

Introduction. Organisation. Setup.

Eduard Bukin

Welcome to MP-223-EN Applied Econometrics Methods for the Social Sciences (SoSe 2023)

Author: Eduard Bukin eduard.bukin@agrar.uni-giessen.de

- Institute of Agricultural Policy and Market Research
- phone: +49 641 99-37055
- office: Zeughaus (Senckenbergstr. 3). Room: 132
- hours: Part time (better to make an appointment)

Course objectives

1. get familiar with fundamental econometric techniques;
 2. develop ability to reason on the appropriation of specific econometric methods;
 3. learn how to apply those econometrics in “R”;
 4. exercise interpreting and communicating results;
- Develop practical skills of applying following empirical econometric methods in R:
 - Multiple regression analysis;
 - Panel regression analysis;
 - Binary outcome variable;
 - Instrumental variable;
 - Impact evaluation (DID and RDD);

Motivation

Have you ever heard that “vaccination causes autism”?

See ([Wakefield et al., 1998](#)).

- A. Wakefield et, al. “Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children”. In: **The Lancet** 351.9103 (Feb. 1998), pp. 637-641. DOI: [10.1016/s0140-6736\(97\)11096-0](#) web-page.
- Retracted in February 2010. See [Lancet MMR autism fraud](#).

- “The Lancet” is an influential journals
 - [Impact Factor \(IF\)](#) in 2020 was **79.32**
- Each field has own seminal journal:
 - Ag. Econ - “American Journal of Agricultural Economics” with IF 2.245 (2017)
 - Econometrics - “Econometrica” with IF 5.84 (2020)
 - Development economics - “World Development” has the IF 5.278 (2020)

Wakefield et al. (1998). Introduction (1/2)

Research question: Early report on medical cases;

Data:

- **12 children** (mean age 6 years [range 3–10], 11 boys).
 - regularly saw a gastroenterologist;
 - had “... a history of normal development followed by loss of acquired skills, including language [**autism**]...”;
- “Control” group is made post factum, artificially, matching 12 random children of the same age/gender.

Wakefield et al. (1998). Introduction (2/2)

Treatment:

- Measles and/or MMR (measles, mumps, and rubella) vaccines at the age of 12-16 month;

Outcome:

- Autism diagnosis [Yes/No] and linguistic disorders in **24 hours to 2 month after vaccination**
- Blood and urine sample tests out of norms at the time of research [3-10 years old];

Wakefield et al. (1998). Findings / Contributions

Vaccinated group (treatment):

1. in 8/12 children behavioral problems [**autism**].
2. intestinal **abnormalities** and chronic inflammation;
3. urine tests are **significantly different** from “control” group;

- Contributes with a **theoretical mechanism** of the consequences of the MMR vaccination.

Counter factual (12 children from the population with the same age/gender):

1. no disorders.
2. no **abnormalities** or inflammation;
3. good tests;

Wakefield et al. (1998). Conclusions / Impact:

1. Conclusion:

- Mumps or MMR vaccination causes autism.

2. Societal impact

- Misinformation;
- Vaccine hesitancy and anti-vax movements;
- FT: The true toll of the antivax movement;
- Societal segregation. Which Americans are against the jab?

What is wrong with Wakefield et al. (1998) ?

- Any guesses?
- Let us use the whiteboard...
- By the end of this lecture, we should (ideally) be able to reason about this!

The people

Lecturers: Eduard Bukin

Data science enthusiast, econometrics practitioner. PhD Student.

Institute of Agricultural Policy and Market Research

2015 – MS in Rural Development:

- Ghent University, Belgium

Research interests:

- Agricultural structures and productivity
- Land and labor in agriculture
- Spatial econometrics

Lecturers: Christoph Funk

Christoph.Funk@wirtschaft.uni-giessen.de. [Website](#).

Post Doc.

Center for international Development and Environmental Research (ZEU) Justus Liebig Universität

2020 - PhD in economics from Justus Liebig University Giessen

Research interests:

- SDG monitoring
- Climate change vulnerability
- Adaptation strategies
- Energy economics
- Econometric modelling

Lecturers: Vladimir Otrachshenko

Vladimir.Otrachshenko@zeu.uni-giessen.de. [Website](#).

Senior Researcher.

Center for international Development and Environmental Research (ZEU) Justus Liebig Universität

2013 - PhD in Economics from Nova School of Business and Economics, Lisbon, Portugal

Research interests:

- Environmental and Resource Economics
- Climate Change
- Health and Population Economics

Your turn!

- Please introduce yourself
 - What is your name?
 - Where do you come from?
 - What do you study?
- What is your background?
- What are your expectations?

Organization

Course structure (1/4)

In presence

- Every Wednesday 14:00 - 18:00, Room: Senckenbergstr. 03, 216 (Ze-PC2)

Course structure (2/4)

Online resources:

- [Ilias](#) is used for materials dissemination.
- Code and materials mirror: github.com/EBukin/mp223-2023-aem-R-public
- [StudIP](#) is only used for announcements.

Course structure (3/4)

- **Lectures** in person
 - Slides on Ilias.
- **Exercises** (in class or at home)
 - Sometimes have pre requisites (watch a video, read a paper)
 - Sometimes require preparation in advance;
 - Sometimes are also pre-recorded.

Course structure (4/4)

Examination:

- 60% written exam (90 minutes in the time of examination session)
- 40% practical homework.
 - 2 short individual assignments (20% + 20%).
 - Students are expected to develop econometric analysis in R and submit it's results (and code).
 - Homework build on the materials form the class and demonstrate ability to perform selected econometric analysis independently.

References

Wakefield, A., Murch, S., Anthony, A., Linnell, J., Casson, D., Malik, M., ... Walker-Smith, J. (1998). RETRACTED: Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. *The Lancet*, 351(9103), 637–641. [http://doi.org/10.1016/s0140-6736\(97\)11096-0](http://doi.org/10.1016/s0140-6736(97)11096-0)

