

Economics 2520
Economic Development “II”
Fall 2020

This is half of the development economics sequence. The two halves can be taken in any order.

Class meetings are Mondays and Wednesdays 2.30-3.50pm on Zoom.

This will be a remote class. We may adapt its design as the semester progresses.

Instructor: Daniel Björkegren

danbjork@brown.edu

Office Hours: make appointment at <http://danbjork.youcanbook.me>

This course explores questions around history, learning, industry, infrastructure, credit, savings, behavioral economics, and environment. We'll be asking:

- How does a country's history affect its current development?
- What can we learn from the history of countries that have already developed?
- Do profitable technologies always diffuse? How do societies learn?
- How does infrastructure affect development? How should it be regulated?
- Why do so many lack access to credit and savings?
- How does environment interact with development?

This course has two objectives: to familiarize you with the micro development literature, and to prepare you to contribute to the field.

Requirements:

Your final grade will be a combination of three graded homeworks and a referee report (60% total), a paper proposal (20%), and class participation (20%).

Reading

Prior to each session, I will announce the papers you are to read. You should read these papers in advance of each class meeting, and come prepared to discuss them. To be sure this is the case, by 5 AM before each class (starting with the second class) you will be required to email a discussion with three points on one designated paper (what's good about the paper, what are its weaknesses, and what could be done to improve or follow up on it). Please start your subject line with “EC2520: Assignment” for these submissions. At

the start of the class I will call on students randomly and ask them to present their comments.

Assignments

Assignments are an opportunity for you to practice skills that will be important in doing your own research.

In addition to participating in class meetings, students will be expected to read out of class, prepare presentations for class, work on problem sets, and prepare their own research projects. They should expect to spend a good deal of time outside of class on these activities.

A rough accounting of time required for the course is as follows: Lectures: 3 hours per week for 13 weeks (39 total hours). Reading, class preparation, and problem sets: 10 hours per week for 13 weeks (130 hours total). Studying and review, and preparation of own research projects: 25 hours. Total 194 hours.

Communities

Mainstream development economics: Look out for conferences including NEUDC, PacDev, and if virtual and open to students: BREAD and NBER.

There is also emerging work on development intersecting with computer science (especially on data science / big data / machine learning). A few communities to look out for:

- [Mechanism Design for Social Good](#) (join the email list)
- ACM COMPASS
- ACM EC
- ICTD

Readings

The literature list is subject to change. Not all references will be covered in class, some are background reading.

General background reading:

- Bardhan, Pranab and Christopher Udry, 1999. *Development Microeconomics*.
- Ray, Debraj, 1998. *Development Economics*.

References on experimentation:

- Duflo, E., Glennerster, R., & Kremer, M. (2007). Using randomization in development economics research: A toolkit. *Handbook of Development Economics*, 4, 3895–3962.
- Glennerster, R., & Takavarasha, K. (2013). *Running Randomized Evaluations: A Practical Guide*. Princeton University Press.

Main readings

These readings will also be shared in a Zotero group to make your life easier. You are welcome to copy the references to your personal library to start off your reference database.

Introduction

Banerjee, Abhijit V, and Esther Duflo. “The Economic Lives of the Poor.” *Journal of Economic Perspectives* 21, no. 1 (February 2007): 141–67.

Menzel, Peter, and Charles C. Mann. *Material World: A Global Family Portrait*. San Francisco: Counterpoint, 1995.

Morduch, Jonathan, and Stuart Rutherford. *Portfolios of the Poor: How the World’s Poor Live on \$2 a Day*. Princeton: Princeton University Press, 2010.

History

Learning from History

* Greif, Avner. “Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders’ Coalition.” *The American Economic Review* 83, no. 3 (June 1, 1993): 525–48.

———. “History Lessons: The Birth of Impersonal Exchange: The Community Responsibility System and Impartial Justice.” *The Journal of Economic Perspectives* 20, no. 2 (April 1, 2006): 221–36.

Endogenous institutions

* Clark, Gregory. “Commons Sense: Common Property Rights, Efficiency, and Institutional Change.” *The Journal of Economic History* 58, no. 1 (March 1, 1998): 73–102.

* Kremer, Michael, Jessica Leino, Edward Miguel, and Alix Peterson Zwane. “Spring Cleaning: Rural Water Impacts, Valuation, and Property Rights Institutions.” *The Quarterly Journal of Economics* 126, no. 1 (February 1, 2011): 145–205.

Leeson, Peter T. “An-arrgh-chy: The Law and Economics of Pirate Organization.” *Journal of Political Economy* 115, no. 6 (December 1, 2007): 1049–94.

Persistence

Acemoglu, Daron, Simon Johnson, and James A. Robinson. “The Colonial Origins of Comparative Development: An Empirical Investigation.” *The American Economic Review* 91, no. 5 (December 1, 2001): 1369–1401.

* Acemoglu, Daron, Simon Johnson, and James A. Robinson. “Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution.” *The Quarterly Journal of Economics* 117, no. 4 (2002): 1231–94.

* Dell, Melissa. “The Persistent Effects of Peru’s Mining Mita.” *Econometrica* 78, no. 6 (December 3, 2010): 1863–1903.

Nunn, Nathan. “The Importance of History for Economic Development.” *Annual Review of Economics* 1, no. 1 (2009): 65–92.

Nunn, Nathan. “The Long-Term Effects of Africa’s Slave Trades.” *The Quarterly Journal of Economics* 123, no. 1 (February 1, 2008): 139–76.

Boundaries, States, and Capacity

Berger, Daniel. “Taxes, Institutions and Local Governance: Evidence from a Natural Experiment in Colonial Nigeria,” 2009.

Dippel, C. (2014). Forced Coexistence and Economic Development: Evidence From Native American Reservations. *Econometrica*, 82(6), 2131–2165.

Michalopoulos, S., & Papaioannou, E. (2016). The Long-Run Effects of the Scramble for Africa. *American Economic Review*, 106(7), 1802–1848.

Technology and Learning

Theory and Learning

* Banerjee, Abhijit V. “A Simple Model of Herd Behavior.” *The Quarterly Journal of Economics* 107, no. 3 (August 1, 1992): 797–817.
doi:10.2307/2118364.

Ellison, Glenn, and Drew Fudenberg. “Rules of Thumb for Social Learning.” *Journal of Political Economy* 101, no. 4 (1993): 612–43.

Griliches, Zvi. “Hybrid Corn: An Exploration in the Economics of Technological Change.” *Econometrica* 25, no. 4 (October 1957): 501

Banerjee, A. V., Breza, E., Chandrasekhar, A. G., & Golub, B. (2019). “When less is more: Experimental evidence on information delivery during India’s demonetization.” *Working Paper*

Technology Adoption

Basu, Susanto, and David N Weil. “Appropriate Technology and Growth.” *The Quarterly Journal of Economics* 113, no. 4 (November 1, 1998): 1025–54.

Comin, Diego, and Bart Hobijn. “An Exploration of Technology Diffusion.” *American Economic Review* 100, no. 5 (December 2010): 2031–59.

Conley, Timothy G, and Christopher R Udry. “Learning about a New Technology: Pineapple in Ghana.” *American Economic Review* 100, no. 1 (March 2010): 35–69.

* Foster, Andrew, and Mark R Rosenzweig. “Learning by Doing and Learning from Others: Human Capital and Technical Change in Agriculture.” *Journal of Political Economy*, 1995.

Suri, Tavneet. “Selection and Comparative Advantage in Technology Adoption.” *Econometrica* 79, no. 1 (January 1, 2011): 159–209.

Infrastructure and Industry

Firms and Industry

* Bloom, Nicholas, Benn Eifert, Aprajit Mahajan, David McKenzie, and John Roberts. “Does Management Matter? Evidence from India.” *The Quarterly Journal of Economics* 128, no. 1 (February 1, 2013): 1–51.

De Mel, S., McKenzie, D., & Woodruff, C. (2008). Returns to Capital in Microenterprises: Evidence from a Field Experiment. *The Quarterly Journal of Economics*, 123(4), 1329–1372.

Hardy, M., & McCasland, J. (2015). Are Small Firms Labor Constrained? Experimental Evidence from Ghana.

* Hardy, M., & McCasland, J. (2016). It Takes Two: Experimental Evidence on the Determinants of Technology Diffusion.

Keniston, D. (2011). Bargaining and Welfare: A Dynamic Structural Approach.

Kremer, M., Lee, J., Robinson, J., & Rostapshova, O. (2013). Behavioral Biases and Firm Behavior: Evidence from Kenyan Retail Shops. *American Economic Review*, 103(3), 362–368.

Infrastructure

* Björkegren, Daniel. “The Adoption of Network Goods: Evidence from the Spread of Mobile Phones in Rwanda,” *Review of Economic Studies*, 2019.

* Donaldson, D. (2018). Railroads of the Raj: Estimating the Impact of Transportation Infrastructure. *American Economic Review*, 108(4–5), 899–934.

Ryan, Nicholas. “The Competitive Effects of Transmission Infrastructure in the Indian Electricity Market,” 2013.

Data Science and Machine Intelligence

Reviews

Athey, S. (2017). Beyond prediction: Using big data for policy problems. *Science*, 355(6324), 483–485.

Athey, S. (2018). The Impact of Machine Learning on Economics. *The Economics of Artificial Intelligence: An Agenda*, 507–547.

Domingos, P. (2012). A few useful things to know about machine learning. *Communications of the ACM*, 55(10), 78–87.

Einav, L., & Levin, J. (2014). The Data Revolution and Economic Analysis. *Innovation Policy and the Economy*, 14, 1–24.

Mullainathan, S., & Spiess, J. (2017). Machine Learning: An Applied Econometric Approach. *Journal of Economic Perspectives*, 31(2), 87–106.

References: Visualization

Tufte, E. R. (1990). *Envisioning Information*. Cheshire, Conn.: Graphics Pr.

Tufte, E. R. (1997). *Visual Explanations: Images and Quantities, Evidence and Narrative*. Cheshire, Conn: Graphics Press.

Tufte, E. R. (2001). *The Visual Display of Quantitative Information* (2nd edition). Cheshire, Conn: Graphics Pr.

Hadley Wickham. 'ggplot2.'

<http://link.springer.com/revproxy.brown.edu/book/10.1007/978-0-387-98141-3>

'Awesome Interactive Journalism.' <https://github.com/wbkd/awesome-interactive-journalism>

Implementing Tufte graphs in R: <http://motioninsocial.com/tufte/>

Measurement

Abebe, R., Hill, S., Vaughan, J. W., Small, P. M., & Schwartz, H. A. (2019). Using Search Queries to Understand Health Information Needs in Africa. *Proceedings of the International AAAI Conference on Web and Social Media*, 13, 3–14.

Björkegren, D., & Grissen, D. (2019). Behavior Revealed in Mobile Phone Usage Predicts Credit Repayment. *The World Bank Economic Review*. <https://doi.org/10.1093/wber/lhz006>

Blumenstock, J., Cadamuro, G., & On, R. (2015). Predicting poverty and wealth from mobile phone metadata. *Science*, 350(6264), 1073–1076.

Blumenstock, Joshua, Nathan Eagle, and Marcel Fafchamps. "Airtime transfers and mobile communications: Evidence in the aftermath of natural disasters." *Journal of Development Economics*, 2016.

Jean, N., Burke, M., Xie, M., Davis, W. M., Lobell, D. B., & Ermon, S. (2016). Combining satellite imagery and machine learning to predict poverty. *Science*, 353(6301), 790–794. <https://doi.org/10.1126/science.aaf7894>

Lu, X., Bengtsson, L., & Holme, P. (2012). Predictability of population displacement after the 2010 Haiti earthquake. *Proceedings of the National Academy of Sciences*, 109(29), 11576–11581.

* Milusheva, S. (2016). “Less Bite for Your Buck: Using Cell Phone Data to Target Disease Prevention.”

Wesolowski, Amy, Nathan Eagle, Andrew J. Tatem, David L. Smith, Abdisalan M. Noor, Robert W. Snow, and Caroline O. Buckee. “Quantifying the Impact of Human Mobility on Malaria.” *Science* 338, no. 6104 (October 12, 2012): 267–70.

Action

Björkegren, D., Blumenstock, J. E., & Knight, S. (2020). Manipulation-Proof Machine Learning. *ArXiv:2004.03865* [Cs, Econ].
<http://arxiv.org/abs/2004.03865>

Kleinberg, J., Lakkaraju, H., Leskovec, J., Ludwig, J., & Mullainathan, S. (2018). Human Decisions and Machine Predictions. *The Quarterly Journal of Economics*, 133(1), 237–293.

Kleinberg, J., Ludwig, J., Mullainathan, S., & Obermeyer, Z. (2015). Prediction Policy Problems. *American Economic Review Papers & Proceedings*, 105(5), 491–495. <http://doi.org/10.1257/aer.p20151023>

Ethics

Daily Nation. (2013). US scientists ‘spied’ on phone users.
<https://www.nation.co.ke/kenya/news/us-scientists-spied-on-phone-users-882170>

Finance: Credit and Insurance

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.

Breza, E. (2012). Peer Effects and Loan Repayment: Evidence from the Krishna Default Crisis.

Burgess, R., & Pande, R. (2005). Do Rural Banks Matter? Evidence from the Indian Social Banking Experiment. *American Economic Review*, 95(3), 780–795.

Feigenberg, B., Field, E., & Pande, R. (2013). The Economic Returns to Social Interaction: Experimental Evidence from Microfinance. *The Review of Economic Studies*, 80(4), 1459–1483.

* Karlan, D., & Zinman, J. (2009). Observing Unobservables: Identifying Information Asymmetries With a Consumer Credit Field Experiment. *Econometrica*, 77(6), 1993–2008.

Karlan, D., & Zinman, J. (2011). Microcredit in Theory and Practice: Using Randomized Credit Scoring for Impact Evaluation. *Science*, 332(6035), 1278–1284.

Stiglitz, J. E., & Weiss, A. (1981). Credit Rationing in Markets with Imperfect Information. *The American Economic Review*, 71(3), 393–410.

Townsend, R. M. (1994). Risk and Insurance in Village India. *Econometrica*, 62(3), 539–591.

Education

* Duflo, Esther, “Schooling and Labor Market Consequences of School Construction in Indonesia: Evidence from an Unusual Policy Experiment,” *American Economic Review*, Vol.91, No.4, 2001, p.795-813.

Muralidharan, Karthik and Venkatesh Sundaraman, “Teacher Performance Pay: Experimental Evidence from India,” *Journal of Political Economy*, Vol.119, No.1, 2011, p. 39-77.

Behrman, Jere R., Andrew D. Foster, Mark R. Rosenzweig, and Prem Vashishta, “Women’s Schooling, Home Teaching, and Economic Growth,” *Journal of Political Economy*, Vol.107, No.4, 1999, p.682-715.

Foster, Andrew D. and Mark R. Rosenzweig, “Technical Change and Human-Capital Returns and Investments: Evidence from the Green Revolution,” *American Economic Review*, Vol.86, No. 4, 1996, p.931-953.

Hastings, J., Neilson, C. A., & Zimmerman, S. D. (2015). The Effects of Earnings Disclosure on College Enrollment Decisions (Working Paper No. 21300). National Bureau of Economic Research.

* Jensen, Rob, “The (Perceived) Returns to Education and the Demand for Schooling,” *Quarterly Journal of Economics*, Vol. 125, No.2, 2010, p. 515-548.

Kremer, Michael, and Alaka Holla. “Improving Education in the Developing World: What Have We Learned from Randomized Evaluations?” *Annual Review of Economics* 1, no. 1 (2009): 513–42.

Millet, Bryce and Emily Oster, “Do Call Centers Promote School Enrollment? Evidence from India,” University of Chicago typescript.

Munshi, Kaivan and Mark Rosenzweig, “Traditional Institutions Meet the Modern World: Caste, Gender and Schooling Choice in a Globalizing Economy,” *American Economic Review*, Vol. 96, No. 4, 2006, p.1225-1252.

* Pritchett, Lant. “Where Has All the Education Gone?” *The World Bank Economic Review* 15, no. 3 (October 1, 2001): 367–91.

Environment

Greenstone, M., & Jack, B. K. (2015). Envirodevonomics: A Research Agenda for an Emerging Field. *Journal of Economic Literature*, 53(1), 5–42.

van der Ploeg, F. (2011). Natural Resources: Curse or Blessing? *Journal of Economic Literature*, 49(2), 366–420.

Policy Design

Davis, L. W. (2008). The Effect of Driving Restrictions on Air Quality in Mexico City. *Journal of Political Economy*, 116(1), 38–81.

Duflo, E., Greenstone, M., Pande, R., & Ryan, N. (2013). Truth-telling by Third-party Auditors and the Response of Polluting Firms: Experimental Evidence from India. *The Quarterly Journal of Economics*, 128(4), 1499–1545.

* Greenstone, M., & Hanna, R. (2014). Environmental Regulations, Air and Water Pollution, and Infant Mortality in India. *American Economic Review*, 104(10), 3038–3072.

Trade and International

Hémous, D. (2016). The dynamic impact of unilateral environmental policies. *Journal of International Economics*, 103, 80–95.

- Copeland, B. R., & Taylor, M. S. (2004). Trade, Growth, and the Environment. *Journal of Economic Literature*, 42(1), 7–71.
- Shapiro, J. S. (2016). Trade Costs, CO₂, and the Environment. *American Economic Journal: Economic Policy*, 8(4), 220–254.

Energy Demand

- Hanna, R., Duflo, E., & Greenstone, M. (2016). Up in Smoke: The Influence of Household Behavior on the Long-Run Impact of Improved Cooking Stoves. *American Economic Journal: Economic Policy*, 8(1), 80–114.
- Lee, K., Miguel, E., & Wolfram, C. (2016). Appliance Ownership and Aspirations among Electric Grid and Home Solar Households in Rural Kenya. *American Economic Review P&P*, 106(5), 89–94.
- Wolfram, C., Shelef, O., & Gertler, P. (2012). How Will Energy Demand Develop in the Developing World? *Journal of Economic Perspectives*, 26(1), 119–138.

Other

- * Kremer, M. (1993). The O-ring theory of economic development. *Quarterly Journal of Economics*, 108(3), 551.

Additional readings to be announced