

Econometrics V

Term V, 2009

Kyiv School of Economics

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Class room: 207

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1. Course description:

This course will cover the following topics: Panel Data, Generalized Method of Moments (GMM), and Qualitative and Limited Dependent Variables. Software used is STATA. Topics can be added/deleted at the discretion of professor.

2. Teaching Methodology

The course includes 14 class sessions, including one midterm examination. The course also provides for independent work by MA students, namely:

- Working on the homework assignments;
- Preparation to quizzes, midterm and final examinations.

3. Reading:

- Wooldridge, J. (2003), 'Introductory Econometrics'
- Johnston-Dinardo (1997), 'Econometric Methods'
- Verbeek, M. (2002), 'Modern Econometrics'

Complementary reading:

- Baltagi, B. (2003), 'Econometric Analysis of Panel Data'
- Wooldridge, J. (2003), 'Econometric Analysis of Cross Section and Panel Data'
- Greene, W. (2000), 'Econometric Analysis', chapter 14, 15, 16, 19 and 20

Additional journal articles may be assigned along the course.

4. Evaluation

- Home Assignments: 10% (Returning the assignments after a deadline is punished by - 10%)
- Quizzes: 10%
- Midterm: 40%
- Final: 40%

All empirical assignments should be done in STATA and the results MUST be accompanied by a STATA DO-file. Not handing in the DO-file will result in **zero-grade** for the whole assignment.

Cheating/Plagiarism implies zero on the exam.

5. Tentative Topics Outline

5.1. **Week 1:** Introduction: OLS assumptions and realities of empirical research

5.2. **Week 1-4:** Panel Data

- Wooldridge, J. (2003), 'Introductory Econometrics', chapter 13-14
- Arellano-Bond (1991)
- Bond (2002)

5.2.1. Pooled Data: Advantages

5.2.2. Panel Data: structure, advantages and basic problems

5.2.3. Solution 1. First difference

- Estimation technique
- Some disadvantages of panel data/differencing

5.2.4. Solution 2. Fixed effects

- Estimation technique
- Advantages and disadvantages
- Fixed vs. First differencing

5.2.5. Pooled as a combination of within and between

5.2.6. Solution 3: Least Squares Dummy Variable Regression

- Estimation technique
- The equality of the dummy variable regression and the fixed effects regression (like in Greene p. 560, section 14.3)-(Just read carefully)

5.2.7. Random Effects

- Estimation technique: Feasible Generalized Least Squares.
- Derivation of the Random Effects estimator (Optional)

5.2.8. Arellano-Bond estimator for dynamic panel

(Arellano and Bond, 1991; Blundell and Bond, 1998; Bond 2002)

- Estimation technique
- Advantages and disadvantages

5.2.9. Some Specification tests

- Fixed versus pooled: F test, Hausman Test
- Pooled vs. random: Breush-Pagan Test
- Random vs. fixed effects: Hausman Test
- Fixed vs. Random effects
- Tests for strict exogeneity and dynamic completeness
- A note on short run versus long run (based on Kennedy p 307-308)
- A drawback of first difference/fixed effects: aggravation of error in variables (JD p. 399-401).

5.2.10. Miscellaneous

- Unbalanced Panels

- Other Data Structures
- Heteroskedasticity and Autocorrelation
- Goodness of fit statistics

5.3. **Week 5:** GMM

- Verbeek, M. (2002), 'Modern Econometrics', chapter 5
- Johnston-Dinardo (1997), 'Econometric Methods', chapter 10

5.3.1. The Method of Moments

5.3.2. OLS as a MOM estimator

5.3.3. IV as a MOM estimator

5.3.4. GMM in General

5.4. **Week 6-7:** Qualitative and Limited Dependent Variables.

- Wooldridge, J. (2003), 'Introductory Econometrics', chapter 17

5.4.1. The Linear Probability Model (LPM)

- Probit and Logit
- Estimation
- Marginal effects
- Goodness of fit statistics
- Specification tests

5.4.2. Limited Dependent Variables: Censored and Truncated Samples

- Truncation
- Censored data: Tobit Estimation
- Interpretation
- Caveats
- Sample Selection: Heckit

5.4.3. Some More DDV -Count Data and The Poisson Regression Model

- Ordered Probit
- Multinomial Logit
- Panel Data and Limited Dependent Variables (based on Verbeek, chapter 10.6)
- Hazard Models