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NBER Health Economics Bootcamp
Cambridge, MA

Dear Professors Handel, Ho, and Kolstad,

I am writing to apply for a spot in the upcoming NBER Health Economics Research Bootcamp. I am a third-year graduate student in economics at Columbia University interested in health economics, and believe I have much to both learn and contribute at the Bootcamp.

My PhD adviser is Doug Almond here at Columbia; he will be submitting a letter of recommendation separately. His contact information is below.

Douglas Almond
Department of Economics
Columbia University
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(212) 854-7248

Best,

Andrew Olenski

ANDREW R. OLENSKI

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EDUCATION

Columbia University, Ph.D. Economics, present
Fields: public finance, industrial organization

George Washington University, B.S. Economics, 2015 *summa cum laude*

PEER-REVIEWED PUBLICATIONS

1. Jena AB, Khullar D, Ho O, **Olenski A**, Blumenthal D. "Sex differences in academic rank in U.S. medical schools in 2014," *Journal of the American Medical Association (JAMA)* 314(11), pp. 1149-1158, 2015.

2. **Olenski A**, Abola M, Jena AB. "Do heads of government age more quickly? An observational study comparing mortality between elected leaders and runners-up in national elections of 17 countries," *British Medical Journal (BMJ)* 351:h6424, 2015.

3. Jena AB, **Olenski A**, Blumenthal D. "Sex differences in physician salary in U.S. public medical schools," *JAMA: Internal Medicine* 176(9), pp. 1294-1304, 2016.

4. Barnett M, **Olenski A**, Jena AB. "Opioid-prescribing patterns of emergency physicians and risk of long-term use," *New England Journal of Medicine* 376(7), pp. 663-673, 2017.

   • Best Published Research Paper of the Year Award, *Society of General Internal Medicine*, 2018

5. Barnett M, **Olenski A**, Jena AB. "Patient mortality during unannounced accreditation surveys at US hospitals," *JAMA: Internal Medicine* 177(5), pp. 1-9, 2017.

6. Jena AB, Mann NC, Wedlund LN, **Olenski A**. "Delays in emergency care and mortality during major U.S. marathons," *New England Journal of Medicine* 376(15), pp. 1441-1450, 2017.

7. Khullar D, Blumenthal D, **Olenski A**, Jena AB. "U.S. immigration policy and American medical research - the scientific contributions of foreign medical graduates," *Annals of Internal Medicine* 167(7), pp. 584-586, 2017.

8. Blumenthal DM, **Olenski A**, Tsugawa Y, Jena AB. "Association between treatment by locum tenens internal medicine physicians and 30-day mortality among hospitalized Medicare beneficiaries," *Journal of the American Medical Association (JAMA)* 318(21), pp. 2119-2129, 2017.

9. Jena AB, **Olenski A**, Molitor D, Miller N. "Association between rainfall and diagnoses of joint or back pain: retrospective claims analysis," *British Medical Journal (BMJ)* 359:j5326, 2017.

10. Blumenthal D, **Olenski A**, Yeh R, DeFaria-Yeh D, Sarma A, Stefanescu-Schmidt A, Wood M, Jena AB. "Sex differences in academic rank among cardiologists at U.S. medical schools in 2014," *Circulation* 135(6), pp. 506-517, 2017.

11. Jena AB, **Olenski A**. "Reductions in firearm injuries during NRA annual conventions," *New England Journal of Medicine* 378:866-867, 2018.

12. Jena AB, **Olenski A**, Blumenthal DM, Yeh RW, Goldman DP, Romley J. "Acute myocardial infarction mortality during dates of national interventional cardiology meetings," *Journal of the American Heart Association* 117:e008230, 2018.

13. Jena AB, **Olenski A**, Khullar D, Bonica A, Rosenthal H. "Physicians' political preferences and the delivery of end of life care in the United States," *British Medical Journal (BMJ)* 361:k1161, 2018.

14. Barnett M, **Olenski A**, Thygeson M, Ishisaka D, Wong S, Jena AB, Mehrotra A. "A Health Plan's Formulary Led to Reduced Use of Extended-Release Opioids, But Did Not Lower Overall Opioid Use," *Health Affairs* 37(9), pp. 1509-1516, 2018.

15. Sacarny A, **Olenski A**, Barnett M. "Association of Quetiapine Overuse Letters With Prescribing by Physician Peers of Targeted Recipients," *JAMA Psychiatry*, 76(6), pp. E1-2, 2019.

WORKING PAPERS

1. **Olenski A**, Coussens S, Zimmerman A, Jena AB. "Behavioral Heuristics in Coronary Artery Bypass Graft Surgery."

2. Barnett M, **Olenski A**, Sacarny A. "Physician Practice Styles, Common Agency, and Health Care Spillovers: Evidence from a Medicare Overprescribing Letter."

OTHER WRITING

1. "Trump's immigration order could make it harder to find a psychiatrist or pediatrician," *FiveThirtyEight*, 02/03/2017.

2. "When clinicians know they're being watched, patients fare better," *Harvard Business Review*, 03/24/2017.

3. "When roads are closed for marathons, more elderly people die of heart attacks," *Harvard Business Review*, 04/12/2017.

4. "Substitute doctors are becoming more common. What do we know about their quality of care?" *Harvard Business Review*, 12/11/2017.

HONORS AND AWARDS

Outstanding Reviewer Award, Annals of Internal Medicine, 2018

National Science Foundation Graduate Research Fellowship, 2018

Dean's Fellowship, Department of Economics, Columbia University, 2017

Special Honors in Economics, Department of Economics, George Washington University, 2015

PROFESSIONAL SERVICE

Referee for *Academic Emergency Medicine*, *Annals of Internal Medicine*.

TEACHING ASSISTANT EXPERIENCE

Industrial Organization

RELEVANT POSITIONS

Research Assistant, Adam Sacarny, Ph.D.
Department of Health Policy and Management, Columbia University, 2018-2019

Research Assistant, Anupam Bapu Jena, M.D./Ph.D.
Department of Health Care Policy, Harvard University, 2015-2017

Research Assistant, Graciela Kaminsky, Ph.D.
Department of Economics, George Washington University, 2014-2015

Research Intern, Matthew Fiedler, Ph.D.
Council of Economic Advisers, The White House, 2013-2014

SELECTED MEDIA COVERAGE

1. Do heads of government age more quickly? Observational study comparing mortality between elected leaders and runners-up in national elections of 17 countries, *The BMJ* 2015. Reported by New York Times, Washington Post, STAT, Reuters, Associated Press, The Atlantic, NPR, Vox.

2. Sex differences in academic rank in US medical schools in 2014, *JAMA* 2015. Reported by NPR, Reuters, US News and World Report.

3. Sex differences in physician salary in U.S. public medical schools, *JAMA: Internal Medicine* 2016. Reported by New York Times, Washington Post, Associated Press, Bloomberg News, Reuters, TIME.

4. Opioid-Prescribing Patterns of Emergency Physicians and Risk of Long-Term Use, *New England Journal of Medicine* 2017. Reported by New York Times, Washington Post, Chicago Tribune, Philadelphia Inquirer, Associated Press, Reuters, NPR, STAT, Vox, TIME.

5. Patient mortality during unannounced accreditation surveys at US hospitals, *JAMA: Internal Medicine* 2017. Reported by New York Times, Reuters, NPR, STAT.

6. Delays in emergency care and mortality during major U.S. marathons, *New England Journal of Medicine* 2017. Reported by New York Times, Wall Street Journal, CNN, Reuters, Associated Press, The Atlantic, NPR, STAT, Boston Globe, Philadelphia Inquirer, NBC, USA Today, TIME.

7. Association Between Treatment by Locum Tenens Internal Medicine Physicians and 30-Day Mortality Among Hospitalized Medicare Beneficiaries, *JAMA* 2017. Reported by U.S. News and World Report, Reuters, STAT News.

8. Reductions in firearm injuries during NRA annual conventions, *New England Journal of Medicine* 2018. Reported by Scientific American, TIME, Los Angeles Times, Boston Globe, Vox, ABC, New York Magazine, Gizmodo, CNN, Philadelphia Inquirer, Bloomberg Business, US News and World Report, Reuters.

COMPLETED DOCTORAL COURSEWORK

1. Microeconomic Analysis I
2. Microeconomic Analysis II
3. Macroeconomic Analysis I
4. Macroeconomic Analysis II
5. Introduction to Econometrics I
6. Introduction to Econometrics II
7. Math Methods for Economists
8. Perspectives on Economic Studies
9. Industrial Organization I (Theoretical)
10. Industrial Organization II (Empirical)
11. Industrial Organization III (Dynamic)
12. Public Finance I
13. Public Finance II
14. Topics in Health Economics

I have a long-standing interest in health care economics. I spent a year as an undergraduate intern working on the Affordable Care Act at the White House Council of Economic Advisers, two years as a post-graduate research assistant at the Department of Health Care Policy at Harvard Medical School, and I am currently a third-year Ph.D. student in economics at Columbia University, focusing on health care.

Currently, I am working on several health economics projects. For instance, I am studying the interaction between advertising and adverse selection in health insurance markets. We know that adverse selection can operate on two margins: the extensive margin, or the decision to purchase health insurance, and the intensive margin, or the decision of which plan to purchase. The policy remedies to each are well studied. In this project, I argue that advertising can be a tool to combat extensive margin adverse selection, and potentially a weapon to worsen it on the intensive margin.

Along the extensive margin, information asymmetries can lead to inefficiently low levels of coverage, if not a complete market unraveling, due to an insurer's inability to price discriminate. The preferred policy solution has been to shift demand outward, using a combination of premium subsidies and mandates. I argue that state-sponsored health insurance advertising may be an effective but largely untapped tool to increase take-up among 'young invincibles' who choose to forgo coverage. Such advertising may be more cost-effective than premium subsidies and more politically palatable than mandates.

When should advertising be publicly provided? It depends on the nature of health insurance advertising effects. IO economists have traditionally thought of advertising as being either "informational" (market-expanding) or "persuasive" (business-stealing). In the former, advertising is under-supplied in equilibrium due to free-riding of firms, while in the latter it is over-supplied (Tirole, 1988). In the context of health insurance, there is some regulatory concern that private insurers may use business-stealing advertising to "cream-skim" healthier enrollees, which can worsen adverse selection along the intensive margin. Thus, whether an insurer's advertising brings an additional enrollee into the market or "steals" an enrollee from another firm is a key empirical question. To the extent that advertising effects are market-expanding, then state-sponsored advertising may be efficient. Indeed, we do observe that several states have engaged in high-profile advertising campaigns for their Marketplaces.

For this project, I combine proprietary advertising data from Nielsen with administrative ACA enrollment data from California and Massachusetts to estimate a structural model of insurance demand with advertising effects. I am currently working on estimating a simplified version of Tebaldi (WP 2018) to allow advertising to enter the utility function. I am also hand-collecting data on the number of plans sold at the insurer-county-year level in each of the remaining states, to estimate counterfactuals in which national advertising increases.

The identification of advertising effects leans on the sharp discontinuities introduced by media market borders. Advertising is purchased in collections of counties, called designated market areas (DMA). A firm that wishes to advertise in a particular county must purchase advertising for the entire DMA in which that county resides. Counties were initially allocated to DMAs by assigning them to the local television station that was easiest to pick up over the air. I am estimating a discrete choice model, comparing the plan choices of individuals who reside on either side of a DMA border, and are therefore exposed to different levels of advertising.[1]

With my demand estimates in hand, I can answer several questions of interest. For instance: should states spend more on advertising? Currently, some states such as California, spend large sums on advertising their Marketplaces, while others, such as Tennessee, do not spend any. Are

[1]This approach was first pioneered by Shapiro (2018) who studies the effects of antidepressant advertising on both firms and consumers.

those marginal enrollees swayed by advertising healthier, and do they apply downward pressure on premiums? This would also suggest that advertising is likely under-supplied. Should states allow tax breaks for private insurers to advertise? This may be the case if there are positive spillovers to such advertising, which would correspond to market-expanding advertising effects. Discussing this research with fellow PhD students and faculty in health economics at the Bootcamp would prove highly fruitful as I continue my progress.

I also have an interest in more reduced form approaches, with a greater focus on quasi-experimental variation. For instance, a paper I have written with Anupam Jena and is currently under revision at the *New England Journal of Medicine* studies the role of cognitive biases in clinical decision-making. Specifically, we study 'left-digit bias,' which is the tendency of individuals to categorize continuous variables by their leftmost digit. We focus on the clinical choice scenario in which physicians must decide whether to order bypass surgery for patients who have suffered a heart attack, and may be unduly influenced by the patient's age in their decision-making. Because bypass surgery is particularly invasive, and patients often face long recovery times from the procedure, physicians may have some reluctance to order the treatment for those patients they see as elderly or frail.

To identify left-digit bias in this context, we restrict our attention to those patients who are admitted to the hospital with an acute myocardial infarction (AMI) in two-week windows around their 80th birthday. We use Medicare claims data, which includes the admission date as well as the patient's exact date of birth. We hypothesize that patients who are admitted immediately before their birthdays are no healthier than those admitted immediately after, but that physicians will mentally classify the former patients as 'in their 70s' and the latter as 'in their 80s,' and make differential treatment choices accordingly.

We find that, despite the absence of any changes in the recommended clinical guidelines for ordering bypass surgery at age 80, patients who are just over the age-80 threshold are about 25% less likely to receive bypass surgery, and face 30-day mortality that is approximately 11% higher, compared to those patients admitted just prior to their 80th birthday.

We offer several conclusions from this result. First, we argue that at the margin, there exist patients who would benefit from bypass surgery but are not receiving it; i.e., that the returns to additional spending are high in this context. Second, the fact that treatment choice can be influenced by these types of factors suggests that there might be large returns to investing further in clinical 'decision support systems,' or computer programs that help physicians think probabilistically. Finally, more generally, we argue that the existence of these types of systematic cognitive biases offers a wellspring of approaches to evaluate treatment efficacies in 'real-world' settings, particularly given the abundance of clinical cut-off points in diagnostic testing (e.g., hemoglobin levels below a certain threshold indicating anemia). Moreover, given the enormity and quality of health data, one might be powered to detect treatment effect heterogeneity that can be hard to test in small-sample RCTs, which can be costly to conduct. This is particularly valuable for highly uncommon conditions, such as very rare tumors. Indeed, for these reasons the FDA has recently announced an increased interest in considering 'real-world data' in its regulatory mission.[2]

Attending the NBER Bootcamp would prove highly productive for me as I look to push my research questions further. Discussing my early results and path forward with fellow students and faculty can help me shape the rest of my health economics research agenda, in addition to opening new channels for collaboration with my future colleagues.

[2]https://www.fda.gov/news-events/press-announcements/statement-fda-commissioner-scott-gottlieb-md-fdas-new-strategic-framework-advance-use-real-world

COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

October 10, 2019

Brett Maranjian
National Bureau of Economic Research

Dear Mr. Maranjian,

I am writing to recommend **Andrew R Olenski** for the NBER Health Economics Research Boot Camp. Andrew is a terrific third year economics PhD student at Columbia who is squarely focussed on health economics. Andrew has an NSF Graduate Research Fellowship and indeed already has a long CV that would earn him a *faculty* position at many fine medical schools or schools of public health. **He has co-authored 3 British Medical Journal articles (BMJ), 3 in the New England Journal of Medicine (NEJM), and 3 in the Journal of the American Medical Association (JAMA)**. At Columbia his field classes have focussed on IO and his work is clearly trending toward being more econ-heavy (as described later in the letter below).

First, Andrew also has a first-authored R&R at NEJM ("Behavioral Heuristics in Coronary Artery Bypass Graft Surgery"), which he presented in the Columbia applied microeconomics colloquium last week. Economists have considered "left digit bias" in prices, where for example 99 cents may be perceived as more than one cent cheaper than $1. Lacetera et al. [2012] in the AER show it for odometer readings on cars. Andrew argues that patients who are perceived as older by virtue of being 80 instead of 79 years old, receive much less aggressive medical treatment following a heart attack and suffer high mortality as a result. Yes, economists have exploited rules of thumb in clinical care, e.g. Almond, Doyle, Kowalski, and Williams [2010], but to my knowledge these have not penetrated into medical and epidemiological literature as this one is poised to. This is shocking and distrubing, as such rules of thumb abound in clinical care McDonald [1996] but are not exploited for identification and causal inference (indeed, matching methods seem preferred!). Furthermore, to my knowledge, Andrew's paper is the first to explore left digit bias of any form in clinical care.

At Columbia, he is developing the economics dimension to his interest in health and program evaluation. He has taken three IO classes: IO 1 (Theoretical, Andrea Prat), IO 2 (Empirical, John Asker / Tobias Salz), and IO 3 (Dynamics, Andrey Simonov), receiving either A+ or As as grades. He also received an A in my topics in Health Economics PhD econ class and impressed

throughout.

Andrew will be an extremely successful health economist if he combines this training with his exceptional productivity and strong background in health policy. I believe Andrew's background is helpful in a field like health econ, where institutional knowledge can be arcane, dull, and very important (e.g., understanding rules and procedure of hospital billing is critical when working with claims data). Obviously, this not really taught to the econ PhD students who are increasingly working on these subjects. The NBER bootcamp will help Andrew combine his existing strengths and training in IO to create top flight health research for an economics audiences and literatures.

Andrew has projects in the pipeline that lean – or even topple – toward economics:

1. Andrew is currently analyzing proprietary advertising data from Nielsen matched to administrative enrollment data from Covered California, a large ACA marketplace, to estimate a structural model of health insurance advertising effects. As California engages in a lot of state-sponsored advertising for its exchange, estimating the returns to that advertising is critical: those public funds might otherwise go to further subsidizing premiums instead (reservations about which have been noted by Gruber and Washington [2005].

2. With Adam Sacarny at Columbia Mailman, Andrew is exploring insurance productivity spillovers. There is a theoretical literature on "common agency" problems in health care, which is when common agents (providers) interact with multiple principals (insurers), no individual principal captures the full benefit of influencing an agent to work more productively, and that this may explain why progress to improve productivity in health care has been slow (e.g., EMR adoption). Andrew and Adam aim to provide the first experimental evidence in support of this hypothesis. They study an intervention conducted by a large public insurer that seeks to curb over-prescribing of a particular antipsychotic, and are finding thus far that there were substantial spillovers of this intervention onto the privately insured patients of the targeted physicians. These positive spillovers suggest that private insurers are underincentivized to conduct the socially efficient number of such productivity-boosting investments.

3. "Cost-Sharing versus Premium Subsidization" is a newer project that will explore whether consumers are more sensitive to extensive margin costs of health insurance (monthly/annual premiums) or intensive margin costs of health care (i.e., deductibles). The ACA introduced both premium and cost-sharing subsidies; this project will explore whether funds should be shifted from one type of subsidy to another. Andrew

plans to use administrative data from the Covered California exchange and exploit the (non-overlapping) discontinuous nature of both subsidy schedules. Premium subsidies decrease linearly in income and discontinuously in age/region, whereas the cost-sharing subsidies decrease discontinuously in income but are constant in age/region.

To summarize,Andrew is already exceptionally productive and accomplished, despite just being a third year student! As you will see from his most recent work, he is now focussing on economics and thereby leveraging his coursework in IO. I know Andrew would benefit tremendously from this boot camp and could also contribute substantively to its success, so I very much hope you can find a place for him – you will be glad you did!

Sincerely,

Douglas Almond
Professor
Department of Economics & SIPA

References

Douglas Almond, Joseph J. Doyle, Jr., Amanda E. Kowalski, and Heidi Williams. Estimating marginal returns to medical care: Evidence from at-risk newborns. *The Quarterly Journal of Economics*, 125(2):591–634, 2010.

Jonathan Gruber and Ebonya Washington. Subsidies to employee health insurance premiums and the health insurance market. *Journal of Health Economics*, 24(2):253 – 276, 2005. ISSN 0167-6296. doi: https://doi.org/10.1016/j.jhealeco.2004.08.004. URL `http://www.sciencedirect.com/science/article/pii/S0167629604001213`.

Nicola Lacetera, Devin G. Pope, and Justin R. Sydnor. Heuristic thinking and limited attention in the car market. *American Economic Review*, 102 (5):2206–36, May 2012. doi: 10.1257/aer.102.5.2206. URL `http://www.aeaweb.org/articles?id=10.1257/aer.102.5.2206`.

Clement J. McDonald. Medical Heuristics: The Silent Adjudicators of Clinical Practice. *Ann Intern Med*, 124(Part 1):56–62, 1996.