



Modern Tools for Policy Analysis

Spring 2022-2023

Lecture: Thursday, 18:40-20:30, Science Teaching Building 317

Course ID: 02500220

Instructor: Castiel Chen Zhuang (庄晨), cczhuang@pku.edu.cn

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Office: 321, School of Economics

Office Hour: Friday, 9:30-11:30

Course Folder: *link hidden* (expiration date: June 30, 2023; passcode: *hidden*)

Course Description

This course surveys recent methodological approaches to policy analysis, including impact evaluation and policy design. In addition to learning about advanced methods that are used in economics and other social sciences nowadays, the goal of this course is for students to develop an appreciation for how publishable quantitative papers are constructed, from questions they ask to how they justify and defend the methodological choices they make. This course aims at describing and problematizing modern methods that are frequently used in the past two decades for analyzing whether politically determined policies, reforms and measures have intended or unintended effects on a wide range of phenomena in our economy.

While providing a toolkit mainly for the analysis of economic policy questions in the field of development economics, this course will borrow real examples from various fields of research, e.g., health, labor, public economics, and industrial organization. One key aspect of this course is to illustrate the basic challenges facing policy analysis, and the approaches to deal with these problems. This course intends to show what the strengths and weaknesses of different methods are, so that students can get a sense of which tool is most applicable to where.

Individual-level data and micro-econometric methods will be emphasized in this course. Some major concepts are causal inference, quasi-experimental designs, randomized controlled trials, treatment effects, internal and external validity, counterfactual analysis, ex-ante and ex-post policy evaluation, structural and reduced-form estimation, simulation, etc. Possible questions include: Do the poor benefit from cash transfer programs? How does trade liberalization affect firms' productivity? Should there be vertical choice in health insurance markets?

Prerequisites

You should have successfully completed undergraduate-level Econometrics and Principles of Economics (I), or obtained permission of the instructor.

Grading Policy

Class Participation	10 percentage points
Homework Assignments & Quizzes (3-4 times)	35 percentage points
Research Proposal (1 time)	15 percentage points
Peer Review & Referee Reports (2 times)	15 percentage points
Final Paper/Report & Response to Reviewers (1 time)	25 percentage points

All parts, unless otherwise specified, are graded at the individual level, so you should submit your personal work by default.

Administrative Rules

- Checking your email account as well as the course's website or shared folder regularly is a must, as I will mainly communicate with you via these two means.
- Homework assignments and (take-home) quizzes are usually due less than two weeks after they are assigned. You are encouraged to discuss and work on them with your peers, but you must submit your own original answer.
- No make-up assignments or quizzes will be given out. In case of a documented emergency (e.g., with a doctor's note), the weight of a missed assignment or quiz will be added toward the final paper/report and response to reviewers.
- There may be a deadline extension for the research proposal, referee reports, or the final paper or report and response to reviewers only in case of a documented emergency.
- In-class participation is strongly encouraged. Please feel free to interrupt me and ask any questions whenever you feel that more clarifications are needed.

Grades are not curved in this class. You will receive percentage points for every part. 30-40% of students will get an "excellent" grade (≥ 85 and ≥ 90 for undergraduate and graduate students, respectively). A proportion of over 40% can be justifiable if the whole class performs well.

Resources

While there is no required text, I highly recommend the following books for your reference:

- Angrist, Joshua D., and Jörn-Steffen Pischke (2009). *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press.
- Cameron, A. Colin, and Pravin K. Trivedi (2022). *Microeconometrics Using Stata*, Second Edition. Stata Press.
- Train, Kenneth E. (2009). *Discrete Choice Methods with Simulation*, Second Edition. Cambridge University Press.
- Wooldridge, Jeffery M. (2010). *Econometric Analysis of Cross Section and Panel Data*, Second Edition. MIT Press.

There are also some online contents that may be useful at times:

- Gentzkow, Matthew, and Jesse M. Shapiro (2014). “Code and data for the social sciences: A practitioner’s guide”. University of Chicago mimeo, <https://web.stanford.edu/~gentzkow/research/CodeAndData.pdf>
- Plamen, Nikolov (2022). “Writing tips for economics research papers – 2021-2022 edition”. <https://docs.iza.org/dp15057.pdf>
- Shapiro, Jesse M. (2014). “How to give an applied micro talk: unauthoritative notes”. https://scholar.harvard.edu/files/shapiro/files/applied_micro_slides.pdf
- NBER Lectures, <https://www.nber.org/research/lectures?page=1&perPage=100>

Weekly reading lists will be uploaded to the course folder. Students are expected to have done the assigned reading before class.

A tentative reading list for the whole semester is provided at the end of this syllabus—please note that, this list may be subject to change, and one should rely on the more up-to-date reading lists uploaded every week after the debut of this syllabus to prepare for each class.

Study Groups

I suggest all students to try to form a study group with 2-3 fellow students, exchange contact information, and plan to get together with them throughout the semester to work on homework assignments and (take-home) quizzes. Although you must submit your own original work most of the time, my experience is that you can benefit a lot from discussing with your peers. When a homework assignment is large, I may allow a group submission (i.e., all study group members share one submission and thus the same grade for it). In addition, your study group may be the best resource for spontaneous notes and information when you have to miss a lecture.

Attendance

Attendance is not mandatory (i.e., no need to ask for leave), but strongly recommended. Please note that, class participation does contribute to your final grade. If you decide to miss a class, you will take the full responsibility of your own action. At the meanwhile, please do speak to someone (e.g., your study groupmate) to get the in-class notes, if any, and consult the shared folder for important announcements as well as additional materials. Please try not to email the instructor for class notes or to find what you may have missed.

Class Participation

Participation is crucial for the success of the class. I expect you to come to each class having finished the assigned reading and prepared to discuss them. The more ready and willing you are to ask questions and provide your opinion, the more you will learn. Being prepared for class,

classroom attendance, and involvement will all be factored into the final class participation grade. Moreover, there is a risk that you may miss a randomly administered in-class quiz. Since there is no make-up for it, you may lose more than just the class participation grade itself. Under no circumstances should you sign an attendance sheet, fill out a survey, or submit responses to an in-class quiz for someone who is not in class; that is cheating and will be dealt with as such.

Homework Assignments & Quizzes

Working problems is an essential part of learning the modern tools for policy analysis. To give you practice, I will assign 2-3 problem sets that usually require you to make some actions in statistical software such as Stata, Python, and R. You may work on these assignments with your study groups, but please make sure you know how to do each problem yourself from start to end, as they are the best preparation for the final paper or report. When a problem set is large, I will allow a group submission (refer to the [Study Groups](#) section).

There will also be no more than two cumulative take-home (or in-class) quizzes, which do not require any actions in statistical software. The main objective of having quizzes is to test your understanding of basic concepts and ability of identifying methods that are appropriate in different situations. Quizzes will be graded for clarity and accuracy. Please mark your final conclusion and clearly show the intermediate steps. If you make any assumptions, state them up front. Try to remember, as you are writing your quizzes, that your instructor will be reading dozens of them—this means that, your instructor may not have the time or the inclination to “decipher” your answer. If it is not clear, concise, and legible, you risk receiving no credit, no matter how well you may understand the material.

Note that, no make-ups or extra time will be given (refer to the [Administrative Rules](#) section). No early assignments or quizzes will be distributed as well. There will be no “cheat sheets” and no calculators or internet-capable devices allowed during an in-class quiz, if any. Also, I will not assign seats for the in-class quiz, if any.

Research Proposal

One month before the end of the semester, you will need to submit your research proposal for the final paper or report. It should be 12-15 pages long (1.5 spacing, 1-inch margins, 12pt Times New Roman font), and should contain:

- A title page, with an abstract of 100 words or less (can be single spaced), and 3-5 keywords that can summarize your research.
- An introduction. In (at most) the first three paragraphs of this section, please provide your a) research question, stated as clearly and sharply as possible, b) your motivation to do this research, and c) how your research is important and contributes to the literature.
- Related literature. It should include a focal paper (or a few focal papers) that you plan to use as a model or benchmark for your own paper, and how your work relates.
- A theoretical model, if any. This is not required, but recommended.

- Empirical model. Write down your equation(s) and your estimation strategy. If your model is reduced-form, explain how you identify your causal effect of interest and list potential confounders. If your model is structural, explain how you identify your policy-invariant deep parameters of interest.
- Context and data. Please provide the institutional background, data source(s), summary statistics of the key variables, and particularly, a descriptive table that provides insight into your question of interest.
- Preliminary analysis. You should at least analyze your summary statistics. If you can also provide some preliminary estimates of your model, that is good. You may want to check with me about what is acceptable progress (especially when your proposal is structural).
- Bibliography (can be single spaced as well).

Please note that, your proposal will be reviewed by two of your classmates (so you will also provide detailed written comments to another two students' proposals).

Peer Review & Referee Reports

I will act as an “editor” and assign two anonymized research proposals (i.e., with names and other identifying information removed) to you based on the area(s) of your submitted research proposal. The main principle is to assign proposals that you can judge (i.e., that you are more familiar with). However, there is a possibility that you are assigned a proposal that is out of your “expertise”. Take it as a chance to learn new things and expand your comfort zone. After all, the purpose of this special arrangement is for you to learn and grow.

Once you, as a designated reviewer, have submitted your referee reports (of any length) to me, I will send their anonymized versions to the corresponding authors of the proposals, along with my “two cents”. These feedbacks will help each of you revise your own research plan so that you can eventually submit an improved final paper or report.

I may present some of your proposals and referee reports in class, to inspire more of you about how to write a proper proposal and referee report. I will also discuss how the revision process could go, based on these selected examples.

Final Paper/Report & Response to Reviewers

The final project of the course is a term paper or report, along with your response to reviewers. You should first try to make all the modifications according to the feedbacks from me and the two anonymous referees that make sense to you, and then extend the revised proposal into a paper or report. Changes should be tracked in some way to tell me where you have “touched” since the last submission.

In a separate file, provide a point-by-point response to each comment. In your response, indicate whether you agree or disagree with the reviewers' suggestions and why. Then, detail how you

proceed with the revision based on them. Although your referees may not see your responses, they (and you) may receive a notification about how their (and your) comments have helped improve your final paper or report (and the final papers or reports of others) from me.

Note that, your final paper or report should be 15-20 pages long (1.5 spacing, 1-inch margins, 12pt Times New Roman font). Your literature review should be thorough. And, your empirical results should be fully provided and analyzed. Response to reviewers can be of any length.

Guidelines for Reading Empirical Proposals/Papers

You should first read the introduction to quickly get the main idea(s) of a proposal/paper, with the following questions in mind. A good introduction should address all of them (so apply it to your own writing as well):

- What is the primary question/issue/hypothesis that the author(s) wanted to address?
- Why is the question interesting or important? Does it contribute to the literature?
- What data set(s) did the author(s) use? Were they unique or representative?
- What could be an intuitive description of the proposal/paper's test or model.
- What were the findings or conclusions?

Then, try to answer the following questions as you continue to read the proposal/paper:

- Did you find the question interesting and relevant?
- Were you convinced by the results/arguments? Why or why not?
- Could the proposal/paper identify the effect it claimed to identify? Why or why not?
- Did the (preliminary) results obtained justify the interpretation and/or conclusions? Were there any concerns about external validity or heterogeneous effects?
- Were the findings supported by economic theory? In the cases where the proposal/paper did not have a clear theoretical model, did you think a model would have been helpful or that the lack thereof might lead to erroneous conclusions?

Suggested Environment & Software

Each student in this class should prepare a laptop with sufficient RAM (at least 8GB) and CPU power (at least Core i5 grade). You are fully responsible for your hardware issues.

Operating systems can be arbitrary. Please install the following software by the second lecture. Technical issues related to the installment should be resolved by yourself—when you copy and paste the error message on a search engine, you almost certainly will find a solution.

- Anaconda: <https://www.anaconda.com/> (it provides the Spyder application)
- R: <https://www.r-project.org/>
- RStudio: <https://www.rstudio.com/>
- Stata: <https://www.stata.com/> (if you have trouble getting access, consult your TA)

Honor Code

Plagiarism is defined as presenting others' (including AI's) work as one's own, and it is evil! Your instructor will not tolerate it! Any ideas or materials taken from another source should be acknowledged unless the information is common knowledge. Any evidence of plagiarism will lead to a zero to your work submitted and you may fail this course for serious offense. Cheating is unfair to your peers and annoying to me. I can, and will, pursue the strictest of disciplinary actions against anyone caught cheating.

For more details, please refer to Peking University's

- Basic Academic Norms for Graduate Students, <https://xsgf.pku.edu.cn/xzgf/gftl/1297227.htm>
- Management Regulations of Undergraduate Examination Work and Study Discipline, http://www.dean.pku.edu.cn/web/rules_info.php?id=8

In addition, please do not cite any contents from ChatGPT or list ChatGPT as a co-author. This also applies to any other functionally equivalent tools. You may only use them as a pure search engine. AI text detection tools such as ZeroGPT, DetectGPT, GPTZero will be used to enforce this rule.

Course Folder

The password of the course folder is only granted to registered student, or anyone who obtained permission of the instructor. This folder is shared using PKU Cloud Disk (北大网盘), and you can preview or download files from it. To protect the course resources, please do not distribute the password of the course folder without permission.

In the course folder, I will provide written announcements, lecture notes (after class), problem sets, resources, take-home quizzes, and weekly reading lists. Electronic versions of the answer keys will not be provided in the folder. I will discuss answers to problem sets and quizzes with you in class, and, when necessary, email codes to registered students.

Course Outline

Please consult the course's shared folder for the updated weekly reading lists. Remember that you are expected to have read each assignment before class.

The schedule below (see next page) does not distinguish between required and optional reading, and may be subject to change. Please make sure that you follow my updates closely.

Week 1: Overview of Microeconomic Data

Deaton, Angus (2019). *The Analysis of Household Surveys: A Microeconomic Approach to Development Policy*, Reissue Edition. World Bank. Chapters 1 and 2.

Heffetz, Ori, and Katrina Ligett (2014). “Privacy and data-based research.” *Journal of Economic Perspectives*, 28(2), pages 75-98.

Schwabish, Jonathan A. (2014). “An economist’s guide to visualizing data.” *Journal of Economic Perspectives*, 28(1), pages 209-234.

Solon, Gary, Steven J. Haider, and Jeffrey M. Wooldridge (2015). “What are we weighting for?” *Journal of Human Resources*, 50(2), pages 301-316.

Xie, Yu, and Ping Lu (2015). “The sampling design of the China family panel studies (CFPS).” *Chinese Journal of Sociology*, 1(4), pages 471-484.

Week 2: Overview of Software & Statistics

Angrist, Joshua D., and Jörn-Steffen Pischke (2009). *Mostly Harmless Econometrics: An Empiricist’s Companion*. Princeton University Press. Chapters 3.1, 3.2, 3.4, and 8.

Cameron, A. Colin, and Pravin K. Trivedi (2022). *Microeconometrics Using Stata*, Second Edition. Stata Press. Chapters 1 and 2.

Heiss, Florian (2020). *Using R for Introductory Econometrics*, Second Edition. Chapter 1.

Heiss, Florian, and Daniel Brunner (2020). *Using Python for Introductory Econometrics*. Chapter 1.

Week 3: Big Data & Research Design

Angrist, Joshua D., and Jörn-Steffen Pischke (2010). “The credibility revolution in empirical economics: How better research design is taking the con out of econometrics.” *Journal of Economic Perspective*, 24(2), pages 3-30.

Athey, Susan, and Guido W. Imbens (2017). “The state of applied econometrics: Causality and policy evaluation.” *Journal of Economic Perspectives*, 31(2), pages 3-32.

Belloni, Alexandre, Victor Chernozhukov, and Christian Hansen (2014). “High-dimensional methods and inference on structural and treatment effects.” *Journal of Economic Perspectives*, 28(2), pages 29-50.

Brodeur, Abel, Andrew E. Clark, Sarah Fleche, and Nattavudh Powdthavee (2021). “COVID-19, lockdowns and well-being: Evidence from Google Trends.” *Journal of Public Economics*, 193, 104346.

Einav, Liran, and Jonathan Levin (2014). “The data revolution and economic analysis.” *Innovation Policy and the Economy*, 14(1), pages 1-24.

Mullainathan, Sendhil, and Jann Spiess (2017). “Machine learning: an applied econometric approach.” *Journal of Economic Perspectives*, 31(2), pages 87-106.

Varian, Hal R. (2014). “Big data: New tricks for econometrics.” *Journal of Economic Perspectives*, 28(2), pages 3-28.

Week 4: Impact Evaluation & Randomization

Angrist, Joshua D., and Jörn-Steffen Pischke (2009). *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press. Chapters 1 and 2.

Deaton, Angus (2010). “Instruments, randomization, and learning about development.” *Journal of Economic Literature*, 48(2), pages 424-455.

Deaton, Angus, and Nancy Cartwright (2018). “Understanding and misunderstanding randomized controlled trials.” *Social Science & Medicine*, 210, pages 2-21.

Gertler, Paul J., Sebastian Martinez, Patrick Premand, Laura B. Rawlings, and Christel M. J. Vermeersch (2016). *Impact Evaluation in Practice*, Second Edition. Inter-American Development Bank and World Bank. Chapters 1-4.

Khandker, Shahidur R., Gayatri B. Koolwal, Hussain A. Samad (2010). *Handbook on Impact Evaluation: Quantitative Methods and Practices*. World Bank. Chapters 1-3.

Week 5: Designing & Implementing an Experiment

Athey, Susan, and Guido W. Imbens (2017). “The econometrics of randomized experiments.” *Handbook of Economic Field Experiments*, 1, pages 73-140.

Baird, Sarah, J. Aislinn Bohren, Craig McIntosh, and Berk Özler (2018). “Optimal design of experiments in the presence of interference.” *Review of Economics and Statistics*, 100(5), pages 844-860.

Banerjee, Abhijit V., and Esther Duflo. “The experimental approach to development economics.” *Annual Review of Economics*, 1(1), pages 151-178.

Duflo, Esther, Rachel Glennerster, and Michael Kremer (2007). “Using randomization in development economics research: A toolkit.” *Handbook of Development Economics*, 4, pages 3895-3962.

Week 6: Examples of Field Experiments

Andrabi, Tahir, Jishnu Das, and Asim Ijaz Khwaja (2017). “Report cards: The impact of providing school and child test scores on educational markets.” *American Economic Review*, 107(6), pages 1535-1563.

Behrman, Jere R., Susan W. Parker, Petra E. Todd, and Kenneth I. Wolpin (2015). “Aligning learning incentives of students and teachers: Results from a social experiment in Mexican high schools.” *Journal of Political Economy*, 123(2), pages 325-364.

Haushofer, Johannes, and Jeremy Shapiro (2016). “The short-term impact of unconditional cash transfers to the poor: experimental evidence from Kenya.” *Quarterly Journal of Economics*, 131(4), pages 1973-2042.

Week 7: Overview of Some Quasi-experimental Methods—Matching, IV, RD & More

Angrist, Joshua D., and Alan B. Krueger (1999). “Empirical strategies in labor economics.” *Handbook of Labor Economics*, 3, pages 1277-1366.

Angrist, Joshua D., and Jörn-Steffen Pischke (2009). *Mostly Harmless Econometrics: An Empiricist’s Companion*. Princeton University Press. Chapters 3.3, 4 and 6.

Blundell, Richard, and Monica Costa Dias (2009). “Alternative approaches to evaluation in empirical microeconomics.” *Journal of Human Resources*, 44(3), pages 565-640.

Gertler, Paul J., Sebastian Martinez, Patrick Premand, Laura B. Rawlings, and Christel M. J. Vermeersch (2016). *Impact Evaluation in Practice*, Second Edition. Inter-American Development Bank and World Bank. Chapters 5, 6, 8.

Khandker, Shahidur R., Gayatri B. Koolwal, Hussain A. Samad (2010). *Handbook on Impact Evaluation: Quantitative Methods and Practices*. World Bank. Chapters 4, 6, 7.

Qiu, Yun, Xi Chen, and Wei Shi (2020). “Impacts of social and economic factors on the transmission of coronavirus disease 2019 (COVID-19) in China.” *Journal of Population Economics*, 33(4), pages 1127-1172.

Week 8: Difference-in-Differences Estimation

Angrist, Joshua D., and Jörn-Steffen Pischke (2009). *Mostly Harmless Econometrics: An Empiricist’s Companion*. Princeton University Press. Chapter 5.

Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan (2004). “How much should we trust differences-in-differences estimates?” *Quarterly Journal of Economics*, 119(1), pages 249-275.

Callaway, Brantly, and Pedro H. C. Sant’Anna (2021). “Difference-in-differences with multiple time periods.” *Journal of Econometrics*, 225(2), pages 200-230.

Dimick, Justin B., and Andrew M. Ryan (2014). “Methods for evaluating changes in health care policy: the difference-in-differences approach.” *JAMA*, 312(22), pages 2401-2402.

Gertler, Paul J., Sebastian Martinez, Patrick Premand, Laura B. Rawlings, and Christel M. J. Vermeersch (2016). *Impact Evaluation in Practice*, Second Edition. Inter-American Development Bank and World Bank. Chapter 7.

Goodman-Bacon, Andrew (2021). “Difference-in-differences with variation in treatment timing.” *Journal of Econometrics*, 225(2), pages 254-277.

Greenstone, Michael, and Rema Hanna (2014). “Environmental regulations, air and water pollution, and infant mortality in India.” *American Economic Review*, 104(10), pages 3038-3072.

Khandker, Shahidur R., Gayatri B. Koolwal, Hussain A. Samad (2010). *Handbook on Impact Evaluation: Quantitative Methods and Practices*. World Bank. Chapter 5.

Sommers, Benjamin D., Katherine Baicker, and Arnold M. Epstein (2012). “Mortality and access to care among adults after state Medicaid expansions.” *New England Journal of Medicine*, 367(11), pages 1025-1034.

Week 9: More Difference-in-Differences, Event Studies, & Synthetic Controls

Abadie, Alberto (2021). “Using synthetic controls: feasibility, data requirements, and methodological aspects.” *Journal of Economic Literature*, 59(2), pages 391-425.

Arkhangelsky, Dmitry, Susan Athey, David A. Hirshberg, Guido W. Imbens, and Stefan Wager (2021). “Synthetic difference-in-differences.” *American Economic Review*, 111(12), pages 4088-4118.

Baker, Andrew C., David F. Larcker, and Charles C. Y. Wang (2022). “How much should we trust staggered difference-in-differences estimates?” *Journal of Financial Economics*, 144(2), pages 370-395.

Ben-Michael, Eli, Avi Feller, and Jesse Rothstein (2021). Synthetic controls with staggered adoption. NBER Working Paper No. w28886.

Freyaldenhoven, Simon, Christian Hansen, and Jesse M. Shapiro (2019). "Pre-event trends in the panel event-study design." *American Economic Review*, 109(9), pages 3307-3338.

Marcus, Michelle, and Pedro H. C. Sant'Anna (2021). "The role of parallel trends in event study settings: an application to environmental economics." *Journal of the Association of Environmental and Resource Economists*, 8(2), pages 235-275.

Robbins, Michael W., Jessica Saunders, and Beau Kilmer (2017). "A framework for synthetic control methods with high-dimensional, micro-level data: evaluating a neighborhood-specific crime intervention." *Journal of the American Statistical Association*, 112(517), pages 109-126.

Week 10: Ex-ante & Ex-post Policy Evaluation

Blundell, Richard (2017). "What have we learned from structural models?" *American Economic Review (Papers & Proceedings)*, 107(5), pages 287-292.

Galiani, Sebastian, and Juan Pantano (2021). Structural models: Inception and frontier. NBER Working Paper No. w28698.

Keane, Michael P. (2010). "Structural vs. atheoretic approaches to econometrics." *Journal of Econometrics*, 156(1), pages 3-20.

Low, Hamish, and Costas Meghir (2017). "The use of structural models in econometrics." *Journal of Economic Perspectives*, 31(2), pages 33-58.

Rust, John (2014). "The limits of inference with theory: A review of Wolpin (2014)." *Journal of Economic Literature*, 52(3), pages 820-850.

Todd, Petra E., and Kenneth I. Wolpin (forthcoming). "The best of both worlds: Combining RCTs with structural modeling." *Journal of Economic Literature*.

Todd, Petra E., and Kenneth I. Wolpin (2010). "Structural estimation and policy evaluation in developing countries." *Annual Review of Economics*, 2(1), pages 21-50.

Wolpin, Kenneth I (2013). *The Limits of Inference without Theory*. MIT Press. Chapter 2.

Week 11: Holidays

Week 12: Structural Models & Experiments

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*, 79(1), pages 37-66.

Attanasio, Orazio, Sarah Cattan, Emla Fitzsimons, Costas Meghir, and Marta Rubio-Codina (2020). “Estimating the production function for human capital: results from a randomized controlled trial in Colombia.” *American Economic Review*, 110(1), pages 48-85.

Bhargava, Saurabh, George Loewenstein, and Justin Sydnor (2017). “Choose to lose: Health plan choices from a menu with dominated option.” *Quarterly Journal of Economics*, 132(3), pages 1319-1372.

Duflo, Esther, Michael Greenstone, Rohini Pande, and Nicholas Ryan (2018). “The value of regulatory discretion: Estimates from environmental inspections in India.” *Econometrica*, 86(6), pages 2123-2160.

Galiani, Sebastian, Alvin Murphy, and Juan Pantano (2015). “Estimating neighborhood choice models: Lessons from a housing assistance experiment.” *American Economic Review*, 105(11), pages 3385-3415.

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*, 96(5), pages 1384-1417.

Week 13: Applying Economic Models & Insights to Policy Design

Baicker, Katherine, Sendhil Mullainathan, and Joshua Schwartzstein (2015). “Behavioral hazard in health insurance.” *Quarterly Journal of Economics*, 130(4), pages 1623-1667.

Bobba, Matteo, Luca Flabbi, and Santiago Levy (2022). “Labor market search, informality, and schooling investments.” *International Economic Review*, 63(1), pages 211-259.

DeShazo, J. R., Tamara L. Sheldon, and Richard T. Carson (2017). “Designing policy incentives for cleaner technologies: Lessons from California’s plug-in electric vehicle rebate program.” *Journal of Environmental Economics and Management*, 84, pages 18-43.

Engel, Stefanie, Stefano Pagiola, and Sven Wunder (2008). “Designing payments for environmental services in theory and practice: An overview of the issues.” *Ecological Economics*, 65(4), pages 663-674.

Madrian, Brigitte C. (2014). “Applying insights from behavioral economics to policy design.” *Annual Review of Economics*, 6(1), pages 663-688.

Souza-Rodrigues, Eduardo (2019). “Deforestation in the Amazon: A unified framework for estimation and policy analysis.” *Review of Economic Studies*, 86(6), pages 2713-2744.

Weeks 14: Discrete & Continuous Choice Models

- Cameron, A. Colin, and Pravin K. Trivedi (2022). *Microeconometrics Using Stata*, Second Edition. Stata Press. Chapters 17 (Binary Outcome Models) and 18 (Multinomial Models).
- Einav, Liran, Amy Finkelstein, and Paul Schrimpf (2015). “The response of drug expenditure to nonlinear contract design: Evidence from Medicare Part D.” *Quarterly Journal of Economics*, 130(2), pages 841-899.
- Handel, Benjamin R., and Jonathan T. Kolstad (2015). “Health insurance for ‘humans’: Information frictions, plan choice, and consumer welfare.” *American Economic Review*, 105(8), pages 2449-2500.
- Heiss, Florian, Daniel McFadden, Joachim Winter, Amelie Wuppermann, and Bo Zhou (2021). “Inattention and switching costs as sources of inertia in Medicare Part D.” *American Economic Review*, 111(9), pages 2737-2781.
- Klaiber, H. Allen, and Roger H. von Haefen (2019). “Do random coefficients and alternative specific constants improve policy analysis? An empirical investigation of model fit and prediction.” *Environmental and Resource Economics*, 73(1), pages 75-91.
- Marone, Victoria R., and Adrienne Sabety (2022). “When should there be vertical choice in health insurance markets?” *American Economic Review*, 112(1), pages 304-342.
- Train, Kenneth E. (2009). *Discrete Choice Methods with Simulation*, Second Edition. Cambridge University Press.
- Vincent, David W (2015). “The Berry-Levinsohn-Pakes estimator of the random-coefficients logit demand model.” *Stata Journal*, 15(3), pages 854-880.
- Wooldridge, Jeffery M. (2010). *Econometric Analysis of Cross Section and Panel Data*, Second Edition. MIT Press. Chapters 15 (Binary Response Models) and 16 (Multinomial and Ordered Response Models).

Weeks 15 & later: Distributional Program Effects & Additional Topics

- Angrist, Joshua D., and Jörn-Steffen Pischke (2009). *Mostly Harmless Econometrics: An Empiricist’s Companion*. Princeton University Press. Chapter 7.
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