, M. (2004), Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities, Econometrica, 72(1), 159-217.
- Nakagawa, A., Grunebaum, M., Ellis, S., Oquendo, M., Kashima, H., Gibbons, R., Mann, J. (2007), Association of Suicide and Antidepressant Prescription Rates in Japan, 1999–2003, Journal of Clinical Psychiatry, 68(6), 908-916.
- Sun, L. & Abraham, S. (2021), Estimating Dynamic Treatment Effects in Event Studies with Heterogeneous Treatment Effects, Journal of Econometrics, 225(2), 175-199.
- Yeh, R., Valsdottir, L., Yeh, M., Shen, C., Kramer, D., Strom, J., Secemsky, E., Healy, J. Domeier, R., Kazi, D., Nallamothu, B. (2018), Parachute Use to Prevent Death and Major Trauma when Jumping from Aircraft: Randomized Controlled Trial, British Medical Journal, 363:k5094.

additional notes

Exam question can be answered in English or German