

Seminar

Difference-in-Differences Methods for Impact Assessment Analyses: A Replication Seminar for Bachelor Students

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1 Outline

The difference-in-differences (diff-in-diff) approach is one of the most commonly used empirical methods for impact assessment analyses. The idea is to compare the difference in an outcome variable between a treatment and a control group over time. In addition to the classical 2-groups-2-time-periods regression framework, the more flexible two-way-fixed-effects (TWFE) model is often used. However, researchers have recently questioned the use of TWFE estimation and the interpretation of the estimated coefficient of interest (the treatment effect) in the context of specific diff-in-diff setups, in which there is, for example, variation in treatment timing. Accordingly, the aim of this seminar is to learn about the new developments in diff-in-diff analyses, to explore the opportunities and limits of these methods, and to discuss potential settings in which the innovations from the theoretical diff-in-diff literature can be applied.

2 General Issues

This course addresses bachelor's students of Business Administration, Economics, Internationale Wirtschaft und Entwicklung, and Philosophy & Economics.

The course will focus on the reproduction and discussion of a selection of papers using a difference-in-differences approach. It consists of an **obligatory introductory meeting on 26 October 2023 (9 am – 12 pm)**, some compulsory reading in preparation for the presentations, two days of **student presentations on 15 and 16 December 2023**, and a graded term paper.

Interested students are asked to **sign up** by sending an email to Sandra Hörath (vwl6@uni-bayreuth.de) by **20 October 2023**, indicating their previous knowledge in statistics and empirical economics as well as their three preferred topics.

For further questions concerning course details, please contact Miriam Frey-Knoll (miriam.frey@uni-bayreuth.de) or Mario Larch (mario.larch@uni-bayreuth.de).

3 Requirements and Assessed Course Work

Requirements

In order to participate in the course, interest in and good knowledge of empirical economics is expected.

Assessed Course Work

The assessed course work consists of a term paper in which you reproduce and critically discuss the results of your topic. The student presentations in December will cover the same topics as the term papers.

The date of submission of the term paper will be 31 March 2024 (of course, an earlier submission is possible at any time).

Language and Formal Requirements

The language of the course (and hence your presentation and presentation slides) is English. Also, all the literature is in English. Your term paper can be written in German or in English, even though we suggest to write it in English. For more details concerning the formal requirements of the written assignments, please see the style sheet available at our chair's website in German (Formatierungshinweise für Seminar -und Abschlussarbeiten) and in English (Formal requirements for term papers and Bachelor's/Master's theses).

4 Target Group

The course addresses students from the following degree courses:

- Economics (BA): as “Empirisches Seminar”.
- Internationale Wirtschaft und Entwicklung (BA): as “Vertiefung Empirie und Theorie”.
- Philosophy and Economics (BA): as “E6: Economics Seminar”.

5 Reading List

As useful general background, we provide the following reading list:

- Angrist, Joshua D. and Jörn-Steffen Pischke (2009): *Mostly Harmless Econometrics - An Empiricist's Companion*. Chapter 5: “Parallel Worlds: Fixed Effects, Difference-in-Differences and Panel Data”, available in the university library.
- Goodman-Bacon, Andrew (2021): “Difference-in-Differences With Variation in Treatment Timing”, available as a video at <https://www.youtube.com/watch?v=m1xSMNTKoMs> (based on the paper “Difference-in-differences with variation in treatment timing,” *NBER Working Paper*, 25018, September 2018)

- Huntington-Klein, Nick (2022): *The Effect: An Introduction to Research Design and Causality*. Chapter 18: “Difference-in-Differences”, available as e-book at <https://theeffectbook.net/index.html>.

6 Topics

1. Aichele and Felbermayr (2015)
“Kyoto and Carbon Leakage: An Empirical Analysis of the Carbon Content of Bilateral Trade”
 - Software: Stata
2. Anders, Barr, and Smith (2023)
“The Effect of Early Childhood Education on Adult Criminality: Evidence from the 1960s through 1990s”
 - Software: Stata
3. Bindler and Hjalmarsson (2018)
“How Punishment Severity Affects Jury Verdicts: Evidence from Two Natural Experiments”
 - Software: Stata
4. Bose and Das (2017)
“Women’s Inheritance Rights, Household Allocation, and Gender Bias”
 - Software: Stata
5. Hausman (2014)
“Corporate Incentives and Nuclear Safety”
 - Software: Stata
6. Hjort and Poulsen (2019)
“The Arrival of Fast Internet and Employment in Africa”
 - Software: Stata

7. Lu and Yu (2015)
“Trade Liberalization and Markup Dispersion: Evidence from China’s WTO Accession”
 - Software: Stata
8. Topalova (2010)
“Factor Immobility and Regional Impacts of Trade Liberalization: Evidence on Poverty from India”
 - Software: Stata

7 Information on the Use of Software

For information on the use of software via your university licence, please visit <https://www.ewf.uni-bayreuth.de//en/teaching/index.html>. University computers are accessible in PC pools (Link) and libraries.

8 Overview of Important Dates

- 20 October 2023: registration deadline.
- 26 October 2023, 9 am to 12 pm: compulsory introductory meeting, allocation of topics, room S68 in RWI.
- 13 December 2023: submission deadline for presentation slides.
- 15 and 16 December 2023: student presentations (exact times tba, room S68 in RWI).
- 31 March 2024: submission deadline for seminar papers.

References

- AICHELE, R., AND G. FELBERMAYR (2015): “Kyoto and Carbon Leakage: An Empirical Analysis of the Carbon Content of Bilateral Trade,” *The Review of Economics and Statistics*, 97(1), 104–115.
- ANDERS, J., A. C. BARR, AND A. A. SMITH (2023): “The Effect of Early Childhood Education on Adult Criminality: Evidence from the 1960s through 1990s,” *American Economic Journal: Economic Policy*, 15(1), 37–69.
- BINDLER, A., AND R. HJALMARSSON (2018): “How Punishment Severity Affects Jury Verdicts: Evidence from Two Natural Experiments,” *American Economic Journal: Economic Policy*, 10(4), 36–78.
- BOSE, N., AND S. DAS (2017): “Women’s Inheritance Rights, Household Allocation, and Gender Bias,” *American Economic Review: Papers & Proceedings*, 107(5), 150–153.
- HAUSMAN, C. (2014): “Corporate Incentives and Nuclear Safety,” *American Economic Journal: Economic Policy*, 6(3), 178–206.
- HJORT, J., AND J. POULSEN (2019): “The Arrival of Fast Internet and Employment in Africa,” *American Economic Review*, 109(3), 1032–1079.
- LU, Y., AND L. YU (2015): “Trade Liberalization and Markup Dispersion: Evidence from China’s WTO Accession,” *American Economic Journal: Applied Economics*, 7(4), 221–253.
- TOPALOVA, P. (2010): “Factor Immobility and Regional Impacts of Trade Liberalization: Evidence on Poverty from India,” *American Economic Journal: Applied Economics*, 2(4), 1–41.