

## Course Title

Course title – Intitulé du cours	Empirical Methods for Policy Evaluation
Level / Semester – Niveau /semestre	DEEQA/S1
School – Composante	Ecole d'Economie de Toulouse
Teacher – Enseignant responsable	Augustin Tapsoba - Matteo Bobba
Other teacher(s) – Autre(s) enseignant(s)	
Other teacher(s) – Autre(s) enseignant(s)	
Other teacher(s) – Autre(s) enseignant(s)	
Other teacher(s) – Autre(s) enseignant(s)	
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](mailto:matteo.bobba@tse-fr.eu) - T352
- Augustin Tapsoba (AT): [augustin.tapsoba@tse-fr.eu](mailto: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 methods for ex-ante policy evaluation. That is, methods for evaluating policies that do not yet exist or for evaluating alternative versions of existing policies. 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 read 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. Spatial Autocorrelation and Treatment Effect**

\* Kelly, Morgan, "The Standard Errors of Persistence" (June 3, 2019).

\* McIntosh, Craig. "Estimating Treatment Effects from Spatial Policy Experiments: An Application to Ugandan Microfinance." *The Review of Economics and Statistics*, vol. 90, no. 1, 2008, pp. 15–28.

Delgado, Michael S., and Raymond JGM Florax. "Difference-in-differences techniques for spatial data: Local autocorrelation and spatial interaction." *Economics Letters* 137 (2015): 123-126.

### **1.4. 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.

Cunha, Flavio, James J. Heckman, and Susanne M. Schennach. "Estimating the technology of cognitive and noncognitive skill formation." *Econometrica* 78.3 (2010): 883-931.

Agostinelli, Francesco, and Matthew Wiswall. Estimating the technology of children's skill formation. No. w22442. National Bureau of Economic Research, 2016.

Attanasio, Orazio, Cattan, Sarah, Fitzsimons, Emla, Meghir, Costas and Rubio-Codina, Marta (2020). "Estimating the Production Function for Human Capital: Results from a Randomized Control Trial in Colombia," *American Economic Review*, vol. 110(1), pages 48-85.

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

## **2. Research Designs Meet Structural Models (MB)**

This part of the course showcases how micro-econometric models can be combined with research-design approaches (RCT, RDD, Diff-in-Diff) in order to better assess and characterize the effects of public policies. We cover several examples from different literatures (IO, Labor, and Development Economics) in which complementarities arise between these two approaches. Papers denoted with \* are required readings and will be covered during the lectures. Students are strongly encouraged to read them before the corresponding lecture.

### **2.1 Ex-ante and ex-post policy evaluation**

\*Wolpin, Kenneth (2013). Chapter 2 in « The limits of inference without theory,” MIT Press, Cambridge.

Todd Petra E. and Kenneth I. Wolpin (2021). « The Best of Both Worlds: Combining RCTs with Structural Modeling,” Journal of Economic Literature, forthcoming

Galiani Sebastian and Juan Pantano (2021). “Structural Models: Inception and Frontier,” NBER working paper 28698, National Bureau of Economic Research Working Paper Series, April 2021.

### **2.2 Dynamic discrete choice models and RCT**

Keane, Michael, Todd, Petra and Wolpin, Kenneth I., (2011). “The Structural Estimation of Behavioral Models: Discrete Choice Dynamic Programming Methods and Applications,” Handbook of Labor Economics, ch 4, p. 331-461, Ashenfelter, O. and Card, D. eds., Elsevier.

\*Todd Petra E. and Kenneth I. Wolpin (2006). “Assessing the Impact of a School Subsidy Program in Mexico: Using a Social Experiment to Validate a Dynamic Behavioral Model of Child Schooling and Fertility,” American Economic Review, vol. 96(5), pages 1384-1417, December.

\*Attanasio Orazio P., Costas Meghir and Ana Santiago (2012). “Education Choices in Mexico: Using a Structural Model and a Randomized Experiment to Evaluate PROGRESA,” Review of Economic Studies, vol. 79(1), pages 37-66.

### **2.3 Matching models and RD design**

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 (2021). « Teacher Compensation and Structural Inequality: Evidence from Centralized Teacher School Choice in Peru » NBER working paper 29068, July 2021.

#### **2.4 Dynamic latent factor models and RCT**

Cunha, F., Heckman, J., and Schennach, S. (2010). "Estimating the technology of cognitive and non-cognitive skill formation," *Econometrica* 78(3), 883-931.

\*Attanasio, Orazio, Cattan, Sarah, Fitzsimons, Emla, Meghir, Costas and Rubio-Codina, 56 Marta (2020). "Estimating the Production Function for Human Capital: Results from a Randomized Control Trial in Colombia," in *American Economic Review*, 110(1): 48-85.

#### **2.5 Job search models and Diff-in-Diff**

Flinn, C, and J. Heckman (1982). "New methods for analyzing structural models of labor force dynamics". *Journal of Econometrics*, vol. 18, issue 1, 115-168.

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

#### **2.6 Other recent papers integrating research designs into structural models (pick one for referee report)**

Allende, Claudia, Francisco Gallego, and Neilson Christopher (2019). "Approximating the Equilibrium Effects of Informed School Choice," *IRS Working Paper*, No 628.

Agostinelli, Francesco, Emilio Borghesan, Giuseppe Sorrenti, 2020. "Welfare, Workfare and Labor Supply: A Unified Evaluation," *Working Papers 2020-083*, Human Capital and Economic Opportunity Working Group.

Bergman, Peter, Adam Kapor and Eric Chan (2020). *Housing Search Frictions: Evidence from Detailed Search Data and a Field Experiment*. NBER WP #27209.

Bobba, Frisanchi and Pariguana (2021). *Perceived Ability and School Choices*, TSE Working Paper, n. 16-660.

Chaparro, Sojourner, and Wiswall (2020) "Early Childhood Care and Cognitive Development", NBER Working Paper 26813

Conti, Gabriella & Rita Ginja & Renata Narita (2018). "The value of health insurance: a household job search approach," *IFS Working Papers W18/20*, Institute for Fiscal Studies.

Dinerstein, Neilson and Otero (2020). The Equilibrium Effects of Public Provision in Education Markets: Evidence from a Public School Expansion Policy

Foster, Gehrke (2020). "Start What you Finish! Ex-Ante Risk and Schooling Investments in the Presence of Dynamic Complementarities. NBER Working Papers 24041

Low & Meghir & Pistaferri & Voena (2018). "Marriage, Labor Supply and the Dynamics of the Social Safety Net, "NBER Working Papers 24356

Arteaga, Kapor, Neilson, Zimmerman (2021) SMART MATCHING PLATFORMS AND HETEROGENEOUS BELIEFS IN CENTRALIZED SCHOOL CHOICE

Kreindler, Gabriel (2020). « Peak-Hour Road Congestion Pricing: Experimental Evidence and Equilibrium Implications. »

Mullins, Joseph (2020) A Structural Meta-analysis of Welfare Reform Experiments and Their Impacts on Children

Neilson (2021) Targeted Vouchers, Competition Among Schools and the Academic Achievement of Poor Students

**Distance learning :**

- Interactive virtual classrooms
- MCQ tests and other online exercises / assignments
- Chatrooms