

Syllabus: Advanced Research Methods I
Master in Social Sciences - IC3JM - A.Y. 2023/24

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Course Description

The main aim of the course is to learn how statistical methods can help us drawing causal claims regarding real-life phenomena. Students will be introduced to a widely-used theoretical framework, *i.e.*, the “potential outcomes” one, which will be employed to contextualise those methodologies aimed at overcoming the challenge researchers face in establishing unidirectionality. The course will cover four widely-used designs to make causal claims using observational data – Matching, Difference-in-Differences, Instrumental Variables, and Regression Discontinuity Design – and (if time allows) provide some insight on recently-adopted methodologies, *e.g.*, Unexpected Event During Survey Design. By the end of the module, students will be in a position to critically assess the soundness of claims about causal relationships in the social sciences literature, and to apply firsthand a variety of design-based methods in their own research, by identifying potential causal relationships in observational data and critically assessing the robustness of these links.

Schedule

TBC

Throughout the course, there will be four 1.5h **Lab Sessions**.

Pre-Requisites

Econometrics: properties of estimators, fundamentals of regression analysis.

Software: basic knowledge of Stata and R.

Textbooks

(Core) Angrist, Joshua D., and Jörn-Steffen Pischke. Mostly harmless econometrics: An empiricist's companion. Princeton university press, 2009.

(Extra) Cunningham, Scott. "Causal inference." Causal Inference. Yale University Press, 2021. Available [online](#).

(Extra) Gertler, Paul J., Sebastian Martinez, Patrick Premand, Laura B. Rawlings, and Christel MJ Vermeersch. (2016). Impact evaluation in practice. Second Edition. Available [online](#).

The course will build extensively on the discussion of recent, published and unpublished research papers (listed below, and **subject to change**).

Papers in **bold** are to be considered as “core” readings: students are **expected to read them in advance** of each class. The remaining readings present applications of the methodologies under scrutiny and/or extend the theoretical/econometric discussion, and can be considered as optional.

Software

During classes and lab sessions we will use Stata and R to present examples from published and unpublished articles for each methodology.

Students are expected to bring their laptop to classes and lab sessions, **and should have R, R-studio and Stata installed on their laptop by the beginning of the course.**

Course Outline

1. Class 1: The evaluation problem: finding a counterfactual
 - . Angrist, Joshua D., and Jörn-Steffen Pischke. Mostly harmless econometrics: An empiricist's companion. Princeton university press, 2009. Chapters 1 & 2.
 - . **Angrist, J. D., & Pischke, J. S. (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.**

- . Banerjee, A., Duflo, E., Glennerster, R., & Kinnan, C. (2015). The miracle of microfinance? Evidence from a randomized evaluation. *American economic journal: Applied economics*, 7(1), 22-53.
- . Cameron, D. B., Mishra, A., & Brown, A. N. (2016). The growth of impact evaluation for international development: how much have we learned?. *Journal of Development Effectiveness*, 8(1), 1-21.
- . **Duflo, E., Hanna, R., & Ryan, S. P. (2012). Incentives work: Getting teachers to come to school. *American Economic Review*, 102(4), 1241-78.**

2. Class 2: Regressions and causal effects

- . **Dale, S. B., & Krueger, A. B. (2002). Estimating the payoff to attending a more selective college: An application of selection on observables and unobservables. *The Quarterly Journal of Economics*, 117(4), 1491-1527.**
- . Diaz, J. J., & Handa, S. (2006). An assessment of propensity score matching as a nonexperimental impact estimator evidence from Mexico's PROGRESA program. *Journal of human resources*, 41(2), 319-345.
- . Diamond, J., & Robinson, J. A. (2010). *Natural experiments of history*. Harvard University Press.
- . **Doherty, D., Gerber, A. S., & Green, D. P. (2006). Personal income and attitudes toward redistribution: A study of lottery winners. *Political Psychology*, 27(3), 441-458.**
- . Dunning, T. (2012). *Natural experiments in the social sciences: a design-based approach*. Cambridge University Press.
- . Ferraz, C., & Finan, F. (2008). Exposing corrupt politicians: the effects of Brazil's publicly released audits on electoral outcomes. *The Quarterly journal of economics*, 123(2), 703-745.

- . **Jones, B. F., & Olken, B. A. (2009). Hit or miss? The effect of assassinations on institutions and war. *American Economic Journal: Macroeconomics*, 1(2), 55-87.**
- . LaLonde, R. J. (1986). Evaluating the econometric evaluations of training programs with experimental data. *The American economic review*, 604-620.
- . Todorov, A., Mandisodza, A. N., Goren, A., & Hall, C. C. (2005). Inferences of competence from faces predict election outcomes. *Science*, 308(5728), 1623-1626.

3. Class 3: Matching Models and synthetic controls

- . **Angrist, Joshua D. "Estimating the Labor Market Impact of Voluntary Military Service Using Social Security Data on Military Applicants." *Econometrica* 66.2 (1998): 249-288.**
- . Dinas, E., Hartman, E., & Van Spanje, J. (2016). Dead man walking: The affective roots of issue proximity between voters and parties. *Political Behavior*, 38(3), 659-687.
- . **Eggers, A. C., & Hainmueller, J. (2009). MPs for sale? Returns to office in postwar British politics. *American Political Science Review*, 103(4), 513-533.**

4. Class 4: Matching Models and synthetic controls: **Lab Session 1**

- . **Abadie, A., & Gardeazabal, J. (2003). The economic costs of conflict: A case study of the Basque Country. *American economic review*, 93(1), 113-132.**
- . Abadie, A., Diamond, A., & Hainmueller, J. (2010). Synthetic control methods for comparative case studies: Estimating the effect of California's tobacco control program. *Journal of the American statistical Association*, 105(490), 493-505.
- . **Abadie, A., Diamond, A., Hainmueller, J. (2015). Comparative politics and the synthetic control method. *American Journal of Political Science*, 59(2), 495-510.**
- . Dehejia, R. H., & Wahba, S. (1999). Causal effects in nonexperimental studies: Reevaluating the evaluation of training programs. *Journal of the American statistical Association*, 94(448), 1053-1062.

- Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, 70(1), 41-55.

5. Class 5: Differences-in-Differences

- Cantoni, D. (2015). The economic effects of the Protestant Reformation: testing the Weber hypothesis in the German lands. *Journal of the European Economic Association*, 13(4), 561-598.
- Card, D. (1992). Using regional variation in wages to measure the effects of the federal minimum wage. *Ilr Review*, 46(1), 22-37.
- **Card, D., & Krueger, A. B. (1994). Minimum wages and employment: A case study of the fast-food industry in New Jersey and Pennsylvania. *The American Economic Review*, 84(4), 772.**
- **Card, D., & Krueger, A. B. (2000). Minimum wages and employment: a case study of the fast-food industry in New Jersey and Pennsylvania: reply. *American Economic Review*, 90(5), 1397-1420.**
- **DellaVigna, S., & Kaplan, E. (2007). The Fox News effect: Media bias and voting. *The Quarterly Journal of Economics*, 122(3), 1187-1234.**
- Lyall, J. (2009). Does indiscriminate violence incite insurgent attacks? Evidence from Chechnya. *Journal of Conflict Resolution*, 53(3), 331-362.
- **Montalvo, J. G. (2011). Voting after the bombings: A natural experiment on the effect of terrorist attacks on democratic elections. *Review of Economics and Statistics*, 93(4), 1146-1154.**

6. Class 6: Differences-in-Differences: **Lab Session 2**

- Acemoglu, D., & Angrist, J. D. (2001). Consequences of employment protection? The case of the Americans with Disabilities Act. *Journal of Political Economy*, 109(5), 915-957.

- Acemoglu, D., Cantoni, D., Johnson, S., & Robinson, J. A. (2011). The consequences of radical reform: The French Revolution. *American economic review*, 101(7), 3286-3307.
- Autor, D. H. (2003). Outsourcing at will: The contribution of unjust dismissal doctrine to the growth of employment outsourcing. *Journal of labor economics*, 21(1), 1-42.
- **Bechtel, M. M., & Hainmueller, J. (2011). How lasting is voter gratitude? An analysis of the short-and long-term electoral returns to beneficial policy. *American Journal of Political Science*, 55(4), 852-868.**
- Bertrand, M., Duflo, E., & Mullainathan, S. (2004). How much should we trust differences-in-differences estimates?. *The Quarterly journal of economics*, 119(1), 249-275.
- **Besley, T., & Burgess, R. (2004). Can labor regulation hinder economic performance? Evidence from India. *The Quarterly journal of economics*, 119(1), 91-134.**
- Hong, S. H. (2013). Measuring the effect of Napster on recorded music sales: difference-in-differences estimates under compositional changes. *Journal of Applied Econometrics*, 28(2), 297-324.
- **Martinez-Bravo, M., Padró i Miquel, G., Qian, N., & Yao, Y. (2022). The Rise and Fall of Local Elections in China. *American Economic Review*, 112(9), 2921-58.**
- Selb, P., & Munzert, S. (2018). Examining a most likely case for strong campaign effects: Hitler's speeches and the rise of the Nazi party, 1927–1933. *American Political Science Review*, 112(4), 1050-1066.

7. Class 7: Natural Experiments and Instrumental Variables

- Angrist, J. D., Chen, S. H., & Song, J. (2011). Long-term consequences of Vietnam-era conscription: New estimates using social security data. *American Economic Review*, 101(3), 334-38.
- Angrist, J. D., & Evans, W. N. (1998). Children and Their Parents' Labor Supply: Evidence from Exogenous Variation in Family Size. *American Economic Review*, 450-477.

- **Angrist, J. D., & Krueger, A. B. (1992). Estimating the Payoff to Schooling Using the Vietnam-Era Draft Lottery. NBER Working Paper, (w4067).**
- Angrist, J. D., Imbens, G. W., & Rubin, D. B. (1996). Identification of causal effects using instrumental variables. *Journal of the American statistical Association*, 91(434), 444-455.
- Artés, J. (2014). The rain in Spain: Turnout and partisan voting in Spanish elections. *European Journal of Political Economy*, 34, 126-141.
- Betz, T., Cook, S. J., & Hollenbach, F. M. (2020). Spatial interdependence and instrumental variable models. *Political Science Research and Methods*, 8(4), 646-661.
- Dell, M., Jones, B. F., & Olken, B. A. (2014). What do we learn from the weather? The new climate-economy literature. *Journal of Economic Literature*, 52(3), 740-98.
- Dinas, E. (2014). Does choice bring loyalty? Electoral participation and the development of party identification. *American Journal of Political Science*, 58(2), 449-465.
- Gomez, B. T., Hansford, T. G., & Krause, G. A. (2007). The Republicans should pray for rain: Weather, turnout, and voting in US presidential elections. *The Journal of Politics*, 69(3), 649-663.
- Hansford, T. G., & Gomez, B. T. (2010). Estimating the electoral effects of voter turnout. *American political Science review*, 104(2), 268-288.
- **Kern, H. L., & Hainmueller, J. (2009). Opium for the masses: How foreign media can stabilize authoritarian regimes. *Political Analysis*, 17(4), 377-399.**
- Miguel, E., Satyanath, S., & Sergenti, E. (2004). Economic shocks and civil conflict: An instrumental variables approach. *Journal of political Economy*, 112(4), 725-753.
- Miguel, E., & Satyanath, S. (2011). Re-examining economic shocks and civil conflict. *American Economic Journal: Applied Economics*, 3(4), 228-32.
- Persson, M., Sundell, A., & Öhrvall, R. (2014). Does Election Day weather affect voter turnout? Evidence from Swedish elections. *Electoral Studies*, 33, 335-342.

- **Sarsons, H. (2015). Rainfall and conflict: A cautionary tale. *Journal of development Economics*, 115, 62-72.**

8. Class 8: Natural Experiments and Instrumental Variables: **Lab session 3**

- Angrist, J. D., & Krueger, A. B. (1991). Does compulsory school attendance affect schooling and earnings?. *The Quarterly Journal of Economics*, 106(4), 979-1014.
- Bound, J., Jaeger, D. A., & Baker, R. M. (1995). Problems with instrumental variables estimation when the correlation between the instruments and the endogenous explanatory variable is weak. *Journal of the American statistical association*, 90(430), 443-450.
- Campante, F., Durante, R., & Sobrio, F. (2018). Politics 2.0: The multifaceted effect of broadband internet on political participation. *Journal of the European Economic Association*, 16(4), 1094-1136.
- **Domènech, J., & Sánchez-Cuenca, I. (2021). The Long Shadow of Agrarian Conflict: Agrarian Inequality and Voting in Spain. *British Journal of Political Science*, 1-21.**
- **Durante, R., Pinotti, P., & Tesei, A. (2019). The political legacy of entertainment TV. *American Economic Review*, 109(7), 2497-2530.**
- **Hangartner, D., Dinas, E., Marbach, M., Matakos, K., & Xefteris, D. (2019). Does exposure to the refugee crisis make natives more hostile?. *American political science review*, 113(2), 442-455.**
- Kearney, M. S., & Levine, P. B. (2019). Early childhood education by television: Lessons from Sesame Street. *American Economic Journal: Applied Economics*, 11(1), 318-50.
- Lee, D. S., McCrary, J., Moreira, M. J., & Porter, J. R. (2021). Valid t-ratio Inference for IV (No. w29124). National Bureau of Economic Research.
- **Oto-Peralías, D., & Romero-Ávila, D. (2016). The economic consequences of the Spanish Reconquest: the long-term effects of Medieval conquest and colonization. *Journal of Economic Growth*, 21(4), 409-464.**

- Stock, J. H., Wright, J. H., & Yogo, M. (2002). A survey of weak instruments and weak identification in generalized method of moments. *Journal of Business & Economic Statistics*, 20(4), 518-529.

9. Class 9: Regression Discontinuity Design

- **Angrist, J. D., & Lavy, V. (1999). Using Maimonides' rule to estimate the effect of class size on scholastic achievement. *The Quarterly journal of economics*, 114(2), 533-575.**
- Calonico, S., Cattaneo, M. D., & Titiunik, R. (2014). Robust nonparametric confidence intervals for regression-discontinuity designs. *Econometrica*, 82(6), 2295-2326.
- Calonico, S., Cattaneo, M. D., Farrell, M. H., & Titiunik, R. (2017). rdrobust: Software for regression-discontinuity designs. *The Stata Journal*, 17(2), 372-404.
- Dinas, E., & Foos, F. (2017). The national effects of subnational representation: access to regional parliaments and national electoral performance. *Quarterly Journal of Political Science*, 12(1), 1-35.
- Eggers, A. C. (2015). Proportionality and turnout: Evidence from French municipalities. *Comparative Political Studies*, 48(2), 135-167.
- Eggers, A. C., Fowler, A., Hainmueller, J., Hall, A. B., & Snyder Jr, J. M. (2015). On the validity of the regression discontinuity design for estimating electoral effects: New evidence from over 40,000 close races. *American Journal of Political Science*, 59(1), 259-274.
- **Ferwerda, J., & Miller, N. L. (2014). Political devolution and resistance to foreign rule: A natural experiment. *American Political Science Review*, 108(3), 642-660.**
- Imbens, G. W., & Lemieux, T. (2008). Regression discontinuity designs: A guide to practice. *Journal of econometrics*, 142(2), 615-635.
- Lee, D. S. (2008). Randomized experiments from non-random selection in US House elections. *Journal of Econometrics*, 142(2), 675-697.

- Kocher, M. A., & Monteiro, N. P. (2016). Lines of demarcation: Causation, design-based inference, and historical research. *Perspectives on Politics*, 14(4), 952-975.
- Morduch, J. (1999). The role of subsidies in microfinance: evidence from the Grameen Bank. *Journal of development economics*, 60(1), 229-248.
- Pitt, M. M., & Khandker, S. R. (1998). The impact of group-based credit programs on poor households in Bangladesh: Does the gender of participants matter?. *Journal of political economy*, 106(5), 958-996.
- Steiner, P. M., Cook, T. D., Shadish, W. R., & Clark, M. H. (2010). The importance of covariate selection in controlling for selection bias in observational studies. *Psychological methods*, 15(3), 250.
- Valentim, V., Núñez, A. R., & Dinas, E. (2021). Regression discontinuity designs: a hands-on guide for practice. *Italian Political Science Review/Rivista Italiana di Scienza Politica*, 51(2), 250-268.

10. Class 10: Regression Discontinuity Design: **Lab Session 4**

- **Albertus, M. (2020). Land reform and civil conflict: Theory and evidence from Peru. *American Journal of Political Science*, 64(2), 256-274.**
- Amarante, V., Manacorda, M., Miguel, E., & Vigorito, A. (2016). Do cash transfers improve birth outcomes? Evidence from matched vital statistics, program, and social security data. *American Economic Journal: Economic Policy*, 8(2), 1-43.
- Barone, G., D'Acunto, F., & Narciso, G. (2015). Telecracy: Testing for channels of persuasion. *American Economic Journal: Economic Policy*, 7(2), 30-60.
- Bove, V., Di Leo, R., & Giani, M. (2022). Military Culture and Institutional Trust: Evidence from Conscription Reforms in Europe. *American Journal of Political Science*, *forthcoming*.
- Brugarolas, P., & Miller, L. (2021). The causal effect of polls on turnout intention: a local randomization regression discontinuity approach. *Political Analysis*, 29(4), 554-560.

- **Cavaille, C., & Marshall, J. (2019). Education and anti-immigration attitudes: Evidence from compulsory schooling reforms across Western Europe. *American Political Science Review*, 113(1), 254-263.**
- Dell, M. (2015). Trafficking networks and the Mexican drug war. *American Economic Review*, 105(6), 1738-79.
- Dinas, E., Riera, P., & Roussias, N. (2015). Staying in the first league: Parliamentary representation and the electoral success of small parties. *Political Science Research and Methods*, 3(2), 187-204.
- Eggers, A. C., Fowler, A., Hainmueller, J., Hall, A. B., & Snyder Jr, J. M. (2015). On the validity of the regression discontinuity design for estimating electoral effects: New evidence from over 40,000 close races. *American Journal of Political Science*, 59(1), 259-274.
- Eggers, A. C., Freier, R., Grembi, V., & Nannicini, T. (2018). Regression discontinuity designs based on population thresholds: Pitfalls and solutions. *American Journal of Political Science*, 62(1), 210-229.
- **Fujiwara, T. (2015). Voting technology, political responsiveness, and infant health: Evidence from Brazil. *Econometrica*, 83(2), 423-464.**
- Marshall, J. (2016). Education and voting Conservative: Evidence from a major schooling reform in Great Britain. *The Journal of Politics*, 78(2), 382-395.
- McCrary, J. (2008). Manipulation of the running variable in the regression discontinuity design: A density test. *Journal of econometrics*, 142(2), 698-714.

11. Class 11: New Trends in Causal Inference + **Students' Presentations**

- Bol, D., Giani, M., Blais, A., & Loewen, P. J. (2021). The effect of COVID-19 lockdowns on political support: Some good news for democracy?. *European Journal of Political Research*, 60(2), 497-505.

- Falcó-Gimeno, A., Muñoz, J., & Pannico, R. (2022). Double-Edged Bullets: The Conditional Effect of Terrorism on Vote for the Incumbent. *British Journal of Political Science*, 1-21.
- Giani, M., Epifanio, M., & Ivandic, R. (2022). Wait and see? Public opinion dynamics after terrorist attacks. *Journal of Politics*, *forthcoming*.
- Giani, M., & Méon, P. G. (2021). Global racist contagion following Donald Trump's election. *British Journal of Political Science*, 51(3), 1332-1339.
- **Holman, M. R., Merolla, J. L., & Zechmeister, E. J. (2022). The curious case of Theresa May and the public that did not rally: Gendered reactions to terrorist attacks can cause slumps not Bumps. *American Political Science Review*, 116(1), 249-264.**
- **Muñoz, J., Falcó-Gimeno, A., & Hernández, E. (2020). Unexpected event during survey design: Promise and pitfalls for causal inference. *Political Analysis*, 28(2), 186-206.**
- Pickard, H., Efthyvoulou, G., & Bove, V. (2022). What's left after right-wing extremism? The effects on political orientation. *European Journal of Political Research*.
- Schwartz, C., Simon, M., Hudson, D., & van-Heerde-Hudson, J. (2021). A populist paradox? How Brexit softened anti-immigrant attitudes. *British journal of political science*, 51(3), 1160-1180.

12. Class 12: **Students' Presentations**

Grading Policy

- **30%** of the final mark will be determined by a group presentation of a **working paper** to be chosen by the students. Each group's presentation will be around **30 minutes** long and will be followed by a **15-minutes Q&A** in class. Each group is expected to read the other papers being presented and to actively participate in the discussion: *i.e.*, **the Q&A session will constitute part of the grade.**

In the presentation, besides (briefly) discussing the research question, case study, data, and results, each group's main task will be that of backward-engineering the paper's methodology. A (non-exhaustive) list of the questions students should address are: what are the threats of endogeneity posed by a naive regression analysis? What would be the likely bias of the resulting estimate? What is the methodology employed in the paper to address this issue? Is there a reason why this method is preferable over ones? What are the necessary assumptions for it to yield consistent and unbiased results, and how do the authors assess them? Are there any issues with the methodology, e.g., unaddressed sources of endogeneity, external validity, manipulation?

- **70%**: take-home essay: **strictly no more than 3,000 words** (excluding bibliography, figures and tables), to be submitted **individually**. The objective is to employ **one** methodology between **DID, IV and RDD** to address an original research question. Students will have to retrieve the data autonomously: from publicly available surveys (e.g., **ESS**, **Understanding Society**, **Afrobarometer**, **WVS...**); administrative records (e.g., **electoral results**, **socio-economic statistics**; or any alternative source (e.g., social media, archival, historical or geocoded data). The essay will be in the shape of a research note: introduction and literature review (**extremely concise**, aimed at illustrating *why* your question is novel), data, empirical strategy, findings (and, if possible, mechanisms), robustness tests, conclusions. In the essay, students will have to: (a) illustrate their research question and working hypotheses in a clear manner; (b) briefly describe the data used (e.g., by means of descriptive statistics); (c) discuss the empirical strategy (*i.e.*, estimating equation, any potential threat to identification...) and how it allows to establish a causal relationship (e.g. compared to a regression model); (d) perform the necessary robustness tests to defend the validity of the methodological choice (*note*: if some of the identification assumptions turn out not to hold in the case under scrutiny, students should address this critically, discuss the likely direction of the estimates' bias, and, possibly, present some alternative routes to be explored in future research); (e) present their findings by means of *self-contained* tables and figures, adequately labelled and commented.

*Note: the evaluation of the essay will place particular weight on the **methodological** aspects, rather than on the "goodness" of the results, on the relevance of the contribution etc.*

*Note: the submitted essay must represent an **original contribution** by the student. Any detected case of plagiarism and self-plagiarism will be severely penalized.*

*Note: remember to include the word count at the beginning of your paper. **Papers exceeding the word count will be penalized.***

Deadline: **TBC**