

ECON 852
HEALTH ECONOMICS: MARKETS AND SUPPLY-SIDE ACTORS¹
UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
SPRING 2024

Time & location: TR 11:00a-12:15p, GA007

Prerequisites: ECON 847/848/873/880/881
(any higher-year empirical micro course)

Credit units: 3

Instructor: Dr. Qing Gong

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Office: Gardner 201

Office hours: Thu 3-5 pm

Sign up: appointment required, sign up here

Course synopsis: This course explores the economics of health care markets with a focus on supply-side actors, such as insurers, hospitals and physicians, and drug manufacturers. We will cover an assortment of topics in health economics and analyze them using tools from applied microeconomics and industrial organization. Examples include:

- The structure of payment models to incentivize health care providers to deliver low-cost and high-quality care.
- How price regulation affects pharmaceutical innovation and access to prescription drugs
- The choice of capitation (fixed amount per patient) vs. fee-for-service (unbundled payments based on the kind and number of services) in incentivizing health care providers and their impact on the cost and quality of care.
- How provider preferences in a referral network affect health care delivery.

Course objective: The main objective is to prepare you to do original empirical research in microeconomics, specifically within health economics and industrial organization. To this end, this course will (i) introduce you to the main policy issues in health economics, with a focus on understanding how different players respond to market structures and regulations, and (ii) equip you with the modeling and estimation techniques that are central to current health economics research, most, if not all, of which can also be applied in empirical research outside of health.

¹The instructor reserves the right to make changes to the syllabus, including the reading list. These changes will be announced as early as possible.

Approach and prerequisites: This course is a combination of lectures on the essential methodology, surveys of the recent literature on the supply-side topics of health care markets, and empirical exercises that familiarize you with the prominent econometric tools, data sources, and programming techniques. Whenever a new tool is required, we will first review the methodology and then come back to its application in the health care market.

This course will be the second of two health economics courses offered each year at UNC Economics. Its focus on the supply side actors of health care markets complements the existing course (ECON 850 Health Economics), which examines the consumer side of health economics. As a result, this course often employs a different set of tools that spans various fields of empirical microeconomics, such as bargaining models, learning models, cost function estimation with adverse selection, etc. These two courses do not need to be taken in any specific order.

Students are expected to have taken at least one higher-year graduate empirical microeconomics or microeconometrics course. For example, ECON 847 or 848 (Empirical IO I/II), 873 (Microeconometrics), 880 (Labor I), or 881 (Labor II). Students who have not taken these courses but may fulfill the requirements (by taking similar courses offered by other departments) are encouraged to contact the instructor and discuss their specific cases before enrollment.

Course structure and requirement: Most class meetings require that you read the assigned papers in advance and actively participate as we discuss them in class. You will also be required to do a 45-minute in-class presentation of a paper, as well as a proposal for an original research paper at the end of the semester. There will be about 6 homework assignments, all of which designed to help you write the final research proposal. Throughout the semester, you are also welcome (and encouraged) to meet with the instructor about the course, original research ideas, and other research-related questions.

Your course grade will be calculated based on the weights below:

- **Homework:** 30% (6 assignments in total, equally weighted)
 - a. **Due dates:** Homework assignments are designed to help you build your research paper throughout the course. They must be submitted before the deadline. Late submissions will not be accepted, but you can miss 1 assignment. If you do, the weight will be shifted to the final research proposal.
 - b. **Submission:** Submit your homework in the required format on Canvas. Please do not

email in your homework.

- c. **Collaboration:** Each student should submit their own write-up for each assignment. That being said, working with your classmates is *highly* encouraged. However, keep in mind that unless you are working on a joint project (which is completely acceptable), each assignment should reflect your own research ideas and agenda.

* See the **class calendar** at the end of this syllabus for the list of homework assignments and their due dates. The dates might be subject to changes, which will be announced ahead of time.

- **Participation: 20%**

- a. **Assessment of required readings (10%):** It is essential that you finish the required readings **before** they are discussed in class. Students will be (randomly) selected at the beginning of each class to answer factual questions on the reading such as the research question, the empirical strategy, the key findings, etc. Each student will also give a 45-minute in-class presentation on one paper. The papers to be presented are marked with a plus sign (“+”) in the class calendar. Please sign up by Thu. Jan 18 here.
- b. **In-class discussions and activities (10%):** Students are expected to voluntarily participate in and contribute to the in-class discussions and activities. You need to be fully engaged, communicate your ideas clearly, and be respectful to your peers and the instructors. Students are also encouraged to ask questions both during and after class, as well as during fellow students’ presentations. Good questions are most often not factual ones, but ones that demonstrate critical thinking and intellectual engagement.

- **Presentation: 20%**

- a. **Date and time:** Presentations are scheduled during the last two class meetings *and* during the final exam (May 5, 12-3pm).²
- b. **Parameters:** Each student will deliver a 30-minute presentation on their research paper.
- c. **Attendance:** *All* are expected to be attend the presentation sessions just as in the lectures, and are encouraged to provide constructive feedback for your peers.

²The number of class meetings to be used for presentations may be subject to change depending on the number of students enrolled.

d. **Evaluation:** Key areas of evaluation include the content, clarity and organization, and delivery. More detailed guidelines will be provided in class.

• **Research proposal [due Tue. May 7 at 3 pm] : 30%**

a. A brief proposal on your own research project due on the first day of final exam (no more than 5 letter-size pages *excluding* tables, figures, and the bibliography, 12 pt, single space, 1 inch margin on all sides).

b. The organization should resemble that for the second-year field paper.

c. You can choose to work on any topic in health economics with a focus on the *supply-side* actors. The research question must be one that was submitted in one of the assignments and approved by the instructors.

d. More guidelines and detailed requirements will be provided in class as we go along.

List of topics and readings

Below is a tentative list of topics to be covered in the course and a subset of (highly recommended/required) readings. The list of readings will be continually updated with additional materials, such as new working papers and exemplary job market papers. A few important notes:

- Mandatory readings are marked with an asterisk.
- The part on pharmaceutical markets is built on materials prepared and generously shared by Prof. Luca Maini, who was the co-instructor for this course in Spring 2021 and 2022.

1. Introduction: Topics and Tools

- ***Finkelstein, Amy, Matthew Gentzkow, and Heidi Williams**, "Sources of Geographic Variation in Health Care: Evidence From Patient Migration," *The Quarterly Journal of Economics*, nov 2016, 131 (4), 1681–1726.
- **Arrow, Kenneth J.**, "Uncertainty and the Welfare Economics of Medical Care," *American Economic Review*, 1963, 53 (5), 940–973.
- **Nevo, Aviv**, "A practitioner's guide to estimation of random-coefficients logit models of demand," *Journal of Economics and Management Strategy*, 2000, 9 (4), 513–548.

2. Providers: Incentives and Behaviors of Health Care Providers

(a) Agency I: Induced Demand

- ***Johnson, Erin M. and M. Marit ReHAVI**, "Physicians treating physicians: Information and incentives in childbirth," *American Economic Journal: Economic Policy*, 2016, 8 (1), 115–141.
- **Schnell, Molly**, "Physician Behavior in the Presence of a Secondary Market: The Case of Prescription Opioids," *Working Paper*, 2022.
- **Chandra, Amitabh, David Cutler, and Zirui Song**, "Who Ordered That? The Economics of Treatment Choices in Medical Care," *Handbook of Health Economics*, Vol. 2, Elsevier B.V., 2011.

(b) Agency II: Other Margins

- ***Eliason, Paul J., Paul L. E. Grieco, Ryan C. Mcdevitt, and James W. Roberts**, "Strategic Patient Discharge: The Case of Long-Term Care Hospitals," *American Economic Review*, 2018, 108 (11), 3232–3265.

- **Einav, Liran, Amy Finkelstein, and Neale Mahoney.** "Provider incentives and healthcare costs: Evidence from long-term care hospitals." *Econometrica*, 2018, 86(6): 2161-2219.
- **Gandhi, Ashvin,** "Picking Your Patients: Selective Admissions in the Nursing Home Industry," SSRN Electronic Journal, 2020. "Picking Your Patients: Selective Admissions in the Nursing Home Industry," *Working Paper*, 2020.
- ***Alexander, Diane.** "How do doctors respond to incentives? unintended consequences of paying doctors to reduce costs." *Journal of Political Economy*, 2020, 128(11): 4046-4096.
- **Geruso, Michael, and Timothy Layton.** "Upcoding: evidence from Medicare on squishy risk adjustment." *Journal of Political Economy* 128.3 (2020): 984-1026.

(c) Provider Productivity

- ***Chandra, Amitabh and Douglas O. Staiger,** "Productivity spillovers in health care: Evidence from the treatment of heart attacks," *Journal of Political Economy*, 2007, 115 (1), 103–140.
- **Abaluck, Jason, Leila Agha, Chris Kabrhel, Ali Raja, and Arjun Venkatesh,** "The determinants of productivity in medical testing: Intensity and allocation of care," *American Economic Review*, 2016, 106 (12), 3730–3764.
- **Doyle, Joseph J., John A. Graves, Jonathan Gruber, and Samuel A. Kleiner,** "Measuring Returns to Hospital Care: Evidence from Ambulance Referral Patterns," *Journal of Political Economy*, feb 2015, 123 (1), 170–214.

(d) Provider learning

- ***Kolstad, Jonathan T,** "Information and Quality When Motivation Is Intrinsic: Evidence from Surgeon Report Cards," *American Economic Review*, 2013, 103 (7), 2875–2910.
- ***Crawford, Gregory S and Matthew Shum,** "Uncertainty and Learning in Pharmaceutical Demand," *Econometrica*, 2005, 73 (4), 1137–1173.
- **Dickstein, Michael J.** "Efficient provision of experience goods: Evidence from antidepressant choice." *Working Paper*, 2018.

3. Policies: Prices, Qualities, and Inequalities

(a) Design of Physician Payment Schemes

- ***Clemens, Jeffrey and Joshua D. Gottlieb**, "Do Physicians' Financial Incentives Affect Medical Treatment and Patient Health?," *American Economic Review*, 2014, 104 (4), 1320–1349.
- **Dafny, Leemore**, "How do Hospitals Respond to Price Changes?," *American Economic Review*, 2005, 95 (5), 1525–1547.
- **Ho, Kate and Ariel Pakes** "Hospital Choices, Hospital Prices, and Financial Incentives to Physicians," *American Economic Review*, 2014, 104 (12), 3841–3884.

(b) Government-provided insurance and the pricing of care

- ***Clemens, Jeffrey, and Joshua D. Gottlieb**. "In the shadow of a giant: Medicare's influence on private physician payments." *Journal of Political Economy*, 2017, 125 (1): 1-39.
- ***Chan, David C., and Michael J. Dickstein**. "Industry input in policy making: Evidence from Medicare." *The Quarterly Journal of Economics*, 2019, 134 (3): 1299-1342.

(c) Hospital readmissions reduction programs

- ***Gupta, Atul**, "Impacts of Performance Pay for Hospitals: The Readmissions Reduction Program." *American Economic Review*, 2021, 111 (4): 1241-83.
- **Darden, Michael, Ian McCarthy, and Eric Barrette**. "Who Pays in Pay-for-Performance? Evidence from Hospital Prices and Financial Penalties." *American Journal of Health Economics*, 2023, 9 (3): 435-460.

(d) Homophily in the referral network and beyond

- ***Zeltzer, Dan**, "Gender homophily in referral networks: Consequences for the Medicare physician earnings gap," *American Economic Journal: Applied Economics*, 2020, 12(2), 169-97.
- ***Cabral, Marika, and Marcus Dillender**, "Gender Differences in Medical Evaluations: Evidence from Randomly Assigned Doctors," *American Economic Review*, forthcoming.
- **Marcella Alsan, Owen Garrick, and Grant Graziani**. "Does Diversity Matter for Health? Experimental Evidence from Oakland." *American Economic Review* 2019, 109(12): 4071–4111.

(e) Quality and cost of emergency care

- ***Cooper, Zack, Fiona Scott Morton, and Nathan Shekita.** “Surprise! Out-of-network billing for emergency care in the United States.” *Journal of Political Economy*, 2020, 128(9): 3626-3677.
- **Silver, David.** “Haste or Waste? Peer pressure and productivity in the emergency department,” *The Review of Economic Studies*, 2021, 88 (3): 1385-1417.

4. **Payers: Health Insurance Markets**

(a) Moral Hazard and Insurance Design

- ***Zarek C. Brot-Goldberg, Amitabh Chandra, Benjamin R. Handel, Jonathan T. Kolstad,** “What does a Deductible Do? The Impact of Cost-Sharing on Health Care Prices, Quantities, and Spending Dynamics,” *The Quarterly Journal of Economics*, 132 (3), 2017, 1261–1318.
- **Dranove, David, Christopher Ody, and Amanda Starc,** “A Dose of Managed Care: Controlling Drug Spending in Medicaid,” *American Economic Journal: Applied Economics*, 2021, 13 (1): 170-97.

(b) Competition and Adverse Selection

- ***Einav, Liran, Amy Finkelstein, Stephen P. Ryan, Paul Schrimpf, and Mark R. Cullen,** “Selection on moral hazard in health insurance,” *American Economic Review*, 2013, 103 (1), 178–219.
- **Hackmann, Martin B., Jonathan T. Kolstad, and Amanda E. Kowalski,** “Adverse selection and an individual mandate: When theory meets practice,” *American Economic Review*, 2015, 105 (3), 1030–1066.
- **Shepard, Mark,** “Hospital Network Competition and Adverse Selection: Evidence from the Massachusetts Health Insurance Exchange,” *American Economic Review*, 2022, 112(2): 578-615.

(c) Fixes for Adverse Selection

- ***Finkelstein, Amy, Nathaniel Hendren, and Mark Shepard,** “Subsidizing Health Insurance for Low-Income Adults: Evidence from Massachusetts.” *American Economic Review*, 2019, 109 (4): 1530-67.

- **Tebaldi, Pietro**, “Estimating Equilibrium in Health Insurance Exchanges: Price Competition and Subsidy Design under the ACA,” *Review of Economic Studies*, forthcoming.
- **Geruso, Michael and Timothy J. Layton, Grace McCormack, and Mark Shepard**, “The Two Margin Problem in Insurance Markets,” *The Review of Economics and Statistics*, July 2021: 1-46.

5. The Pharmaceutical Market

(a) Introduction to pharmaceutical markets

- ***Lakdawalla, Darius N.**, “Economics of the pharmaceutical industry,” *Journal of Economic Literature*, 2018, 56 (2), 397–449.
- **Kakani, Pragya, Michael Chernew, and Amitabh Chandra**, “Rebates in the Pharmaceutical Industry: Evidence from Medicines Sold in Retail Pharmacies in the U.S.,” *Journal of Health Politics, Policy and Law*, 2022, 47 (7).

(b) Competition in pharmaceutical markets

- ***Maini, Luca, Josh Feng, Thomas Hwang, and Jacob Klimek**, “Biosimilar Entry and the Pricing of Biologic Drugs,” *Working Paper*, 2022.
- **Grabowski, Henry, Genia Long, Richard Mortimer, and Ani Boyo**, “Updated trends in US brand name and generic drug competition,” *Journal of Medical Economics*, 2016, 19 (9), 836–844.
- **Howard, David H., Peter B. Bach, Ernst R. Berndt, and Rena M. Conti**, “Pricing in the Market for Anticancer Drugs,” *Journal of Economic Perspectives*, feb 2015, 53 (1), 139–162.
- **Scott Morton, Fiona M., Ariel Dora Stern, and Scott Stern**, “The Impact of the Entry of Biosimilars: Evidence from Europe,” *Review of Industrial Organization*, aug 2018, 53 (1), 173–210.

Class Calendar

Week	Date	Topic	Required reading (+: to be presented)	Assignment
Introduction: topics and methods (3 lectures)				
1	1/11	Course overview: goals and expectations		
2	1/16	Toolkit for empirical research I: an example	Finkelstein, Gentzkow, Williams (2016 QJE)	
	1/18	Toolkit for empirical research I: RUM		
Part 1: Providers (6 lectures)				
3	1/23	Agency I - induced demand	+Johnson and Rehavi (2016 AEJ:P)	
	1/25	Agency II - other margins	+Eliason et al. (2018 AER)	RP1 due
4	1/30	Agency II - other margins	Alexander (2020 JPE)	
	2/1	Provider productivity	+Chandra and Staiger (2007 JPE)	
5	2/6	Provider learning I	Kolstad (2013 AER)	
	2/8	Provider learning II	+Crawford and Shum (2005 EMCA)	RP2 due
6	2/13	Well-being Day		
Part 2: Policies (7 lectures)				
	2/15	Design of physician payment schemes	Clemens and Gottlieb (2014 AER)	
7	2/20	Government-provided insurance	+Clemens and Gottlieb (2017 JPE)	
	2/22	Pricing of care	+Chan and Dickstein (2019 QJE)	RP3 due
8	2/27	Quality monitoring programs	Gupta (2021 AER)	
	2/29	Physician homophily	Zeltzer (2020 AEJ:App)	
9	3/5	Physician-patient gender and racial concordance	+Cabral and Dillender (forthcoming in AER)	
	3/7	Quality and cost of emergency care	Cooper, Morton, Shekita (2020 JPE)	WA1 due
10	3/12	Spring Break		
	3/14	Spring Break		
Toolkit for Empirical Research II				
11	3/19	Data description and analysis	-	
	3/21	Linking theory and empirics	-	

Class Calendar (continued)

Week	Date	Topic	Required reading (+: to be presented)	Assignment
Part 3: Payers (4 lectures)				
12	3/26	Moral hazard and insurance design	Brot-Goldberg et al. (2018 AJE)	WA2 due
	3/28	Well-being Day		
13	4/2	Competition and adverse selection I	+Einav, Finkelstein, Ryan, Schrimpf, Cullen (2013 AER)	
	4/4	Competition and adverse selection II	-	
14	4/9	Fixes for adverse selection	Finkelstein, Hendren, and Shepard (2019 AER)	
Part 4: Pharma (2 lectures)				
	4/11	Intro to pharmaceutical markets	Lakdawalla (2018 JEL)	
15	4/16	Competition in drug markets	Maini et al. (2022 WP)	
	4/18	Presentations 1 (30 min/person)	-	WA3 due
16	4/23	Presentations 2 (30 min/person)	-	
	4/25	Presentations 3 (30 min/person)	-	
17	4/30	Presentations 4 (30 min/person)	-	
18	5/7	Papers due at 3pm		

Notes:

- All the papers listed in this table are required readings.
- Papers that are marked with a plus sign (“+”) also need to be presented in class.
- Please sign up for an in-class presentation by Jan. 18.