NES Master of Arts in Economics
Applied Microeconometrics
Syllabus for the Academic Year 2023-2024, 1 Module

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1 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.

2 Policies

Attitude is everything. Bring a mature, professional attitude to class. Attendance on-time is proper business etiquette and being regularly late is unprofessional.

In this class I do not check attendance. However, in the very borderline cases, you may benefit if I can remember you came regularly and participated in the discussions.

The grade for the course will be based on three home assignments (40% in total), and a closed-book final exam (60%). The exam will contain questions on an empirical paper handed out in advance (see the Sample Tasks section below).

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.

I do not have regular office hours. However, I will generally be able to answer questions after the class. In addition, you are always welcome to drop me an email with your question and we may set up an appointment if necessary.

Read the NES Honor Code. You must not cheat on the assignments and the final exam and must report any violations to me.
Finally, I will post all the important information (including lectures and assignments) to my.nes.ru. You should be able to check it on a regular basis.

3 Main Course Readings

Angrist, J. and Pischke, J-S. "Mostly Harmless Econometrics: An Empiricist's Companion"(AP)
Morgan S. and Winship C. "Counterfactuals and Causal Inference" (MW)
Wooldridge, J. "Econometric Analysis of Cross Section and Panel Data" (W)

Cameron, C. and Trivedi, P. "Microeconometrics: Methods and Applications" (CT)
Cameron, C. and Trivedi, P. "Microeconometrics Using Stata"

4 Course Outline

I will be using a separate file for the reading list, as itwill 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. 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

3. Regression discontinuity design. Sharp vs Fuzzy. Interpretation as IV. Regression Kink Design
    AP 6; MW 9.2; CT 25.

4. Instrumental Variables. Heterogeneity and Local Average Treatment Effect. Weak Instruments.
    AP 4; MW 7; CT 4, 25; W 5, 18

(if time permits)
5. Synthetic Controls (Abadie, JEL, 2020)

6. Event Studies (MacKinlay, JEL, 1997)

7. Machine Learning. Introduction to methods and Causality.
    (Mullainathan and Spiess, JEP, 2017,   Varian , JEP, 2014)

8. Selection on observables. Matching vs regression. Propensity score methods.
    AP 3;MW 4, 5; CT 25;W 18

5Sample Tasks

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?