

Applied Microeconometrics

Module 5, Academic Year 2017-2018

Olga Kuzmina
New Economic School
okuzmina@nes.ru

TA: Alexei Oskolkov
aoskolkov@nes.ru

Course description

The goal of this course is to familiarize you with a range of techniques used in applied microeconometrics and to practice on conducting your own empirical research. The emphasis in the course will be on issues that arise in working with data and practical considerations in using various econometric techniques rather than their theoretical underpinnings. It is assumed that you already have a sufficient knowledge of the basic econometric theory.

Course requirements, grading, and attendance policies

Attendance policy: There is no formal attendance policy. Attendance on-time is proper business etiquette and being regularly late is unprofessional. Coming in late interrupts the class – please respect your colleagues. In the very borderline cases, you may benefit if I can remember you came regularly and participated in the discussions.

Grading policy: The grade for the course will be based on three home assignments (30% in total), and a closed-book final exam (70%). The exam will contain questions on an empirical paper handed out in advance. The make-up exam will be similar in format to the main exam.

The assignments are due by the beginning of the class (uploaded electronically to my.nes.ru). The grades for the problem sets submitted after the deadline are discounted 5% per day (I strongly discourage submitting late since there will be a lot of work during the module and it will be hard to pick up). Students with unsatisfactory grade for assignments receive unsatisfactory grade for the course regardless of the results of the final exam or make-up. To receive a satisfactory grade for assignments you have to receive at least 20% on each.

All assignments carry equal weight, though some will be individual and some group ones. The individual assignments are to be done independently without help of any form from others. However, you are free to discuss the group assignments both within and across groups. To do the group assignments you should form a group of 3-5 people by the end of the 2nd week of class and send me an email listing members of your group. Choose your team members carefully – you do not want to get free-riders.

Course contents

I will be using a separate file for the reading list, as it will be continuously updated during the course. Reading papers is not required, unless specifically mentioned in class (usually 1 per session), but it is highly recommended, as they often provide a good discussion of relevant topics with applications.

The tentative (both in content and in order) list of topics for the course is the following:

1. Research design. Causality. Potential outcomes approach. Randomized Experiments.
AP 1, 2; MW 1, 2; CT 2, 25; W 18
2. (Briefly) Selection on observables. Matching vs regression. Propensity score methods.
AP 3; MW 4, 5; CT 25; W 18
3. Measurement error in cross-section and in panel. Panel data. Fixed-effects and First-differences estimators. Fixed effects vs Random effects. Incidental parameters problem. Difference-in-differences estimator. Standard errors in panel data.
AP 5, 8; MW 9.3; CT 16, 21, 22, 23; W 10, 15.8
4. Instrumental Variables. Heterogeneity and Local Average Treatment Effect.
AP 4; MW 7; CT 4, 25; W 5, 18
5. Regression discontinuity design. Sharp vs Fuzzy. Interpretation as IV.
AP 6; MW 9.2; CT 25.

(if time permits)

6. Selection models.
AP 7; W 15-17; CT 14-16.

Description of course methodology

Lectures + TA sessions

Sample tasks for course evaluation

The questions relate to the paper handed in a few days before exam:

(a) The basics:

- (i) What is the main research question in the paper? Is it important/interesting and why?
- (ii) What are the main findings of the paper?
- (iii) What is the type of data used in the paper (cross-section, time-series, panel, repeated cross-section, etc)?

(b) Consider the difference-in-differences strategy (regression specification (1) and Tables 2 and 3):

- (i) Consider the DiD coefficient of 0.027*** reported in Table 2. Write down the regression specification that you could run to uncover this particular estimate.
- (ii) How would the authors interpret this estimate? Is it economically large?
- (iii) What is the reason for including control variables X into specification (1)?
- (iv) Now consider the DiD coefficients reported in Table 3 columns 1 to 4 (0.019** to

0.009*). Why are linear and/or quadratic trends not included into these specifications?

(v) What do authors report in brackets below the coefficients?

(c) Identification assumptions of DiD:

(i) What is the identifying assumption behind this estimation strategy? How do authors corroborate this assumption?

(ii) Suppose there is an unobserved difference between the cohorts of 21 year-olds and 22 year-olds (e.g. the latter are more likely to have graduated from college than the former), and it directly affects emancipation. Would this invalidate the use of the DiD setup?

(iii) Suppose there is another government policy that coincides in time with the rental subsidy policy and applies to all individuals 22-29 years old, but is not observed by the authors. Would this affect the interpretation of the findings?

(iv) Based on the eligibility criteria reported on pages 4 and 5, what kind of placebo test one could run to rule out this concern?

Course materials

Required textbooks and materials

(AP) Angrist, J. and Pischke, J-S. "Mostly Harmless Econometrics: An Empiricist's Companion", 2009, Princeton

(MW) Morgan S. and Winship C. "Counterfactuals and Causal Inference", 2007, Cambridge University Press

(W) Wooldridge, J. "Econometric Analysis of Cross Section and Panel Data", 2002, 1e, MIT Press

(CT) Cameron, C. and Trivedi, P. "Microeconometrics: Methods and Applications", 2005, Cambridge University Press

Angrist J., Imbens G., and D.B. Rubin (1996), "Identification of Causal Effects Using Instrumental Variables," (with discussion) Journal of the American Statistical Association, 91, 444-472.

Bertrand, M., Duflo, E. and Mullainathan, S. (2004) "How Much Should We Trust Difference in Differences Estimates?" Quarterly Journal of Economics 119, 249-275.

Imbens, G. and J. Wooldridge (2009), "Recent developments in the econometrics of program evaluation," Journal of Economic Literature, 47 (1), 5-86.

Imbens G., and Lemieux T. (2008), "Regression discontinuity designs: A guide to practice", Journal of Econometrics, 142(2), 615-635.

Imbens G., "Matching Methods in Practice", Journal of Human Resources, 50(2), 373-419.

Additional materials

Cameron, C. and Trivedi, P. "Microeconometrics Using Stata", 2009, Cambridge University Press

I will be using a separate file for the reading list, as it will be continuously updated during the course. Reading papers is not required, unless specifically mentioned in class (usually 1 per class), but it is highly recommended, as they often provide a good discussion of relevant topics with applications

Academic integrity policy

Read the NES Honor Code. You must not cheat on the problem sets and final and must report any violations to me. We may also make random copies of exams.

Cheating, plagiarism, and any other violations of academic ethics at NES are not tolerated.