

Econometrics 2

Module 4, 2024-2025

Prof. Sultan Mehmood

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Course information

Course Website: <https://my.nes.ru>

Instructor's Office Hours: by appointment via email

Class Time: Wednesday (13:45), Friday (15:30)

Room Number: 427

TAs: Diana Philippova and Alexander Kalchevskiy

Course description

This course is the second part of the introductory econometrics sequence, designed to familiarize students with core econometric methods. Students will apply econometric models to cross-sectional and panel data, develop proficiency in Stata, and extend their understanding from linear models introduced in Econometrics I to nonlinear categorical models. The course introduces the Generalized Method of Moments (GMM) and systematically compares estimation techniques to the Conditional Expectation Function (CEF), highlighting the trade-offs between OLS and alternative methods. A central focus is on building the ability to communicate econometric concepts effectively to both academic and industry audiences.

Course requirements, grading, and attendance policies

Students are expected to possess a solid foundation in statistics, calculus, and matrix algebra, along with having completed the econometrics-1 course. The course comprises 14 lectures and 7 sections. The assessment will be divided into two parts, distributed across the duration of the module, each centered around distinct research papers. The objective of this course is for you to master the methods and application of the econometric techniques discussed in class. To do this, you will have two main parts: one paper-based presentation (40%) and 4 Home Assignments total 40% (all in groups of 2, groups of 1 and 3 are allowed in exceptional circumstances but larger group is expected to be of higher quality). Attendance and Participation is very important in this course, so it takes 20% of the total grade. The presentation will be made from a list provided by the instructor, which is pertinent to the subject matter of this course.

Course contents

Week 1: Causality. Experiments. Conditional Expectation Functions.

Week 2: Non-Linear Models (Probit, Logit, Multinomial Probit)

Week 3: GMM, Instrumental variables, Simultaneous Equation System.

Week 4: Introduction to Panel Data. Random vs Fixed Effects.

Week 5: Applications of IV, GMM, Logit, Probit, OLS.

Week 6: Count data. Mixed models. Panel and clustered data.

Week 7: Corner solution responses. Censored models. Sample selection.

Description of course methodology

A typical lecture includes a theoretical part of course material with applications. The focus will be on how this econometric method can be applied for practical applications.

Sample tasks for course evaluation

Analyze the econometric methodology and key insights in the paper "Selection with Variation in Diagnostic Skill" published in the Quarterly Journal of Economics (2022). A central focus is on bridging the gap between technical methods and their real-world implications, ensuring students develop both analytical precision and communication skills for diverse audiences. Pay careful attention to methodological issues that arise from using the current method and how authors try to overcome it. Provide an assessment of how an alternate method could be applied to the same data. Use examples from other contexts to communicate to a general audience the econometric concepts discussed. Discuss assumptions behind each of the methods (original vs hypothetical).

Course materials

Suggested Textbooks and materials

- "Introductory Econometrics: A Modern Approach" by Jeffrey Wooldridge (4th edition), South-Western Cengage Learning, 2009.
- "Mastering Metrics" Josh Angrist and Steven Pischke.
- Selected Papers from top economics and political science journals that apply these methods.

Additional materials

- "Econometric Analysis of Cross Section and Panel Data", MIT Press, 2002 (WA)
- Cameron, A. Colin and Pravin K. Triverdi "Microeconometrics: Methods and Applications", (8th edition), Cambridge University Press, 2009

Further references will be provided during the course.

Academic integrity policy

Cheating, plagiarism, and any other violations of academic ethics at NES are not tolerated and will be punished. This includes self-plagiarism: students cannot submit projects that are identical to or with minor modifications of those submitted for other courses. Major modifications might be allowed but must receive an explicit approval from the professor before submitting. Failure to declare overlap or submitting projects with high similarities to existing works will result in severe punishment. Students must adhere to these regulations as part of the NES Honor code. Course projects are subject to random plagiarism checks.