

Syllabus: Data and Development

CEU Vienna, Winter 2021

Instructor: Anand Murugesan

Course Number: SOPP5394

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Class meetings: Tuesdays: 9:00 – 10:40, QS D-105

Office hours: Mondays: 15.30 - 16.30, QS C - 403

Relation to other courses:

This course is at the intermediate level and will require that the student has taken previous courses in empirical methods, covering fundamental concepts such as Ordinary Least Squares (OLS) and Maximum Likelihood Estimation (MLE) and an exposure to causal inference methods such as Randomized Control Trials, Instrumental Variables (IV), and Difference-in-Difference estimation, which we will review and further build upon.

Background and Overall Aim of the Course:

The primary goal of this course is twofold (1) an introduction to persistent and emerging issues in development (2) applied training in using data (experimental, observational, survey) to analyze problems of development. The course will not go in depth in regard to any particular econometric method, but will instead aim to provide you skills to know when, and when not, to use it in your empirical research. We will focus on the role of individuals, households, institutions, and policies briefly in theory and in detail by empirically engaging with (recent) journal articles.

Learning Outcomes:

At the end of the course, students should be able to

1. use economic concepts to critically evaluate development policies
2. make careful inferences from empirical papers in development for designing policy in specific contexts
3. implement core empirical tools to analyze and synthesize development issues

Learning Activities and Teaching Methods:

The class will mostly center around two activities: (1) close reading and discussion of seminal and recent papers and (2) the analysis of real data to estimate causal relationships. Students will be learning-by-doing analysis along with interactive lectures and classroom discussions. Students can expect to spend 20 - 30% of class time on statistical software (STATA/R). The assignments are designed to facilitate a deeper understanding of issues in development by analyzing real data.

Assessment:

The course requirements are satisfactory completion of the assignments, short tests, quizzes, class discussion notes and submission of the final paper. The problem sets will be provided a letter grade.

Assignments: 30%

Class discussion and notes: 20%

Outline of final paper: 20%

Applied paper: 30%

One student will be chosen at random to lead the discussion on the required reading (in bold) and a second to comment. Each student is required to submit at least 6 discussion notes (approx. half a page, but no more than one page; bullet points will suffice) and can pass the opportunity to lead the discussion or comment on two occasions.

Outline of empirical paper

Instead, *students are required to submit a written outline/proposal of their final paper (20% of the grade)*. The outline/proposal (about 600 words) must contain (1) a well specified research question and hypothesis (2) the proposed data source (3) the empirical strategy (method) and brief discussion of why it is appropriate for the setting (4) econometric specification. Students must be prepared to briefly discuss their research question, hypothesis, data and empirical method in class.

Empirical paper

The applied paper is intended to develop your skills in empirical analysis and deepen your understanding of a particular development issue. The paper should be about 2400 words (no longer than 3000). Fewer words is better as long as it makes the point. Conceptually, I am looking for (1) a well defined research question (2) appropriate analytical framework (3) empirical analysis (4) summary/conclusions, policy implications. In terms of structure (1) Introduction (background, research question) (2) Empirical strategy (3) Data analysis and discussion (4) Conclusion. The weight of the assessment is on the empirical analysis (approx. 50%). The quality and novelty of the research question receive bonus points (10%). The paper is to be submitted on Moodle.

Course Content and Readings:

We will spend the first five weeks of the class discussing the theoretical mechanisms (such as poverty traps in week 1) and reviewing the essential empirical toolkit (weeks 2 – 5) with applications to development. I will give a short lecture on each of the “famous five” empirical methods to highlight the key points. We will discuss in detail a paper using that tool. We will then focus on applied topics.

Week 1 – Analytical Framework

Poverty traps: role of undernutrition, health, education

Ray, Debraj, Development Economics, Princeton University Press (Ch. 7)

Deaton, Angus, 2003. “Health, Inequality and Economic Development”, Journal of Economic Literature, pp. 113 - 158.

Ahuja et al. 2015. "When Should Governments Subsidize Health? The Case of Mass Deworming," *The World Bank Economic Review*, Vol. 29, p S9 - S24.

Week 2 – Empirical toolkit

Famous Five 1: Causal inference with randomization

Cohen, Jessica and Pascaline Dupas. 2010. "Free Distribution or Cost-Sharing? Evidence from a Randomized Malaria Prevention Experiment," *The Quarterly Journal of Economics*, 125(1), pp. 1-30

Joshua D. Angrist and Jorn-Steffen Pischke (2009). *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press (MHE, Ch. 1) (*required reading*)

Paul Gertler et al. (2016). *Impact Evaluation in Practice*. <http://www.worldbank.org/ieinpractice> (IEP, Ch. 3)

Week 3 - "Famous Five" Part 2

Health externalities: Regressions, randomization and statistical inference

Kremer, Michael and Edward Miguel. 2004. "Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities," *Econometrica*, 72(1): 159-217. (*required reading, 159 - 193*)

MHE, Ch. 2.2 – 2.3, Ch. 8

IEP Ch. 4

Week 4 - "Famous Five" Part 3

Returns to schooling: difference-in-difference, clustering

Esther Duflo (2001). "Schooling and Labor Market Consequences of School Construction in Indonesia: Evidence from an Unusual Policy Experiment" *The American Economic Review* 91.4

Marianne Bertrand, Esther Duflo, and Sendhil Mullainathan (2004). "How Much Should We Trust Differences-in-Differences Estimates?" *Quarterly Journal of Economics* 119.1, pp. 249–275.

A. Colin Cameron and Douglas L. Miller (2015). "A Practitioner's Guide to Cluster- Robust Inference". *Journal of Human Resources* 50.2, pp. 317–372.

Week 5 - "Famous Five" Part 4

Immigrants and Compulsory schooling: Instrumental variables

Joshua D. Angrist and Alan B. Krueger (1991). "Does Compulsory School Attendance Affect Schooling and Earnings?" *Quarterly Journal of Economics*

Angrist, J.D. and Lavy, V., 1999. Using Maimonides' rule to estimate the effect of class size on scholastic achievement. *The Quarterly journal of economics*, 114(2), pp.533-575.

Angrist, J.D., Lavy, V., Leder-Luis, J. and Shany, A., 2019. Maimonides' Rule Redux. *American Economic Review: Insights*, 1(3), pp.309-24.

MHE, Ch. 3

Woolridge, Ch. 15

Week 6 – Environment and Development

Dams, Ecosystems, and Pollution

Jennifer M. Alix-Garcia, Katharine R. E. Sims, and Patricia Yanez-Pagans (2015). “Only One Tree from Each Seed? Environmental Effectiveness and Poverty Alleviation in Mexico’s Payments for Ecosystem Services Program”. *American Economic Journal: Economic Policy*

Rema Hanna and Paulina Oliva (2015). “The Effect of Pollution on Labor Supply: Evidence from a Natural Experiment in Mexico City”. *Journal of Public Economics*

Esther Duflo and Rohini Pande (2007). “Dams” *The Quarterly Journal of Economics* 122.2, pp. 601–646.

Week 7 – Economics of Water, Sanitation, and Hygiene

Health poverty feedback; externalities

Michael Geruso and Dean Spears (2018). “Neighborhood Sanitation and Infant Mortality”. *American Economic Journal: Applied Economics* 10.2, pp. 125–162.

Daniel Bennett (2012). “Does Clean Water Make You Dirty? Water Supply and Sanitation in the Philippines”. *Journal of Human Resources*

Sebastian Galiani, Paul Gertler, and Ernesto Schargrotsky (2005). “Water for Life: The Impact of the Privatization of Water Services on Child Mortality”. *Journal of Political Economy* 113.1, pp. 83–120.

Week 8 – Gender and norms

Intra-household allocation: diff-in-diff; instrumental variables

Chattopadhyay R, Duflo E. (2004). “Women as policy makers: evidence from a randomized policy experiment in India”. *Econometrica*

Esther Duflo (2003). “Grandmothers and Granddaughters: Old Age Pension and Intra-Household Allocation in South Africa”. *World Bank Economic Review*

Jensen, R., 2012. Do labor market opportunities affect young women’s work and family decisions? Experimental evidence from India. *The Quarterly Journal of Economics*, 127(2), pp.753-792.

Alberto Alesina, Paula Guiliano and Nathan Nunn. 2013. “On the Origins of Gender Roles: Women and the Plough”, *The Quarterly Journal of Economics*, Vol 128(2)

Week 9 – Psychology and Development

Cognitive loads, scarcity, nudging

Mani, Anandi, Sendhil Mullainathan, Eldar Shafir, Jiaying Zhao. 2013. “Poverty Impedes Cognitive Function,” *Science*, 341, pp. 976- 980

Haushofer, J. and Fehr, E., 2014. On the psychology of poverty. *Science*, 344(6186), pp.862-867.

Datta, S. and Mullainathan, S., 2014. Behavioral design: a new approach to development policy. *Review of Income and Wealth*, 60(1), pp.7-35.

Dupas, Pascaline and Jonathan Robinson, 2013. “Why don’t the Poor Save More? Evidence from Health Savings Experiments,” *American Economic Review*, Vol. 103(4): 1138-1171

Week 10 – Discrimination and disparities

Measuring choices and beliefs, justice

Rao, G., 2019. Familiarity does not breed contempt: Generosity, discrimination, and diversity in Delhi schools. *American Economic Review*, 109(3), pp.774-809.

Hoff, K. and Pandey, P., 2006. Discrimination, social identity, and durable inequalities. *American Economic Review*, 96(2), pp.206-211.

Bertrand, Marianne, and Sendhil Mullainathan. 2004. "Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination." *American Economic Review* 94 (4): 991–1013.

Chetty, Raj, Nathaniel Hendren, Maggie R. Jones, and Sonya R. Porter. 2018. "Race and Economic Opportunity in the United States: An Intergenerational Perspective." NBER Working Paper No. 24441.

Week 11 – Institutions and Development

Historical data, persistence

No required reading for this session

We will review previous content and discuss and give feedback on the student final paper proposals in the session

Suggested Readings (a longer list as there are many recent papers that might interest you)

Dell, Melissa, Nathan Lane, and Pablo Querubin. 2018. "The Historical State, Local Collective Action, and Economic Development in Vietnam." *Econometrica* (regression discontinuity design across spatial boundaries)

Gorodnichenko, Y. and Roland, G., 2017. Culture, institutions, and the wealth of nations. *Review of Economics and Statistics*, 99(3), pp.402-416.

(using data on the frequency of gene types, frequency of blood types and prevalence of pathogens to instrument individualism scores; to test the hypothesis "more individualist culture leads to more innovation and growth")

Nathan Nunn and Leonard Wantchekon. 2011. "The Slave Trade and the Origins of Mistrust in Africa," *American Economic Review*, Vol. 101, No. 7 [novel paper linking the influence of slave trade on trust and its effect on long-run development in Africa]

Acemoglu, Daron, Simon Johnson, and James Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review*, volume 91, pp. 1369-1401. [using historical settler mortality data to instrument for institutions – seminal and controversial paper]

Nunn, Nathan. 2009. "The Importance of History for Economic Development," *Annual Review of Economics*, Vol.1, No. 1, pp. 65-92 [a good review of (also empirical methods used in) economic history and institutional economics]

Algan, Yann and Pierre Cahuc. 2010. "Inherited Trust and Growth," *American Economic Review* [new method using inherited trust among immigrants to uncover causal effects on growth]

Alesina, A., Giuliano, P. and Nunn, N., 2013. On the origins of gender roles: Women and the plough. *The Quarterly Journal of Economics*, 128(2), pp.469-530

(a cool paper relating the historical use of agricultural plough to beliefs about gender roles in societies today)