

PhD in Economics and Management

Econometrics for Management

Instructor: Chiara Dal Bianco

Syllabus 2023/2024

Course objectives

This course provides students with a first toolkit of methods to answer cause-and-effect questions using empirical analysis. The focus will be on (i) specifying an appropriate econometric model given the causal question of interest and the available data, (ii) interpreting the model parameters, and (iii) performing a set of tests to check the validity of the assumptions made. The topics will be illustrated and explained through the discussion of several applied papers.

Prerequisites

Students are required to be familiar with basic concepts of probability and statistics, and the linear regression model (Stock and Watson, Introduction to Econometrics, chapters 2 to 5).

Course content

1. Key concepts in applied econometrics:
 - a. Causality
 - b. Ceteris paribus condition (other things equal)
 - c. Endogeneity, selection bias and omitted variables bias
2. A toolkit for causal inference:
 - a. Randomized experiments and natural experiments
 - b. Simple and Multiple regression
 - i. inference – OLS, model fit, tests and confidence intervals
 - ii. parameters interpretation – continuous/categorical/binary regressors
 - iii. heteroskedasticity
 - c. Propensity score matching
 - d. Instrumental variables
 - i. instrument choice
 - ii. inference (just-identification and over-identification)
 - iii. hypothesis testing: exogeneity, instruments validity, instruments relevance
 - e. Differences-in-differences
 - f. Introduction to panel data analysis: random effect, fixed effect and first difference estimators
3. Binary response models and censoring:
 - a. Linear probability model, Logit and Probit model (pros and cons, parameter interpretation)
 - b. Tobit and Heckman selection model

Textbooks and teaching material

- Joshua D. Angrist and Jörn-Steffen Pischke. Mastering 'metrics: The Path from Cause to Effect (Chapters 1 to 3, 5) – introductory reading
- Jeffrey M. Wooldridge (2015). Introductory Econometrics: a Modern Approach. Sixth edition (Chapters 1 to 9, 15, 17).
- Joshua D. Angrist and Jörn-Steffen Pischke. Mostly harmless econometrics: An Empiricist's Companion (Chapters 2-3-4)

- A. Colin Cameron and Pravin K. Trivedi. Microeconometrics. Methods and applications (Chapters 14)

Research articles (more will be provided during the course):

- Introduction:

- Tucker, Jenny Wu, Selection Bias and Econometric Remedies in Accounting and Finance Research (February 7, 2011). Journal of Accounting Literature, Winter 2010, Vol 29: 31-57. Available at SSRN: <https://ssrn.com/abstract=1756911>
- Angrist, Joshua D., and Jörn-Steffen Pischke. 2010. "The Credibility Revolution in Empirical Economics: How Better Research Design Is Taking the Con out of Econometrics." Journal of Economic Perspectives, 24 (2): 3-30.

- Randomized experiments:

- FLOYD, E. and LIST, J.A. (2016), Using Field Experiments in Accounting and Finance. Journal of Accounting Research, 54: 437-475. doi:10.1111/1475-679X.12113
- Friebel, Guido, Matthias Heinz, Miriam Krueger, and Nikolay Zubanov. 2017. "Team Incentives and Performance: Evidence from a Retail Chain." American Economic Review, 107 (8): 2168-2203. DOI: 10.1257/aer.20160788

- Simple and multiple regression

- KOTHARI, S.P., SHU, S. and WYSOCKI, P.D. (2009), Do Managers Withhold Bad News?. Journal of Accounting Research, 47: 241-276. doi:10.1111/j.1475-679X.2008.00318.x

- Propensity score

- Guadalupe, Maria, Olga Kuzmina, and Catherine Thomas. 2012. "Innovation and Foreign Ownership." American Economic Review, 102 (7): 3594-3627. DOI: 10.1257/aer.102.7.3594
- Jonathan E. Shipman, Quinn T. Swanquist, and Robert L. Whited (2017) Propensity Score Matching in Accounting Research. The Accounting Review: January 2017, Vol. 92, No. 1, pp. 213-244. <https://doi.org/10.2308/accr-51449>

- Instrumental variable

- Larcker, D. F., & Rusticus, T. O. (2010). On the use of instrumental variables in accounting research. Journal of Accounting and Economics, 49(3), 186–205. <http://doi.org/10.1016/j.jacceco.2009.11.004>

- Heckman selection model

- Clive S. Lennox, Jere R. Francis, and Zitian Wang (2012) Selection Models in Accounting Research. The Accounting Review: March 2012, Vol. 87, No. 2, pp. 589-616. <https://doi.org/10.2308/accr-10195>

- Binary response models

- Amir, E., Kallunki, J. & Nilsson, H. The association between individual audit partners' risk preferences and the composition of their client portfolios. Rev Account Stud 19, 103–133 (2014). <https://doi.org/10.1007/s11142-013-9245-8>

Examination policy

Paper presentation: you will be required to comment on the empirical strategy and the results of a research article (30%)

Final written exam (50%)

Class participation (20%)

Office hours

Any time by appointment via email to chiara.dalbiano@unipd.it

Syllabus Econometrics, A.A. 2023/24 – Instructor Enrico Rettore

1. Instrumental Variables

Why do we bother: simultaneity, omitted regressors, measurement errors, dynamic models.

The algebra of IV; the role of the exclusion restriction.

Exact-/over-identification.

Matrix notation.

IV as control function.

Asymptotic distribution.

Generalized Method of Moments.

Testing: endogeneity, overidentification, weak instruments.

Limited Information Maximum Likelihood (LIML)

2. Panel data models

Random effect vs fixed effect

Consistency and sampling variance of alternative estimators.

Hausman test.

First-diff estimator.

Unobserved heterogeneity vs true state dependence: dynamic models.

Weak vs strong exogeneity.

IV and GMM solution.

3. Discrete choice models

The latent index model.

Linear probability, Probit, Logit.

ML estimation.

Marginal effects.

Goodness-of-fit.

Diagnostics.

Discrete choice with panel data:

incidental parameter problem, Chamberlain estimator.

Heterogeneity vs state dependence

4. Limited dependent variable models

The latent index model (again...).

Truncation and censoring.

Tobit model.

Marginal effects.

Diagnostics; generalized residuals.

Panel data.

5. Sample selection models

Generalizing the Tobit model.

Correcting for sample selection.