Empirical Energy and Environmental Economics (ARE 261)
UC Berkeley
Joseph S. Shapiro

Fall 2021-2022 (Half-Semester) October 14 – Dec 2
Tuesdays noon-1pm, Thursdays noon-2pm, Giannini 238

Office Hours: 3:45-5pm Tuesdays at https://berkeley.zoom.us/j/98995210773 or by appointment.

Overview

The course provides graduate-level discussion of topics and methods in environmental economics. It is half a semester of a year-long graduate sequence.

Objectives

The course has two objectives. The first is to teach current topics and methods of environmental economics. The second is to advance students' development as economists by providing training in the production of high-quality research. This training may help students read, contribute to, and draw from recent progress in this literature.

Given these objectives, students are strongly encouraged to ask questions, make comments, point out flaws and strengths of papers, and engage actively in the analysis of these papers that the class undertakes.

Environmental economics is to some extent a topic that draws on many fields. This course tends to focus on approaches that are closest to public finance, with components from trade and industrial organization. Other parts of the year-long sequence put more emphasis on aspects of environmental and resource economics that are closest to macroeconomics, microeconomic theory, econometrics, and other fields.

Prerequisites

To complete the ARE 261/264 sequence, you should have completed a good-quality econometrics course, and a first-year graduate microeconomic theory course.

Textbook

The course has no official textbook. A few lectures refer to chapters from the following book: Freeman, A. Myrick, Joseph A. Herriges, and Catherine L. Kling. 2014. The Measurement of Environmental and Resource Values: Theory and Methods. RFF Press, Third Edition. Earlier editions are fine and similar.

Scheduling

Several individual lectures will occur at different times, please see timeline below.

Academic integrity

Students are expected to adhere to the UC Berkeley Honor Code: "As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others."

COVID-19 Policies: Students must adhere strictly to UC Berkeley face covering requirements. Currently, you are required to wear face coverings in class even if you are fully vaccinated. Please see https://coronavirus.berkeley.edu/return-to-campus/face-coverings/. Do not eat or drink in class. UC Berkeley also requires all individuals on campus to complete a daily symptom screener (https://calberkeley.ca1.qualtrics.com/jfe/form/SV_3xTgcs162K19qRv), which currently excludes people from campus with cold symptoms like cough, headache, sore throat, and congestions. If you have these symptoms, even if you have a negative covid test, attend remotely and you can still receive full credit. If the instructor has symptoms on class days where the campus symptom screener would keep them home, class on those days only will be remote instruction via zoom, and I will communicate a zoom link to students. In case this occurs, please consider if you have a space or devices that would allow connection. This class values active in-person participation, but if you have any cold or related symptoms, please keep everyone healthy and stay home. If you do have any symptoms within 24 hours of class, just email me and I will setup a live zoom link so you can join remotely, or if that is not working, I will record the class and post online. Please let's all keep each other healthy! 😊

Requirements

Grades will be based on a problem set (35%), written responses (15%), a referee report (30%), and a final presentation (20%). Late assignments will not be graded.

Students should read all papers noted with asterisks (***) before class each week since these will be the focus of lecture. Papers with one asterisk (*) may be discussed more briefly in class. Here is detail on each component.

1. One problem set

The problem set will be **assigned on Oct 26 and due Nov 4**.

2. Written reading responses

Each week students must submit a short written response to one of the starred papers for that week. (If you have considerable interest in a non-starred paper for a specific week, you are welcome to comment on that, but make this an occasional practice guided by your research interests and knowledge of specific papers; I have chosen which papers to star based on what I think will help your training.) Responses are due at 10pm the night before class, by email.

Please use the email subject "ARE 261 reading response." Each response should be more than two sentences and less than two pages (aiming on average for about a half page or 1-2 paragraphs is about right). Here are a few guides about what to include in a typical response:

- Please include some critical response, not merely summary.
- Critical response can be of the nature, "This part was especially good"; or, "This part was especially not good."

- While critical response is the most important and interesting part, you are welcome also to include a summary of the paper.

The goal of these responses is not for you to search for minor mistakes in excellent papers. Instead, the main goal is to help you improve your own research. If you were refereeing this paper for the AER, what is the most important comment you would highlight to the editor that would cause you to recommend rejecting or accepting this paper? Thinking carefully about the strengths and weaknesses of excellent papers is a great way to provide guidance when you are deciding how to craft your own work. A less important but not irrelevant goal is to increase your comfort at evaluating papers critically. Part of our profession, through seminars, referee reports, discussions, lunches, referee reports, and the like is to participate in an active conversation. What aspects of research are important? How well done are different papers? What are appropriate tradeoffs between tractability and realism? What, methods, data standards, and theory are at the frontier of the profession? You should feel very welcome and encouraged to levy any criticism of my papers.

3. Referee report

The referee report will be **assigned Nov 11 and due Nov 30**. It should be a 2-3 page analysis of the paper. A separate handout will present specifics for the report and list the paper to review.

4. Presentation

The presentation will be Dec 7. You should submit a writeup along with it, of <=3 pages. The main goals of the writeup are to help you practice developing an idea, and so you have it to refer back to if you want to pursue the idea further. You should not present your second year paper or another you have been working on for awhile. Instead, you should present a new research idea inspired by topics covered in this class. Think of this as a way to practice generating, communicating, and getting feedback on new research ideas. Every class and reading you should think, “Is there a paper in this area for me?” The presentation is a way to convey one idea you have had and started developing. You don’t need estimates or results, focus on a research question, motivation, economic model (if relevant), research design, regression equation, and strengths and weaknesses.

Part I : Overview: Questions, Methods, Goals (Class 1—Oct 14)

***Chetty, Raj. 2009. "Sufficient Statistics for Welfare Analysis: A Bridge Between Structural and Reduced-Form Methods. Annual Review of Economics 1: 451-488.

*Goulder, Lawrence H., and Roberton C. Williams. 2003. "The Substantial Bias from Ignoring General Equilibrium Effects in Estimating Excess Burden, and a Practical Solution." Journal of Political Economy 111(4): 898-927.

*Kleven, Henrik. 2021. "Sufficient Statistics Revisited." Annual Reviews of Economics 13: 515-38.

Ackerberg, Daniel, C. Lanier Benkard, Steven Berry, and Ariel Pakes. 2007. "Econometric Tools for Analyzing Market Outcomes." Handbook of Econometrics 6: 4171-4276.

Angrist, Joshua D., and Alan B. Krueger. 1999. "Empirical Strategies in Labor Economics." In Ashenfelter, Orley C., and David Card. Handbook of Labor Economics 3A: 1277-2097.

Angrist, Joshua D., and Jorn-Steffen Pischke. 2009. Mostly Harmless Econometrics: An Empiricist's Companion. Princeton University Press

Diamond, Peter. 1998. "Optimal Income Taxation: An Example with a U-Shaped Pattern of Optimal Marginal Tax Rates." American Economic Review.

Freeman, A. Myrich, Joseph A. Herriges, and Catherine L. Kling. 2014. The Measurement of Environmental and Resource Values: Theory and Methods. Chapters 1, 2, 14.

Freyaldenhoven, Simon, Christian Hansen, Jorge Perez Perez, and Jesse M. Shapiro. 2021. "Visualization, Identification, and Estimation in the Linear Panel Event-Study Design." NBER Working paper 29170.

Hendren, Nathaniel. 2016. "The Policy Elasticity." Tax Policy and the Economy 30.

Imbens, Guido, and Jeffrey Wooldridge. 2007. "What's New in Econometrics?" At http://www.nber.org/minicourse3.html

Mullainathan, Sendhil, and Jann Spiess. 2017. "Machine Learning: An Applied Econometric Approach." Journal of Economic Perspectives 31(2): 87-106.

Reiss, Peter C., and Frank A. Wolak. 2007. "Structural Econometric Modeling: Rationales and Examples from Industrial Organization." Handbook of Econometrics 6A: 4277-4415.

Saez, Emmanuel. 2001. "Using Elasticities to Derive Optimal Income Tax Rates," Review of Economic Studies.

Journal of Economic Perspective articles on environmental/energy economics: https://www.aeaweb.org/journals/jep/classroom/environment-energy (visited 8/6/2019). Good for non-technical articles on prominent topics over the last 30 years

Part II: Demand for Environmental Goods

Part IIA: Pollution Demand-Averting Investments (Class 2—Oct 19)

***Deschenes, Olivier, Michael Greenstone, and Joseph S. Shapiro. 2018. "Defensive Investments and the Demand for Air Quality: Evidence from the NOx Budget Program."American Economic Review 107(10): 2958-89.

*Freeman, Herriges, and Kling book, chapter 7, 11

*Grossman, Michael. 1972. "On the Concept of Health Capital and the Demand for Health." Journal of Political Economy 80(2): 223-255.

Baird, Sarah, Joan Hamory Hicks, Michael Kremer, and Edward Miguel. 2016. "Worms at Work: Long-Run Impacts of a Child Health Investment." Quarterly Journal of Economics: 1637-1680.

Part IIE: Climate Demand: Averting Investments (Class 3—Oct 21)

*** Barreca, Alan, Karen Clay, Olivier Deschenes, Michael Greenstone, and Joseph S. Shapiro. 2016. "Adapting to Climate Change: The Remarkable Decline in the US Temperature-Mortality Relationship over the Twentieth Century." Journal of Political Economy 124(1): 105-159.

Barreca, Alan, Karen Clay, Olivier Deschenes, Michael Greenstone, and Joseph S. Shapiro. 2015. "Convergence in Adaptation to Climate Change: Evidence from High Temperatures and Mortality, 1900-2014." American Economic Review Papers and Proceedings 105(5): 247-51.

Burke, Marshall, and K. Emerick. "Adaptation to Climate Change: Evidence from US Agriculture." American Economic Journal: Economic Policy.

Carleton, Tamma, et al. 2020. "Valuing the Global Mortality Consequences of Climate Change Accounting for Adaptation Costs and Benefits." NBER Working Paper No. 27599.

Dell, Melissa, Benjamin F. Jones, and Benjamin A. Olken. 2014. "What do we learn from the weather? The new climate-economy literature." Journal of Economic Literature 52(3): 740-798.

Deryugina, Tatyana, and Solomon Hsiang. 2017. "The Marginal Product of Climate." NBER Working Paper No. 24072.

Deschenes, Olivier, and Michael Greenstone. 2007. "The economic impacts of climate change: evidence from agricultural output and random fluctuations in weather." American Economic Review 97(1): 354-385. (See also Fisher et al. comment and reply)

Deschenes, Olivier, and Michael Greenstone. 2011. "Climate change, mortality, and adaptation: evidence from annual fluctuations in weather in the US." American Economic Journal: Applied Economics 3(4): 152-185.

Giglio, Stefano, Matteo Maggiori, Johannes Stroebel, and Andreas Weber. 2015. "Climate Change and Long-Run Discount Rates." NBER Working Paper 21767.

Greenstone, Michael, Elizabeth Kopits, and Ann Wolverton. 2013. "Developing a social cost of carbon for US regulatory analysis: A methodology and interpretation." Review of Environmental Economics and Policy 7(1): 23-46.

Heal, Geoffrey. 2017. "The Economics of the Climate." Journal of Economic Literature 55(3): 1046-63.

Heutel, Garth, Nolan H. Miller, and David Molitor. Forthcoming. "Adaptation and the Mortality Effects of Temperature Across U.S. Regions." Review of Economics and Statistics.

Hsiang, Solomon, et al. 2017. "Estimating economic damage from climate change in the United States." Science 356(6345): 1362-1369.

Hsiang, Solomon, et al. American Climate Prospectus: Economic Risks in the United States.

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

Nordhaus, William D., and Zili Yang. 1996. "A Regional Dynamic General-Equilibrium Model of Alternative Climate-Change Strategies." American Economic Review 86(4): 741-765.

Perry, Ian, Chandara Veung, and Dirk Heine. 2015. "How Much Carbon Pricing is in Countries' Own Interests? The Critical Role of Co-Benefits." Climate Change Economics 6(4)1550019-1 – 1550019-26.

Pindyck, Robert S. 2013. "Climate Change Policy: What Do the Models Tell Us?" Journal of Economic Literature 51(3): 860-872.

Pizer, William, et al. 2014. "Using and improving the social cost of carbon." Science 346(6214): 1189-1190.

Weitzman, Martin. 2009. "On Modeling and Interpreting the Economics of Catastrophic Climate Change." Review of Economics and Statistics 91(1): 1-19.

Part IIB: Rosen models (hedonics), local public goods, and Tiebout sorting (Class 4, 5—Oct 26, 28)

***Rosen, Sherwin. 1974. "Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition." Journal of Political Economy 82(1): 34-55.

***Freeman, Herriges, and Kling book, chapter 10

***Black, Sandra E. 1999. "Do Better Schools Matter? Parental Valuation of Elementary Education." Quarterly Journal of Economics 577-599.

***Bayer, Patrick, Fernando Ferreira, and Robert McMillan. 2007. "A Unified Framework for Measuring Preferences for Schools." Journal of Political Economy 115(4): 588-638.

*Bajari, Patrick, Jane Cooley Fruehwirth, Kyoo il Kim, and Christopher Timmins. 2012. "A Rational Expectations Approach to Hedonic Price Regressions with Time-Varying Unobserved Product Attributes: The Price of Pollution." American Economic Review 102(5): 1898-1926.

Ahlfeldt, Gabriel, Daniel Sturm, Steve Redding, and Nikolaus Wolf. 2015. "The Economics of Density: Evidence from the Berlin Wall." Econometrica 83(6): 2127-2189.

Autor, David H., Christopher J. Palmer, and Parag A. Pathak. 2014. "Housing Market Spillovers: Evidence from the End of rent Control in Cambridge, Massachusetts." Journal of Political Economy 122(3): 661-717.

Bishop, Kelly C., Nicolai Kuminoff, H. Spencer Banzhaf, Kevin J. Boyle, Kathrine von Gravenitz, Jaren C. Pope, V. Kerry Smith, and Christopher D. Timmins. 2020. "Best Practices for Using Hedonic Property Value Models." Review of Environmental Economics and Policy 14(2): 260-281.

Campbell, John Y., Stefan Giglio, and Parag Pathak. 2011. "Forced Sales and House Prices." American Economic Review 101(5): 2108-2131.

Davis, Lucas W. 2004. "The Effect of Health Risk on Housing Values: Evidence from a Cancer Cluster." American Economic Review 94(5): 1693-1704.

Diamond, Rebecca, and Tim McQuade. 2019. "Who Wants Affordable Housing in their Backyard? An Equilibrium Analysis of Low Income Property Development." Journal of Political Economy 127(3).

Epple, Dennis, and Holger Sieg. 1999. "Estimating Equilibrium Models of Local Jurisdictions." Journal of Political Economy 107(4): 645-681.

Epple, Dennis, Luis Quintero, and Holger Sieg. Forthcoming. "A New Approach to Estimating Equilibrium Models for Metropolitan Housing Markets." Journal of Political Economy.

Freeman, A. Myrick. 2003. The Measurement of Environmental and Resource Values: Theory and Methods. Chapter 11: Property Value Models.

Jehiel, Philippe, and Laurent Lamy. 2018. "A Mechanism Design Approach to the Tiebout Hypothesis." Journal of Political Economy 126(2): 735-760.

Linden, Leigh, and Jonah E. Rockoff. 2008. "Estimates of the Impact of Crime Risk on Property Values from Megan's Laws." American Economic Review 98(3): 1103-1127.

Oakland, William H. 1987. "Theory of public goods." Handbook of Public Economics 2: 485-535.

Rubinfeld, Daniel L. 1987. "The economics of the local public sector." Handbook of Public Economics 2: 571-645.

Sinha, Paramita, Martha Caulkins, and Maureen Cropper. 2021. "The Value of Climate Amenities: A Comparison of Hedonic and Discrete Choice Approaches." Journal of Urban Economics.

Part IIC: Roback Models and Benefit-Cost Analysis (Class 6, 7—Nov 2, 4)

***Roback, Jennifer. 1982. "Wages, Rents, and the Quality of Life." Journal of Political Economy 90(6): 1257-1278.

***Moretti, Enrico, and Patrick Kline. 2014. "Local Economic Development, Agglomeration Economies and the Big Push: 100 Years of Evidence from the Tennessee Valley Authority." Quarterly Journal of Economics 129(1): 275-331.

*Diamond, Rebecca. 2016. "The Determinants and Welfare Implications of US Workers' Diverging Location Choices by Skill: 1980-2000." American Economic Review 106(3): 479-524.

Adao, Rodrigo, Michal Kolesar, and Eduardo Morales. 2018. "Shift-Share Designs: Theory and Inference." Quarterly Journal of Economics 134(4): 1949-2010.

Albouy, David, Walter Graf, Ryan Kellogg, and Hendrik Wolff. 2013. "Climate Amenities, Climate Change, and American Quality of Life." Journal of the Association of Environmental and Resource Economists 3(1).

Chay, Ken, and Michael Greenstone. 2005. "Does Air Quality Matter? Evidence from the Housing Market." Journal of Political Economy 113(2): 376-424.

Dreze, Jean, and Nicholas Stern. 1987. "The theory of cost-benefit analysis." Handbook of Public Economics 2: 909-989.

Goldsmith-Pinkham, Paul, Isaac Sorkin, and Henry Swift. 2020. "Bartik Instruments; What, When, Why, and How." American Economic Review 110(8): 2586-2624.

Holmes, Thomas J. 1998. "The Effect of State Policies on the Location of Manufacturing: Evidence from State Borders." Journal of Political Economy 106(4): 667-705.

Kline, Patrick. 2011. "Oaxaca-Blinder as a Reweighting Estimator." American Economic Review 101(3): 532-37.

Part IID: Water (Class 8,9—Nov 9, 16)
[Nov 11 is Veterans Day]

***Freeman, Herriges, and Kling book, chapters 9, 12

*** Kremer, Michael, Jessica Leino, Edward Miguel, and Alix Peterson Zwane. 2011. "Spring Cleaning: Rural Water Impacts, Valuation, and Property Rights Institutions." Quarterly Journal of Economics 126(1): 145-205.

***Mobarak, Mushfiq, and Molly Lipscomb. 2017. "Decentralization and Pollution Spillovers: Evidence from the Re-drawing of County Borders in Brazil." Review of Economic Studies 84(1): 464-502.

***Keiser, David A., and Joseph S. Shapiro. 2019. "Consequences of the Clean Water Act and the Demand for Water Quality." Quarterly Journal of Economics 134(1): 349-396.

***He, Guojun, Shaoda Wang, and Bin Zhang. 2020. "Watering Down Environmental Regulation in China." Quarterly Journal of Economics 135(4): 2135-2185.

***Gallagher, Justin. 2014. "Learning About an Infrequent Event: Evidence from Flood Insurance Take-Up in the US." American Economic Journal: Applied Economics 6(3): 206-233.

Ambrus, Attila, Erica Field, and Robert Gonzalez. 2020. "Loss in the Time of Cholera: Long-Run Impact of a Disease Epidemic on the Urban Landscape." American Economic Review 110(2): 475-525.

Carson, Richard T. 2012. "Contingent valuation: A practical alternative when prices aren't available." Journal of Economic Perspectives 26(4): 27-42.

Hausman, Jerry A., Gregory K. Leonard, and Daniel McFadden. 1995. "A utility-consistent, combined discrete choice and count data model assessing recreational use losses due to natural resource damage." Journal of Public Economics 56(1): 1-30.

Hausman, Jerry. 2012. "Contingent valuation: from dubious to hopeless." Journal of Economic Perspectives 26(4): 43-56.

Diamond, Peter A., and Jerry A. Hausman. 1994. "Contingent valuation: is some number better than no number?" Journal of Economic Perspectives 8(4): 45-64.

Kling, Cathy L. Daniel J. Phaneuf, and Jinhua Zhao. 2012. "From Exxon to BP: Has Some Number Become Better Than No Number?" Journal of Economic Perspectives 26(4): 3-26.

NATURAL RESOURCES (Class 10: Nov 18)

***Ryan, Nicholas, and Anant Sudarshan. Forthcoming. "Rationing the Commons." Journal of Political Economy.

*Burgess, Robin, Matthew Hansen, Benjamin Olken, Peter Potapov, and Stefanie Sieber. 2012. "The Political Economy of Deforestration in the Tropics." Quarterly Journal of Economics 127(4): 1707-1754.

Carleton, Tamma. 2021. "The global water footprint of distortionary agricultural policy." Mimeo, UCSB.

Part III: Supply of Environmental Goods

Part IIIA: Trade, leakage, and quantitative general equilibrium models (Class 11, 12—Nov 23, 30)

***Shapiro, Joseph S. 2021. "The Environmental Bias of Trade Policy." Quarterly Journal of Economics 136(2): 831-886.

*** Shapiro, Joseph S., and Reed Walker. 2018. "Why is Pollution from U.S. Manufacturing Declining? The Roles of Environmental Regulation, Productivity, and Trade." American Economic Review 108(12): 3814-54.

*** Taylor, M. Scott. 2011. "Buffalo Hunt: International Trade and the Virtual Extinction of the North American Bison." American Economic Review 101(7): 3162-95.

Copeland, Brian, Joseph S. Shapiro, and M. Scott Taylor. 2021. "Globalization and the Environment." Forthcoming, Handbook of International Economics.

*Copeland, Brian R., and M. Scott Taylor. 2005. Trade and the Environment: Theory and Evidence. Princeton University Press. (Chapters 1, 2, 8)

Antweiler, Werner, Brian R. Copeland, and M. Scott Taylor. "Is Free Trade Good for the Environment?" American Economic Review 91(4): 877-908.

Babiker, Mustafa H. 2005. "Climate change policy, market structure, and carbon leakage." Journal of International Economics 65(2): 421-445.

Caliendo, Lorenzo, Fernando Parro, Esteban Rossi-Hansberg, and Pierre-Daniel Sartre. 2017. "The Impact of Regional and Sectoral Productivity Changes on the U.S. Economy." Review of Economic Studies 85(4): 2042-2096.

Cherniwchan, Jevan, Brian R. Copeland, and M. Scott Taylor. 2017. "Trade and the Environment: New Methods, Measurements and Results." Annual Review of Economics 9: 59-85.

Copeland, Brian, and M. Scott Taylor. 1994. "North-South trade and the environment." Quarterly Journal of Economics 109(3): 755-787.

Copeland, Brian, and M. Scott Taylor. 1995. "Trade and transboundary pollution." American Economic Review 85(4): 716-737.

Copeland, Brian, and M. Scott Taylor. 2009. "Trade, tragedy and the commons." American Economic Review 99: 725-49.

Desmet, Klaus, and Esteban Rossi-Hansberg. 2015. "On the Spatial Economic Impact of Global Warming." Journal of Urban Economics 88: 16-37.

Dingel, Jonathan, Kyle Meng, and Solomon Hsiang. 2019. "Spatial Correlation, Trade, and Inequality: Evidence from the Global Climate." NBER Working Paper No. 25447

Donaldson, Dave, Arnaud Costinot, and Cory Smith. 2016. "Evolving Comparative Advantage and the Impact of Climate Change in Agricultural Markets: Evidence from 1.7 Million Fields Around the World." Journal of Political Economy 124(1): 205-248.

Elliott, Joshua, Ian Foster, Samuel Kortum, Todd Munson, Fernando Perez Cervantes, and David Weisbach. 2010. "Trade and Carbon Taxes." American Economic Review: Papers and Proceedings 100: 465-469.

Fowlie, Meredith, 2009. "Incomplete Environmental Regulation, Imperfect Competition, and Emissions Leakage." American Economic Journal: Economic Policy 1(2): 72-112.

Fowlie, Meredith, Mar Reguant, and Stephen P. Ryan. 2016. "Market-Based Emissions Regulation and Industry Dynamics." Journal of Political Economy 124(1): 249-302.

Fowlie, Meredith L. and Mar Reguant. 2016. "Mitigating Leakage Risk in Incomplete Carbon Markets." Mimeo, UC Berkeley.

Grossman, Gene M., and Alan B. Krueger. 1995. "Economic Growth and the Environment" Quarterly Journal of Economics 110(2): 353-377.

Hanna R. 2010. "US environmental regulation and FDI: evidence from a panel of US-based multinational firms." American Economic Journal: Applied Economics 2(3): 158-189.

Kortum, Samuel, and David Weisbach. 2017. "The Design of Border Adjustments for Carbon Prices." National Tax Journal 70(2): 421-446.

Markusen, James R. 1975. "International Externalities and Optimal Tax Structures." Journal of International Economics 5: 15-29.

Martin, Ralf, Mirabelle Muuls, Laure B. de Preux, and Ulrich J. Wagner. 2014. "Industry Compensation under Relocation Risk: A Firm-Level Analysis of the EU Emissions Trading Scheme." American Economic Review 104(8): 2482-2508.

Shapiro, Joseph S. 2015. "Trade, CO2, and the Environment." American Economic Journal: Economic Policy 8(4): 220-54.

Suarez-Serrato, Juan Carlos, and Owen Zidar. 2016. "Who Benefits form State Corporate Tax Cuts? A Local Labor Market Approach with Heterogeneous Firms." American Economic Review 106(9): 2582-2624.

A few background papers in international trade to get you started:

Allen, Treb, and Costas Arkolakis. 2016. "Elements of Advanced International Trade." Mimeo, Yale. http://www.econ.yale.edu//~ka265/teaching/GradTrade/notes/ClassNotes.pdf

Arkolakis, Costas, Arnaud Costinot, and Andres Rodriguez-Clare. 2012. "New Trade Models, Same Old Gains?" American Economic Review 102(1): 94-130.

Costinot, Arnaud, and Andres Rodriguez-Clare. 2014. "Trade Theory with Numbers: Quantifying the Consequences of Globalization." Handbook of International Economics 4: 197-261.

Eaton, Jonathan, and Samuel Kortum. 2012. "Putting Ricardo to Work." Journal of Economic Perspectives 26(2): 65-90.

Maggi, Giovanni. 2016. "Issue Linkage." In Bagwell, Kyle, and Robert W. Staiger. Handbook of Commercial Policy Vol 1.

Maggi, Giovanni. 2014. "International Trade Agreements." In Gopinath, Gita, Elhanan Helpman, and Kenneth Rogoff. Eds., Handbook of International Economics 4.

Melitz, Marc J. 2003. "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity." Econometrica 71(6): 1695-1725.

Melitz, Marc, and Stephen Redding. 2014. "Heterogeneous Firms and Trade." Handbook of International Economics 4: 1-54.

SPATIAL MODELS WITH GEOGRAPHY (Class 13: Dec 2)

***Glaeser, Edward L., and Joseph Gyourko. 2006. "Urban Decline & Durable Housing," Journal of Political Economy 113(2): 345-375.

***Greenstone, Michael, Richard Hornbeck, and Enrico Moretti. 2010. "Identifying Agglomeration Spillovers: Evidence from Winners and Losers of Large Plant Openings." Journal of Political Economy 118(3): 536-598.

***Saiz, Albert. 2010. "The Geographic Determinants of Housing Supply." Quarterly Journal of Economics 125(3): 1253-1296.

*Heblich, Stephan, Alex Trew, and Yanos Zylberberg. 2021. "East-Side Story: Historical Pollution and Persistent Neighborhood Sorting." Journal of Political Economy 129(5).

*Balboni, Clare. 2021. "In Harm's Way? Infrastructure Investments and the Persistence of Coastal Cities." Mimeo, MIT.

Alvarez, Jose Luis Cruz, and Esteban Rossi-Hansberg. 2021. "The Economic Geography of Global Warming." NBER Working Paper 28466.

Ahlfedlt, Gabriel M., Stephen J. Redding, Daniel M. Sturm, and Nikolaus Wolf. 2015. "The Economics of Density: Evidence From the Berlin Wall." Econometrica 83(6): 2127-2189.

Allen, Treb, and Costas Arkolakis. 2014. "Trade and the Topography of the Spatial Economy." Quarterly Journal of Economics 129(3): 1085-1140.

Au, Chun-Chung, and J. Vernon Henderson. 2006. "Are Chinese Cities Too Small?" Review of Economic Studies 3(1): 549-576.

Baum-Snow, Nathaniel. 2007. "Did Highways Cause Suburbanization?" Quarterly Journal of Economics 122(2): 775-805.

Campbell, John Y., Stefano Giglio, and Parag Pathak. 2011. "Forced Sales and House Prices." American Economic Review 101(5): 2108-2131.

Cutler, David M., and Edward L. Glaeser. 1997. "Are Ghettos Good or Bad?" Quarterly Journal of Economics 112(3): 827-872.

Donaldson, Dave, and Adam Storeygard. 2016. "The View from Above: Applications of Satellite Data in Economics." Journal of Economic Perspectives 30(4): 171-98.

Duranton, Giles, and Matthew A. Turner. 2011. "The Fundamental Law of Road Congestion." American Economic Review 101(6): 2616-2652.

Duranton, Gilles, and Matthew A. Turner. "Urban Growth and Transportation." Review of Economic Studies 79(4): 1407-1440.

Ellison, Glenn, and Edward L. Glaeser. 1997. "Geographic Concentration in U.S. Manufacturing Industries: A Dartboard Approach." Journal of Political Economy 105(5): 889-927.

Lucas, Robert E., and Esteban Rossi-Hansberg. 2002. "On the Internal Structure of Cities." Econometrica 70(4): 1445-1476.

Mian, Atif, and Amir Sufi. 2009. "The Consequences of Mortgage Credit Expansion: Evidence from the U.S. Mortgage Default Crisis." Quarterly Journal of Economics 124(4): 1449-1496.

Michaels, Guy. 2008. "The Effect of Trade on the Demand for Skill: Evidence from the Interstate Highway System." Review of Economics and Statistics 90(4): 683-701.

Monte, Ferdinando, Stephen J. Redding, and Esteban Rossi-Hansberg. 2018. "Commuting, Migration, and Local Employment Elasticities." American Economic Review 108(12): 3855-90.

Ossa, Ralph. 2017. "A Quantitative Analysis of Subsidy Competition in the U.S." NBER Working Paper 20975.

December 4 - presentations