

Empirical Methods for Policy Evaluation

Course title – Intitulé du cours	Empirical Methods for Policy Evaluation
Level / Semester – Niveau /semestre	MRes/S1
School – Composante	Ecole d'Economie de Toulouse
Teacher – Enseignant responsable	Augustin Tapsoba - Matteo Bobba
Other teacher(s) – Autre(s) enseignant(s)	
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Other teacher(s) – Autre(s) enseignant(s)	
Lecture Hours – Volume Horaire CM	30
TA Hours – Volume horaire TD	
TP Hours – Volume horaire TP	
Course Language – Langue du cours	English
TA and/or TP Language – Langue des TD et/ou TP	English

Teaching staff contacts:

- Matteo Bobba (MB): matteo.bobba@tse-fr.eu - T362
- Augustin Tapsoba (AT): augustin.tapsoba@tse-fr.eu - T354
- office hours: TBD
- preferred means of interaction: after the classes, or during office hours with prior appointment

Course Objectives: newly acquired knowledge once the course completed should be well identified

This 10-week course is divided in two parts. In the first part, AT reviews recent methodological contributions in the econometrics literature of ex-post policy evaluation. That is, methods that are applicable after a program or policy has been implemented and data are available on persons who participated in the program and possibly also on a group of people who did not participate in the program. In the second part, MB examines model-based approaches for ex-ante policy evaluation and how these can be combined with prominent ex-post, design-based methods (including RCTs). We illustrate the use of these tools for the evaluation of a variety of public policies in both developed and developing countries.

Prerequisites :

Students should be familiar with the content of the compulsory M2 ETE courses. Familiarity with econometric packages such as R or Matlab is encouraged, although students will have the opportunity to enhance their programming skills with the take home exercises.

Practical information about the sessions:

Student should participate actively to each session. Laptops and tablets are tolerated if used for the sole purpose of following the course.

Grading system :

- Problem sets and other take-home assignments such as referee reports: Problem sets will involve some work using a programming language of your choice (R, Matlab, Python, etc..) and datasets that we will give out [90% of the grade]
- Class participation [10% of the grade]

Bibliography/references :

See references in next section. Papers denoted with * are required readings and will be covered during the lectures. Students are strongly encouraged to take a look at them before the corresponding lecture.

Session planning :

1. Recent advances in ex-post evaluation methods (AT)

This part of the course will discuss some of the most important/recent methodological contributions in the econometrics literature that have substantially enhanced the policy evaluation tools available to applied economists. It will cover the following topics:

1.1. Generalizations of Difference-in-Differences

* Roth, J., Sant'Anna, P. H., Bilinski, A., & Poe, J. (2022). What's Trending in Difference-in-Differences? A Synthesis of the Recent Econometrics Literature. *arXiv preprint arXiv:2201.01194*.

* Athey, Susan, and Guido W. Imbens. "Identification and inference in nonlinear differences in differences models." *Econometrica* 74.2 (2006): 431-497.

* Bonhomme, Stephane, and Ulrich Sauder. "Recovering distributions in difference-in-differences models: A comparison of selective and comprehensive schooling." *Review of Economics and Statistics* 93.2 (2011): 479-494.

* De Chaisemartin, Clement and Xavier D'Haultfoeuille. "Fuzzy Differences in Differences". *The Review of Economic Studies*, Volume 85, Issue 2, April 2018, Pages 999-1028

* Goodman-Bacon, Andrew, "Difference-in-differences with variation in treatment timing," *Journal of Econometrics*, 2021, 225 (2), 254–277.

* De Chaisemartin, Clement and Xavier D'Haultfoeuille. "Two-Way Fixed Effects Estimators with Heterogeneous Treatment Effects". *AER*(2020)

D'Haultfoeuille, Xavier, Stefan Hoderlein, and Yuya Sasaki. "Nonlinear difference in differences in repeated cross sections with continuous treatments". No. CWP40/13. *cemmap working paper*, 2013.

Callaway, Brantly and Sant'Anna, Pedro H. C.. "Difference-in-Differences with Multiple Time Periods". 2019

Ricardo Mora and Iliana Reggio, (2019) "Alternative diff-in-diffs estimators with several pretreatment periods", *Econometric Reviews* (2019) 38:5, 465-486

Angrist, Joshua D., and Jorn-Steffen Pischke. *Mostly harmless econometrics: An empiricist's companion*. Princeton university press, 2008.

1.2. Control function approach and IV

* Wooldridge, Jeffrey M. "Control function methods in applied econometrics." *Journal of Human Resources* 50.2 (2015): 420-445.

Navarro S. (2010) *Control Functions*. In: Durlauf S.N., Blume L.E. (eds) *Microeconometrics*. The New Palgrave Economics Collection. Palgrave Macmillan, London

*Cornelissen et al (Labor Economics, 2016): "From LATE to MTE: Alternative methods for the evaluation of policy interventions"

*Lee, David S., et al. "Valid t-ratio Inference for IV." arXiv preprint arXiv:2010.05058 (2020).

* Mogstad, Magne, Alexander Torgovitsky, and Christopher R. Walters. "The causal interpretation of two-stage least squares with multiple instrumental variables". No. w25691. National Bureau of Economic Research, 2019.

Abadie, Alberto. "Semiparametric instrumental variable estimation of treatment response models." *Journal of econometrics* 113.2 (2003): 231-263.

Abadie, Alberto, Joshua Angrist, and Guido Imbens. "Instrumental variables estimates of the effect of subsidized training on the quantiles of trainee earnings." *Econometrica* 70.1 (2002): 91-117.

Edin, Per-Anders, Peter Fredriksson, and Olof Aslund. "Ethnic enclaves and the economic success of immigrants: Evidence from a natural experiment." *The quarterly journal of economics* 118.1 (2003): 329-357.

Miguel, Edward, and Michael Kremer. "Worms: identifying impacts on education and health in the presence of treatment externalities." *Econometrica* 72.1 (2004): 159-217.

1.3. Treatment effect in presence of measurement error

* Schennach, Susanne M. "Recent advances in the measurement error literature." *Annual Review of Economics* 8 (2016): 341-377.

* Lewbel, Arthur. "Estimation of average treatment effects with misclassification." *Econometrica* 75.2 (2007): 537-551.

Hu, Yingyao, and Susanne M. Schennach. "Instrumental variable treatment of nonclassical measurement error models." *Econometrica* 76.1 (2008): 195-216.

Attanasio, Orazio, Costas Meghir, and Emily Nix. Human capital development and parental investment in india. No. w21740. National Bureau of Economic Research, 2015.

2. Causal Inference Meets Structural Models (MB)

This part of the course showcases how model-based approaches can be combined with design-based methods (RCT, RDD, Diff-in-Diff) in order to better assess and characterize the effects of public policies. We cover several examples from different literatures in empirical microeconomics (Labor, Development, and Public) in which complementarities arise between these two approaches.

2.1 Ex-ante and Ex-post Policy Evaluation SEP

Wolpin, Kenneth (2013). "The limits of inference without theory," MIT Press, Cambridge (*Chapter 2).

Mahoney, Neal (2022). "Principles for Combining Descriptive and Model-Based Analysis in Applied Microeconomics Research" Journal of Economics Perspective.

Pathak & Shi (2021). "How well do structural demand models work? Counterfactual predictions in school choice," Journal of Econometrics, vol. 222(1), pages 161-195.

Todd Petra E. and Kenneth I. Wolpin (2023). « The Best of Both Worlds: Combining RCTs with Structural Modeling," Journal of Economic Literature.

2.2 Field Experiments: A Primer

Imbens and Rubin (2015). "Causal Inference for Statistics, Social, and Biomedical Sciences: An Introduction." Cambridge University Press (*Chapters 1, 3, 4, 5, 7, 9, 10).

Athey and Imbens (2017). "The Econometrics of Randomized Experiments." Handbook of Economic Field Experiments, 1: 73-140 (*Section 8).

2.3 Teacher Compensation Policies, School Choice Models, and the RD

Finan & Olken & Pande (2017). "The Personnel Economics of the State," Handbook of Economic Field Experiments, 1.

Agarwal, Nikhil and Paulo Somaini (2020). "Revealed Preference Analysis of School Choice Models," Annual Review of Economics, 12 (1), 471–501.

*Bobba, Matteo, Tim Ederer, Gianmarco Leon, Chris Neilson, and Marco Nieddu (2022). "Teacher Compensation and Structural Inequality: Evidence from Centralized Teacher School Choice in Peru". NBER working paper 29068.

2.4 Early Childhood Interventions, Dynamic latent factor models, and an RCT

Attanasio O., Cattan S., and Meghir C. (2022), "Early Childhood Development, Human Capital, and Poverty," *Annual Review of Economics*, 14 (1).

Cunha F, Heckman JJ, Schennach S. (2010). Estimating the technology of cognitive and noncognitive skill formation. *Econometrica* 78:883–931.

*Attanasio O., Cattan S., Fitzsimons E., Meghir C., and Rubio-Codina, M. (2020). "Estimating the Production Function for Human Capital: Results from a Randomized Control Trial in Colombia," *American Economic Review*, 110(1): 48-85.

2.5 Informal Labor, Job search models, and Diff-in-Diff

Ulysea (2020). "Informality: Causes and Consequences for Development," *Annual Review of Economics*, Annual Reviews, vol. 12(1), pages 525-546, August.

Eckstein and Wolpin (2007). "Empirical Job Search: A Survey", *Journal of Econometrics* 136, 531-564.

*Bobba, M., L. Flabbi, and S. Levy (2022). "Labor Market Search, Informality, and Schooling Investments." *International Economic Review*.