

Program on Foundational Research on Health Care Markets and Policies



Dear Friends:

In its 2016 inaugural year, the Program on Foundational Research on Health Care Markets and Policies created a unique platform for innovative research on topics such as the financial and economic implications of health care policies and individual and physician decision-making. In 2017, the program experienced significant growth, offering support to more emerging scholars than in its previous year and creating greater visibility of our work.

In an era of rising health care costs, an aging population, emerging global health threats, and evolving insurance markets and regulatory environments, the questions of how we provide and pay for health care—and improve health outcomes—are critical. Medical and public health research are at the forefront of efforts to improve health care delivery and effectiveness. What sets this program apart is its primary focus on applying the tools of economic analysis to understand the basic forces—supply and demand, incentives, labor trends, and investments in human capital, for example—that influence health care policies and the systems in which they are implemented.

The program has strengthened the field of health economics by providing financial support and mentorship to early career scholars just entering the field through fellowships at the dissertation and postdoctoral stage. We brought all the Health Economics Fellows to The University of Chicago campus to present at the 2017 Emerging Scholars Roundtable and to attend our annual research conference, “The Health Sector and the Economy 2017,” which allowed them to develop new relationships, become part of the health economics research community, and find opportunities to collaborate with scholars in different stages of their academic careers. In 2017, the program also sponsored the International Health Economics Association (iHEA) Biennial World Congress in Boston, which provided scholarship opportunities for 10 students to attend the conference.

Recognized as a leading health care policy expert, the program’s Founding Director Tomas Philipson was appointed as a Member of the White House Council of Economic Advisers (CEA) in August 2017. The CEA’s primary purpose is to offer objective economic advice to the President of the United States on the formulation of both domestic and international economic policy based on economic research and empirical evidence, employing the best data available. During Tomas’ leave of absence, I have been honored to serve as the Program’s Director. In this capacity, I have had the opportunity to hear the groundbreaking work presented by the emerging scholars we support, as well as foster relationships with academic health economists from both national and international institutions.

This report details our activities over the course of the 2017 calendar year, which simply would not be possible without the generosity of our donors. We greatly appreciate their support, as do the emerging scholars who have benefited tremendously from the Health Economics Fellowships and our programming.

Sincerely,



Casey Mulligan
Director, Program on Foundational Research on Health Care Markets and Policies
Health Economics Initiative
Becker Friedman Institute for Economics

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Developing Tomorrow's Leading Scholars



Thanks to the generous support of our funders, the Program on Foundational Research (PFR) was able to award eight Health Economics Fellowships to emerging scholars, including predoctoral candidates and early-career researchers, in 2017.

Selected Fellows were awarded \$25,000 stipends to support their dissertation or research, to be conducted at their home institution. The Fellows had the opportunity to engage with each other and University of Chicago faculty at the 2017 Emerging Scholars Roundtable, where each fellow presented their health economics research in progress the day preceding our annual research conference. At the end of the 2017-18 academic year, Fellows will submit a working paper to *The Becker Friedman Institute (BFI) Health Economics Series*. Visit bit.ly/BFIHealthFellows to read more about our Health Economics Fellows.

2017-18 Health Economics Fellows

Vilsa Curto

Assistant Professor of Health Economics and Policy, Harvard T.H. Chan School of Public Health
Department of Health Policy and Management



At the roundtable, I presented my paper “Pricing Regulations in Individual Health Insurance: Evidence from Medigap,” in which I examine the market for insurance that the elderly may purchase to supplement their Medicare coverage. As in other individual health insurance markets, policymakers must decide whether insurers may vary their prices with age and health. My paper is the first to leverage individual-level data on Medigap purchases that is linked to administrative data on all Medicare enrollees, which I use to compare Medigap coverage and premiums in states with and without regulations prohibiting insurers from varying prices with age and health. I find that allowing insurers to vary prices leads to less adverse selection, higher levels of Medigap coverage, and lower premiums.

I recently presented my work at the annual meeting of the American Economic Association in January 2018. I also intend to present my work at the Junior Health Economics Summit and the annual conference for the American Society of Health Economists in 2018.

Sunita Desai

Assistant Professor, Department of Population Health, New York University Langone School of Medicine



My research aim is to address policy-relevant questions using well-identified empirical strategies that are motivated by economic theory. First, I study hospital incentives that could conflict with patient interests and how they impact hospital market structure and competition. For example, I examine the effects of the federal 340B Drug Pricing Program on consolidation in the health care delivery system and hospital provision of care. Second, I study the role of information in consumer decision-making in health care, with several projects examining whether and how consumers respond to price and non-price information in their provider choice and health care utilization.

I received valuable feedback on my research at the roundtable and have since had a part of my proposed work published recently in the *New England Journal of Medicine*. This work has garnered interest from reporters and staffers in the House of Representatives Energy and Commerce Committee—which has jurisdiction over the 340B Program—with whom I will be speaking soon.

Coleman Drake

PhD Candidate in Health Services Research, Policy, and Administration, University of Minnesota



Presenting at the roundtable furthered the evolution of my research agenda in health plan choice and narrow network health plans. David Meltzer challenged me to think about the theoretical underpinnings of my model. Another fellow and expert on Medicare plan choice, Vilsa Curto, provided insight on how to improve my model of plan choice in the individual health insurance market.

My dissertation examines the role physician network breadth plays in consumers' choice of a health plan in the individual health insurance market. My preliminary findings suggest that consumers prefer plans with broader networks, risk adjustment payments are necessary to prevent adverse selection on broad network plans, and consumers' tendency to remain in the same health plan from year to year may result in less insurer competition on network breadth. The fellowship also prepared me for the job market, and I will be joining the University of Pittsburgh School of Public Health's Department of Health Policy and Management as an assistant professor this fall.

Joshua Gottlieb

Associate Professor, University of British Columbia Vancouver School of Economics



Thanks to the Health Economics Fellowship, I have been able to begin a new line of research into a critical but under-studied topic: administrative costs in US health care. Compared with other industries and countries, administrative expenses are uniquely large in this sector, and economic explanations are lacking. I have developed new measures of administrative expenses to study the roles of government programs, regulations, and the private sector in these escalating costs by constructing novel measures of physicians' difficulty receiving insurance payments for each visit. I investigate how institutional and economic forces influence the administrative costs of billing for patient care. The first part of this project is close to publication in the leading health policy journal. I expect it to be very influential to society's understanding of administrative expenses in health care.

The roundtable improved my work and even facilitated a new collaboration with Pietro Tebaldi, in which we will study insurers' and doctors' specific decisions during the billing process and develop a more accurate measure of how much administrative expenses really cost the health care sector.

Mariano Irace

PhD Candidate in Economics, Northwestern University



My research lies at the intersection of Industrial Organization and the Economics of Health Care. I am currently working on two projects. First, I am quantifying patient loyalty to hospitals in the state of New York and its impact on health outcomes. Second, I am studying how long-term care hospitals are responding to a major regulatory reform that substantially reduced the payment these hospitals receive from Medicare. I presented a summary of the first project at the roundtable, where I received feedback from participants with expertise and insights in many different aspects of health economics that I had not considered before. At the conference, I was able to talk about both the big picture and subtleties of my project with one of the authors of the main paper I am using as a reference, which led to the development of new strategies to answer my research question.

The fellowship allowed me to focus solely on my research and make significant progress on all my projects. Thanks to the financial support, I was able to purchase the datasets required for my second project and accomplish many of my research objectives much sooner than expected. I am currently on the job market and looking forward to the next step in my career.

Anh Nguyen

PhD Candidate in Economics, Columbia University



My current research focuses on how government intervention could reduce inefficiency from asymmetric information in the health insurance market. This involves studying how consumer decisions affect market outcomes and how firms in the health insurance market behave very differently from firms in other markets in a systematic way.

Presenting my work at the roundtable and attending “The Health Sector and the Economy 2017” conference were valuable opportunities for me to receive feedback and learn about other pressing issues in health economics and health policies in general. I found it extremely useful to have discussions on the policy implications of my research with scholars from interdisciplinary backgrounds. The fellowship has also allowed me to purchase data that will help me further explore how policies that target household decision-making could help mitigate inefficiency from moral hazard and adverse selection in the US health insurance market. My experiences in Chicago also helped me shape another research project that focuses on physician incentives and inefficiency due to incomplete contract issues. I learned the importance of this issue from my discussions with established and emerging researchers during the roundtable and the subsequent dinner.

Molly Schnell

PhD Candidate in Economics, Princeton University



As a sixth-year PhD student focusing on health economics, both the generous financial support from the fellowship and the roundtable played indispensable roles in my preparation for the academic job market. In addition to allowing me to focus full-time on my research, the PFR has provided me with unique opportunities to receive feedback on my work and to develop relationships with both emerging and established scholars at the cutting edge of the field. At the roundtable, the

subsequent conference, and discussions that continued over dinner and around campus, I was challenged to approach my research on the role of physicians in the opioid epidemic from new and interesting angles. These conversations helped move my work in a more productive direction by pushing me to link both my theoretical and empirical results to a broader range of policy alternatives.

I have stayed in contact with students and faculty that I met through BFI, and I am confident that these productive and fulfilling relationships will continue to strengthen my research as I transition from being a PhD Candidate to an assistant professor in fall 2018. The BFI Health Economics Initiative is an innovative program fostering the exchange of ideas among scholars across the country, and I am extremely grateful to have the opportunity to both benefit from and contribute to the productivity and academic diversity of the initiative.

Priya Shanmugam

PhD Candidate in Economics, Harvard University



I am currently researching the role of physician decision-making bandwidth on the quality and efficiency of Emergency Department treatment choices. We know that human decision-makers are rationally constrained and that health care treatment decisions are riddled with bias, inefficiency, waste, and prediction errors. I aim to understand how these two phenomena relate and generate insights for both behavioral and health economics.

The Health Economics Fellowship allowed me to focus fully on my research in my final pre-job market year, develop presentation experience outside my home university, and gain access to the BFI's health economics research community. When I presented at the roundtable, I discussed some of the statistical issues surrounding the determination of physician schedules with Professor David Meltzer. His perspective as both an economist and a physician helped me iron out a few questions with which I had been struggling. I also spoke in detail with Professor Anup Malani, and his enthusiasm for a previous project that I was not planning to submit for publication led me to revise the paper and prepare for a submission attempt. Professor Bradley Shapiro was very encouraging as we discussed the challenges of the final stages of graduate school and the first few years as faculty. I'm deeply grateful for the opportunity to interface with the program's affiliated faculty and the other Fellows, whose energy and excellence push me to execute this project to even higher standards.

Reflections from 2016–17 Health Economics Fellows

In its inaugural year, the PFR supported five Health Economics Fellows. Their experiences and feedback shaped our expectations for future participants, and they have been valuable additions to the health economics community. Below, they share how the fellowship influenced their academic careers.

Grant Gannaway

PhD Candidate in Economics, The University of Chicago



I used limited access data on prescription drug insurance claims—which is large, confidential, and very expensive—on my primary project as an emerging scholar. The generous BFI funding allowed me to purchase access to the data and dedicate extensive computing time, making my project possible. As a Fellow, I was able to get valuable feedback and mentorship from top health economists in one-on-one settings and group presentations, which shaped my research to have the maximum impact on policy and the health economics literature. I will be submitting the paper supported by the fellowship to a major peer-reviewed economics journal in the coming months.

I plan to go on the job market in the coming cycle (2018–2019) with a primary focus on health economics faculty positions. My current work uses the principles I learned from my previous projects, in which I worked with large insurance claims data and developed sound economic research.

Adam Jorring

PhD Candidate in Financial Economics, The University of Chicago



As a Health Economics Fellow, I was able to interact with interdisciplinary scholars across campus, as well as emerging scholars from other institutions. During my fellowship, I had the opportunity to collaborate with Tomas Philipson and other leading health economists to coauthor “Sharing R&D Risk in Healthcare via FDA Hedges,” which now appears in the National Bureau of Economic Research (NBER) Working Papers.

I am in a joint degree program run by the Department of Economics and the Chicago Booth School of Business. My current research is on household finance, and my job market paper, “The Costs of Financial Mistakes: Evidence from US Consumers,” investigates the relationship between financial mistakes and lack of consumption smoothing. The BFI Fellowship provided me with well-rounded experience that better prepares me for the job market, and for that, I am thankful.

Luca Maini

PhD Candidate in Economics, Harvard University



I have refined and presented my job market paper, which was funded by BFI last year, at various seminars and conferences. I visited BFI in May for three days, during which I presented my research in the Applications of Economics Workshop and interacted with a variety of scholars from the UChicago Department of Economics, Booth School of Business, and Harris School of Public Policy. The feedback I received was very valuable, and I incorporated many suggestions in later versions of my paper. Over the summer, I also presented the paper at conferences in Washington, D.C., and Rome. A working draft is now available at scholar.harvard.edu/lucamaini.

Additionally, I have started working on a couple other research projects. In the first project, I strive to understand the impact of Medicare and Medicaid reimbursement regulation on the pricing strategies of pharmaceutical companies in the United States. In a second project, I examine the degree of accuracy to which clinical trials data reflects the efficacy and safety profile of new drugs. The goal of this project is to understand how value-based pricing (i.e., the pricing of drugs based on a measure of their effective clinical value) would impact patient drug choice and prices. I will be graduating in May 2018, and I am currently on the academic job market.

Maria Polyakova

Assistant Professor of Health Research and Policy, Stanford University School of Medicine



The Health Economics Fellowship has expanded my network and enabled me to pursue a new strand of research on the intersection of social insurance design and socioeconomic inequalities in health outcomes. The fellowship funded my preliminary work, in which I investigated the differences in pricing and consumption of pharmaceuticals among the elderly in the United States and Sweden. This strand of work led to a policy manuscript that demonstrates that—while sale prices in the United States are higher than in Sweden—US consumers

rarely pay higher out-of-pocket prices for their prescriptions vis-à-vis their Swedish counterparts. This is especially true for seniors with low incomes in the United States, who pay only very limited out-of-pocket prices. These findings suggest that the US policies targeting drug prices may not result in substantial improvements of health outcomes in the country. These results have further led me to investigate the questions of how pharmaceutical consumption varies across the income distribution in the United States and Sweden, what may be driving these differences, and what implications the differences in consumption may have for pricing on pharmaceutical markets.

The preliminary results that were generated through the work supported by the Fellowship were critical in acquiring subsequent funding for this work under the National Institute on Aging. The interactions I had with other health economists through BFI have been helpful in developing this research agenda, as several junior and senior scholars affiliated with BFI are working on related issues.

Wenjia Zhu

Marshall J. Seidman Fellow, Harvard Medical School Department of Health Care Policy



As a Health Economics Fellow, I conducted in-depth studies on how health insurance affects individual health care treatment decisions and health spending in the commercial health insurance market. After completing my PhD program, I joined Harvard Medical School, where I continue to study health economics and health care policy. I have been working closely with my supervisor Dr. Nicole Maestas and collaborators on various projects investigating issues related to opioids and treatment of pain. Specifically, we are examining variations in opioid prescribing across providers, analyzing patterns of pain management for opioids and alternative treatments, and assessing how policies and insurance coverage affect opioid use.

Recently, two of my papers on health care demand elasticities (joint with Randall P. Ellis and Bruno Martins at Boston University) have been published in the *Journal of Health Economics*. Several other manuscripts are in preparation for submission, and I have been disseminating ongoing work in the scholarly community. I presented my work in progress at the iHEA Biennial World Congress in July 2017, and at the Health Economics Seminar at Harvard Medical School in November 2017. The PFR invited me to attend its second annual conference, which offered me an excellent opportunity to meet new people (including new Health Economics Fellows), exchange ideas, and engage in vibrant discussions that broadened my horizon of current research in health economics.



Attendees of "The Health Sector and the Economy 2017"

Supporting Emerging Scholars on Campus

The PFR provides funding and mentorship to two early-career scholars in the Kenneth C. Griffin Department of Economics, as well as a research professional from the Program on Economics of Health Care Delivery, led by David Meltzer. These early-career scholars regularly collaborate with senior health economists across campus to help shape research with important policymaking implications.

The Kenneth C. Griffin Department of Economics

Pietro Tebaldi

Assistant Professor in Economics and the College



Throughout 2017, I focused my research on the design and regulation of health insurance exchanges, which are the state-level markets introduced by the Patient Protection and Affordable Care Act (ACA). I use detailed data from California and data from the Federally Facilitated Exchanges to study how different policies affect market outcomes such as prices, coverage, and public spending. My paper “Estimating Equilibrium in Health Insurance Exchanges: Price Competition and Subsidy Design under the ACA,” currently under review at *The American*

Economic Review, shows how different designs of the federal subsidy program could make buyers better off without requiring the government to spend more. My paper “Regulated Age-based Pricing in Subsidized Health Insurance: Evidence from the Affordable Care Act,” currently under review at *The Journal of Health Economics*, shows how age-rating regulations interact with subsidies to affect public spending for any given level of coverage the regulators might find desirable. This work is more methodological and focuses on the development of new econometric methods to study health insurance demand without making strong assumptions on consumer behavior, which will allow researchers to obtain robust measures of welfare in private health insurance markets. In ongoing work, I study the design of a risk-adjustment system as an alternative to subsidies and the effect of the design of provider networks on consumer welfare.

I presented my work at dozens of venues, including the LDI-UPenn HIX Conference, and the University of Tel Aviv. The PFR supported my research speaking tour and largely funded two research professionals I manage, which has allowed me to continue to study how regulations interact with health insurers’ incentives and competitive behavior to deliver efficient outcomes in the US health care market.

Kan Xu

Research Specialist



I have been working with Professors Tomas Philipson (before his leave of absence) and Pietro Tebaldi on several projects related to government-regulated health care programs, such as Medicare/Medicaid and the ACA marketplace. Specifically, the studies fall into two categories: policy implications on the medical industry and consumer choice behavior when purchasing health insurance.

Through Professors Philipson and Tebaldi's mentorship and our research, I started to better understand the structure of the health care system in the United States and the roles that the government, private sector, and consumers play in the market. Discussions with both faculty members are inspiring and have given me new insights into the real-world issues in health care markets on which we should think about critically. Working as a research specialist also provides me with the unique opportunity to get access to different medical datasets and learn how to properly use them in empirical research. I am grateful for these valuable experiences, which will help me explore interesting questions in my health economics research during my future academic career.

Program on Economics of Health Care Delivery

Hui Zhang

Research Professional, The Center for Health and the Social Sciences



I have been working with Dr. David Meltzer at BFI on research areas including health care operations research, simulation, and data analytics. Under Dr. Meltzer's mentorship, I led an operations management project for the University of Chicago Medical Center (UCMC). The goal of the project is to develop a simulation-optimization-based decision support framework that helps hospitals with their inpatient assignment. We identified the optimal patient assignment guidelines that earmark a primary and secondary service for each

patient diagnosis type and a primary and secondary bed unit for each service. The optimal guidelines were able to improve the financial performance in the Hospital Medicine section by as much as 6%. The insights from the project inform hospital administrators, managers, and other relevant decision makers on how to efficiently use their inpatient capacity and improve hospital performance by strategically designing the inpatient assignment rules. The project has resulted in two national conference presentations and one working paper, which will be submitted to a scientific journal soon. In the past year, I also published two journal articles and one conference proceedings paper from my earlier projects covering chronic disease management, medical technology investment, and mobile health product adoption.

I also attended various conferences and seminars offered by BFI and other UChicago departments. These well-established events offer great opportunities to meet top international scholars and learn about some of the most impactful and cutting-edge research in health economics and related fields, as well as develop future research ideas and collaborations.

Academic and Community Events

The program's research conferences and events foster direct exchanges among scholars that inspire new avenues of inquiry. Outreach events bring innovative research on health care systems to the public, informing policy discussions.



The Health Sector and the Economy 2017—October 21, 2017

“The Health Sector and the Economy 2017” conference brought faculty, research professionals, and students together to explore health care issues, from the opioid epidemic to patient-centered care to health innovation productivity, by utilizing theoretical and empirical analysis tools. Program Director Casey Mulligan organized the conference to highlight important research questions on how health care policies can result in unintended consequences such as inefficiencies in health care delivery, increased spending, or limited coverage.

Among the key findings presented, Jonathan de Quidt of Stockholm University found that depression can decrease labor supply and ultimately lead to a poverty trap, while Christopher Ruhm of the University of Virginia discovered that the drug epidemic's link to economic decline at the county-level is relatively weak and only accounts for one-ninth of the increase in drug overdoses. Mark Pauly of the University of Pennsylvania and Jay Bhattacharya of Stanford University both explored how health care innovations may be stifled by the very policies intended to stimulate research and development, resulting in high costs and low productivity.

Visit bit.ly/HealthEconSpotlight to see a brief video highlighting some of the papers presented at the conference.

The Economic Consequences of Health Care Reform Panel—May 22, 2017

The Affordable Care Act (ACA) and ongoing attempts at health care reform involve a complex mix of subsidies, incentives, regulations, and taxes. This, in turn, affects insurance markets, labor costs, employment trends, and other economic variables. As the cost of care is rising fast, care is beyond the financial reach of the many uninsured.

To explore these complexities in more detail, the PFR hosted a panel moderated by Kevin Murphy, George J. Stigler Distinguished Professor in Economics, featuring James Baumgardner, senior research economist at Precision Health Economics; Anup Malani, Lee and Brena Freeman Professor at UChicago Law School and a Professor at the Pritzker School of Medicine; and Casey Mulligan, Program Director and Professor in Economics.

The panel offered an in-depth discussion about the unintended economic consequences of the ACA, including how health insurance doesn't necessarily assure good health, and how the changes implemented per the ACA have had significant income redistribution effects. To view a video recording of the panel discussion, visit bit.ly/HCREformPanel.



From left to right: Anup Malani, Kevin Murphy, James Baumgardner, and Casey Mulligan.

Visiting Scholars

The PFR brings innovative researchers with various levels of experience to share fresh ideas, perspectives, and expertise with the UChicago economics community. Visiting Scholars pursue their own work while participating in workshops, lectures, or conferences.

Guy David

Gilbert and Shelley Harrison Associate Professor of Health Care Management, The Wharton School at University of Pennsylvania—Visited October 16–21, 2017



I presented my paper “The Economics of Patient-Centered Care” at “The Health Sector and the Economy 2017.” In this paper, I analyze the lack of consistent results from the implementation of the Patient-Centered Medical Home (PCMH). Accreditation of health care providers helps resolve the pervasive information asymmetries in health care markets; however, meeting accreditation standards typically involves flexibility in implementation, leading to heterogeneity in performance. For example, the PCMH is a leading model for recognizing

high-performing primary care practices, but its treatment as an undifferentiated intervention obscures meaningful variation in implementation. This heterogeneity leads to contracting inefficiencies between insurers and practices and may account for mixed evidence on its success. Using a novel dataset, we find implementation choice affects performance, suggesting that generally-unobserved features of primary care reorganization influence patient outcomes. I received very useful comments on my presentation, many of which touched on the role of markets and human capital in understanding the choices that different health care providers make in the accreditation space.

As a graduate of UChicago and a former student of Gary Becker, it was wonderful to immerse in the unique intellectual environment that I cherish and reconnect with my dissertation advisor Kevin Murphy and members of my dissertation committee, Dennis Carlton and David Meltzer, as well as Tomas Philipson and Anup Malani, who influenced my thinking and my development as a scholar.

Martin Hackmann

Assistant Professor of Economics, University of California Los Angeles—Visited March 6–10, 2017



During my visit, I presented “Medicaid and Financial Health,” co-authored with Kenneth Brevoort and Daniel Grodzicki, at a Center for Health and the Social Sciences Health Economics Workshop. In this paper, we investigate the effects of the Medicaid expansion provision of the ACA on households’ financial health. Using a nationally representative panel of five million credit records, we find that the expansion reduced unpaid medical bills sent to collection by \$8.6 billion in its first three years, prevented new delinquencies, and improved credit scores, therefore providing substantial indirect financial benefits to households. Using data on credit offers and pricing, we document that improvements in households’ financial health led to better terms for available credit. We calculate that the financial benefits of Medicaid double when considering these indirect benefits in addition to the direct reduction in out-of-pocket expenditures.

The conversations and feedback from the presentation were invaluable in providing clear directions toward what should, and what shouldn’t be, the focus of the paper. Pietro Tebaldi, Tomas Philipson, and David Meltzer provided particularly thoughtful suggestions, but I had many additional productive and insightful meetings with multiple faculty across campus. We have taken the feedback very seriously and revised the paper accordingly, which we started circulating as a working paper in *The BFI Health Economics Series*.

Ralph Koijen

Professor of Finance, New York University Stern School of Business—Visited April 3–4, 2017



During my visit, I presented the paper “The Fragility of Market Risk Insurance,” which is joint work with Motohiro Yogo (Princeton University). We study the market for variable annuities that combine mutual funds with long-horizon minimum return guarantees and are offered by US life insurance companies. The traditional role of life insurers is to insure idiosyncratic risk through products like annuities, life insurance, and health insurance. With the secular decline of defined benefit pension plans and Social Security, life insurers are increasingly taking on the role of insuring market risk through return guarantees. Variable annuities are now the largest category of life insurer liabilities and accounted for \$1.5 trillion, or 34 percent, of US life insurer liabilities in 2015.

Following a period of growth before the financial crisis, insurers offering variable annuities experienced large shocks during the crisis, due to falling equity prices and interest rates, and a spike in volatility. In response, insurers increased fees, made guarantees less generous, or stopped offering guarantees, and the sales of variable annuities declined. We estimate an equilibrium model of insurance markets in which financial frictions and imperfect competition are important determinants of pricing, contract characteristics, and market incompleteness.

The seminar discussion with Casey Mulligan, Tomas Philipson, and Harald Uhlig focused on the implications for the financial stability of the insurance sector. In this context, it was also useful to attend the PFR’s second annual conference and gain further insight into this complex issue.

Julian Reif

Assistant Professor of Finance and Economics, University of Illinois at Urbana-Champaign Gies College of Business and the Institute of Government and Public Affairs—Visited September 24–26, 2017



I presented my research paper, “Mortality Risk, Insurance, and the Value of Life” (coauthored with Daniel Bauer and Darius Lakdawalla) in the Applications of Economics Workshop. Our paper develops a new economic framework for valuing improvements in health and establishes three main results: 1) the US Social Security program has increased the value of recent longevity gains; 2) the value of life can rise following a negative shock to life expectancy; and 3) a sick individual’s willingness to pay for medical treatments can be several times larger than a healthy individual’s willingness to pay for equally effective preventive care. These findings have significant implications for cost-effectiveness analysis, which governs the allocation of health care resources in many “single-payer” countries such as the United Kingdom, Canada, and Australia. For example, our findings suggest that the cost-effectiveness approach underinvests in the treatment of the most life-threatening illnesses relative to less severe conditions.

I received valuable feedback during my visit, including the recommendation to investigate how to incorporate medical spending into our model and suggestions for how to improve the exposition of the empirical portion of our paper. In addition, Casey Mulligan provided helpful advice on how to best approach the mathematics of our model.



Program Leadership and Affiliated Scholars

The PFR engages interdisciplinary academics from across the UChicago campus to provide mentorship to the emerging scholars supported by our program and build the health economics community and body of research.

Program Leadership

Casey B. Mulligan

Director; Professor in Economics and the College, The Kenneth C. Griffin Department of Economics



Casey Mulligan’s research focuses on the impact health care policies have on labor markets. Mulligan summarized his analysis of these forces in *Side Effects and Complications: The Economic Consequences of Health-Care Reform*. In the PFR’s panel in May 2017, Mulligan addressed how the ACA and other health care reform proposals influence employees’ incentives to work and estimated the impacts on productivity. Mulligan began co-directing the PFR with Tomas Philipson in 2017 and continues to lead the program during Philipson’s leave of absence.

Samantha Loo

Senior Associate Director, Programs on Health Care Markets and Delivery



Since the PFR was launched, Samantha Loo has had the opportunity to build it from the ground up with Tomas Philipson and Casey Mulligan and help realize their vision. She also serves as the liaison between BFI and the Program on Economics of Health Care Delivery, led by Dr. David Meltzer. She has large-scale project management experience and a passion for public health. In her capacity as the program’s Senior Associate Director, she has been able to collaborate with academic health economists and university administrators across campus and other institutions to advance foundational research on health care markets and policies. She is thankful for the support of Professors Philipson, Mulligan, and Meltzer, which allowed her to break into the field of health care and develop as an emerging leader.

Affiliated Faculty and Scholars

Sonia Jaffe

Lecturer, The Kenneth C. Griffin Department of Economics



Sonia Jaffe is studying how price-linked subsidies weaken price competition, leading to higher markups and subsidy costs for the government. Additionally, Jaffe analyzes how technological advances in medicine affect quality-adjusted health care prices in a forthcoming paper. Medical innovations have improved survival and outcomes for many diseases, but also contributed to the growth in health care spending; an important question is whether the quality of life improves more than the cost. Jaffe was a BFI Postdoctoral Scholar from 2015 to 2017, and recently joined the Kenneth C. Griffin Department of Economics as a lecturer.

Neale Mahoney

Associate Professor of Economics and David G. Booth Faculty Fellow, Booth School of Business



Mahoney is an applied micro-economist with an interest in health insurance and consumer financial markets. Before joining Chicago Booth in 2013, Mahoney was a Robert Wood Johnson Fellow in health policy research at Harvard University. He has also worked at McKinsey & Company and for the Obama Administration on health care reform. He was an advisor to 2016–17 Health Economics Fellow Grant Gannaway and now serves as the Co-Director of the BFI Health Economics Initiative.

Anup Malani

Lee and Brena Freeman Professor of Law, The Law School; Professor, Pritzker School of Medicine



Anup Malani conducts economics research on law, health, and development policies. His health economics research focuses on the value of medical innovation and health care insurance, control of infectious diseases, placebo effects, and conflicts of interest in medicine. In Malani's development economics work, he centers on health care supply and financing in India and the growth of and quality of life in urban slums. Malani presented "The Externalities of Vaccination on the Evolution of Influenza," at a Becker Brown Bag lecture series for MBA

students and participated in the PFR's panel on health care reform in 2017.

David O. Meltzer

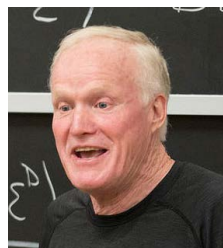
Fanny L. Pritzker Professor, Department of Medicine; Chief, Section of Hospital Medicine



Inspired by Gary Becker's economic insights into human behavior, David Meltzer applies theories of human capital and the division of labor to the organization of medical practice. His work is focused on improving quality of health care and reducing wasteful spending by adapting cost-effectiveness methods to better reflect patient preferences. Meltzer's research team has developed and implemented the Comprehensive Care Physician (CCP) Program, in which the sickest patients, especially those most likely to be hospitalized, receive care consistently from the same physician in both the clinic and hospital settings. Meltzer mentors numerous junior faculty and predoctoral and postdoctoral scholars from departments across campus that are interested in careers at the interface of medicine and economics or public policy, including Hui Zhang.

Kevin Murphy

George J. Stigler Distinguished Service Professor in Economics, Booth School of Business and the Kenneth C. Griffin Department of Economics



Kevin M. Murphy is the first professor at a business school to be chosen as a MacArthur Fellow. He was selected for “revealing economic forces shaping vital social phenomena such as wage inequality, unemployment, addiction, medical research, and economic growth.” He primarily studies the empirical analysis of inequality, unemployment, and relative wages as well as the economics of growth and development and the economic value of improvements in health and longevity. In 2007, Murphy and fellow Chicago Booth faculty member Robert Topel won the iHEA’s Kenneth J. Arrow Award for the best research paper in health economics for “The Value of Health and Longevity,” published in the *Journal of Political Economy*.

Tomas J. Philipson

Founding Director (through August 2017); Daniel Levin Professor of Public Policy, Harris School of Public Policy; Member (August 2017–present), Council of Economic Advisers



Tomas Philipson founded the Program on Foundational Research in January 2016, which he directed until August 2017, before taking a leave of absence to serve as a member of the United States Council of Economic Advisers. Philipson’s research focuses on how health care technology and innovation influence medical care quality, costs, and prices. He also has analyzed the economic forces driving the growth in obesity, the impact of the rise in old-age longevity and long-term care markets, and the economics of terminal care. He served as a scientific advisor to Congress on the 21st Century Cures legislation and in 2017 on a steering committee of Vice President Biden’s Cancer Moon Shot Initiative.

Bradley Shapiro

Assistant Professor of Marketing and Beatrice Foods Co. Faculty Scholar, Booth School of Business



Bradley Shapiro studies empirical industrial organization and applied microeconomics. His research has largely focused on the pharmaceutical industry, with the goal of informing both firm strategy and public policy. His interests also extend to advertising, marketing in the health care sector, and organizational economics. Shapiro is especially interested in causal identification using natural experiments in quantitative marketing contexts, particularly in measuring the effects of advertising and marketing levers. His research has appeared in the *Journal of Political Economy* and *Quantitative Marketing and Economics*.

Pietro Tebaldi

Assistant Professor in Economics and the College, The Kenneth C. Griffin Department of Economics



Pietro Tebaldi’s work focuses primarily on the design and regulation of health insurance exchanges (or marketplaces) introduced by the Patient Protection and Affordable Care Act. In ongoing work, he studies the design of a risk-adjustment system as an alternative to subsidies and the effect of the design of provider networks on consumer welfare. Tebaldi manages Kan Xu, a research professional also supported by the PFR, and is working with Martin Hackmann, who visited the BFI in 2017, and Joshua Gottlieb, a 2017-18 Health Economics Fellows, on a current project.

NOTABLE CONTRIBUTIONS

To promote the innovative work of our affiliated scholars, the PFR spotlights their notable contributions to the field of health economics research.

Visit bfi.uchicago.edu/healthecon and explore our News and Research pages to access media links and *The Becker Friedman Institute Health Economics Series*.

Publications

- Chandra, Amitabh, Michael Frakes, and Anup Malani. "Challenges to Reducing Discrimination and Health Inequity Through Existing Civil Rights Laws." *Health Affairs* 36, no. 6 (2017): 1041-1047.
- Gallen, Trevor S., and Casey B. Mulligan. "Wedges, Labor Market Behavior, and Health Insurance Coverage Under the Affordable Care Act." *National Tax Journal*, (Forthcoming).
- Hult, Kristopher J., Sonia Jaffe, and Tomas J. Philipson. "How Does Technological Change Affect Quality-Adjusted Prices in Health Care? Evidence from Thousands of Innovations." *American Journal of Health Economics*, (Forthcoming).
- Lakdawalla, Darius, Anup Malani, and Julian Reif. "The Insurance Value of Medical Innovation." *Journal of Public Economics* 145, (Jan. 2017): 94-102.
- Padula, William V., M. Andrew Millis, Aelaf D. Worku, Peter J. Pronovost, John F.P. Bridges, and David O. Meltzer. "Individualized Cost-Effectiveness Analysis of Patient-Centered Care: A Case Series of Hospitalized Patient Preferences Departing from Practice-Based Guidelines," *Journal of Medical Economics* 20, no. 2 (2017): 288-296.
- Miao, Rui, Qi Wu, Zheng Wang, Xilin Zhang, Yuqin Song, Hui Zhang, Qingfang Sun, and Zhibin Jiang. "Factors that Influence Users Adoption Intention of Mobile Health: A Structural Equation Modeling Approach." *International Journal of Production Research* 55, no. 19, (2017): 5801-5815.
- Ruhnke, Gregory W., William G. Manning, David T. Rubin, and David O. Meltzer. "The Drivers of Discretionary Utilization: Clinical History Versus Physician Supply," *Academic Medicine* 92, no. 5 (2017): 703-708.
- Schuster, Mark A., Sarah E. Onorato, and David O. Meltzer. "Measuring the Cost of Quality Measurement: A Missing Link in Quality Strategy," *Journal of American Medical Association* 318, no. 13 (2017): 1219-1220.
- Shapiro, Bradley. "Advertising in Health Insurance Markets," *Marketing Science*, (Forthcoming).
- Shapiro, Bradley. "Informational Shocks, Off-Label Prescribing and the Effects of Physician Detailing," *Management Science*, (Forthcoming).

Working Papers

- Egan, Mark, Casey Mulligan, and Tomas J. Philipson. "Adjusting Measures of Economic Output for Health: Is the Business Cycle Countercyclical?" *The Becker Friedman Institute Health Economics Series*, Sep. 2017.
- Einav, Liran, Amy Finkelstein, and Neale Mahoney. "Provider Incentives and Health Care Costs: Evidence from Long-Term Care Hospitals," *Econometrica*, (Revise & Resubmit).
- Finkelstein, Amy, Neale Mahoney, and Matthew J. Notowidigdo. "What Does (Formal) Health Insurance Do, and for Whom?" Prepared for the *Annual Review of Economics*.
- Jørring, Adam, Andrew W. Lo, Tomas J. Philipson, Manita Singh, and Richard Thakor. "Sharing R&D Risk in Healthcare via FDA Hedges." *The Becker Friedman Institute Health Economics Series*, Apr. 2017.
- Mulligan, Casey B. "The Employer Penalty, Voluntary Compliance, and the Size Distribution of Firms: Evidence from a Survey of Small Businesses." *The Becker Friedman Institute Health Economics Series*, Nov. 2017.
- Tebaldi, Pietro, and Joe Orsini. "Regulated Age-based Pricing in Subsidized Health Insurance: Evidence from the Affordable Care Act." *The Becker Friedman Institute Health Economics Series*, Jul. 2017.
- Tebaldi, Pietro. "Estimating Equilibrium in Health Insurance Exchanges: Price Competition and Subsidy Design under the ACA." *The Becker Friedman Institute Health Economics Series*, Aug. 2017.

Working Papers in *The BFI Health Economics Series* from Other Contributors

The Program on Foundational Research showcases the health economics work in progress from visitors and other researchers across campus. All the papers below are available on our website.

Bhattacharya, Jay, Alan M. Garber, and Jeremy D. Goldhaber-Fiebert. “Nudges in Exercise Commitment Contracts: A Randomized Trial,” Nov. 2017.

Brevoort, Kenneth, Daniel Grodzicki, and Martin B. Hackmann. “Medicaid and Financial Health,” Oct. 2017.

Cicala, Steve, Ethan M.J. Lieber, and Victoria Marone. “Cost of Service Regulation in US Health Care: Minimal Medical Loss Ratios,” Jul. 2017.

David, Guy, Philip A. Saynisch, and Aaron Smith-McLallen. “The Economics of Patient-Centered Care,” Sep. 2017.

Gupta, Atul. “Impacts of performance pay for hospitals: The Readmissions Reduction Program,” Oct. 2017.

Ho, Kate, and Robin Lee. “Equilibrium Provider Networks: Bargaining Exclusion in Health Care Markets,” Sep. 2017.

Koijen, Ralph S.J., and Motohiro Yogo. “The Fragility of Market Risk Insurance,” Dec. 2017.

Pauly, Mark, and Kyle Meyers. “Endogenous Productivity of Demand-Induced R&D: Evidence from Pharmaceuticals,” Sep. 2017.



In the Media

Lakdawalla, Darius, and Anup Malani. “Do you know what the Affordable Care Act does? Here’s a primer to help.” *The Conversation*, Feb. 27, 2017.

Lakdawalla, Darius, and Anup Malani. “How Republicans and Democrats can both keep their promises on health care.” *The Conversation*, Mar. 2, 2017.

Lakdawalla, Darius, Anup Malani, and Jay Bhattacharya. “Why America needs a ‘do-over’ on Medicaid reform.” *The Conversation*, May 11, 2017.

Mulligan, Casey B. “How Many Jobs Does ObamaCare Kill?” *The Wall Street Journal*, Jul. 5, 2017.

Mulligan, Casey B., and Tomas J. Philipson. “A Turnabout on Corporate Taxes.” *The Wall Street Journal*, Oct. 24, 2017.

Mulligan, Casey B., and Tomas J. Philipson. “Economists: No, the tax bill won’t kill people — it will save lives.” *The Washington Post*, Dec. 11, 2017.

Speaking Engagements

Baicker, Katherine, Brent Earnest, David Meltzer, and Kathleen Sebelius. “Diagnosing the American Healthcare System,” at The University of Chicago Institute of Politics, Chicago, IL, Nov. 20, 2017.

DeSalvo, Karen, Art Jones, David Meltzer, and David Smith. “Health Care Council of Chicago (HC3) Presents: A Conversation with Karen DeSalvo,” at MATTER, Chicago, IL, May 22, 2017.



MATTER | Sean Su - sean@cloudspotter.com

Gaynor, Martin, and Casey Mulligan. “Economics Club Debate: A Discussion on the Affordable Care Act and Other Health Care Legislation,” at Kansas State University, Manhattan, KS, May 2, 2017.

Jaffe, Sonia. “Price-Linked Subsidies and Health Insurance Markups,” presented at the following events:

- 2017 iHEA Biennial World Congress, Boston, MA, Jul. 10, 2017.
- The Healthcare Markets Conference, Northwestern University Kellogg School of Management, Evanston, IL, May 12, 2017.
- The 15th Annual International Industrial Organization Conference, Boston, MA, Apr. 8, 2017.

Mahoney, Neale. “Provider Incentives and Health Care Costs: Evidence from Long-Term Care Hospitals,” presented at the following events:

- Micro and Macro Perspectives on Inequality, Centre for the Study of Equality, Social Organization and Performance, Oslo, Norway, Aug. 28, 2017.
- Conference on Structural Microeconomics 2017, Yale University Cowles Foundation for Research in Economics, New Haven, CT, Jun. 9, 2017.
- The Center for Research in Economics and Strategy Empirical Microeconomics Conference, Washington University, St. Louis, MO, May 12, 2017.
- NBER Public Economics Meeting, Cambridge, MA, Apr. 7, 2017.
- The Public Economics and Fiscal Policy Seminar, Harvard University Department of Economics, Cambridge, MA, Mar. 6, 2017.

Mahoney, Neale (Discussant). “The Welfare Effects of Long-Term Health Insurance Contracts,” by Mike Whinston, at the Utah Winter Business Economics Conference, Holladay, UT, Mar. 4, 2017.

Malani, Anup. “How Does Vaccination Affect the Evolution of Seasonal Flu,” at the University of New South Wales Business School, Sydney, Australia, Aug. 21, 2017.

- Malani, Anup. “The Indian Health Insurance Experiment,” at the Law and Big Data International Conference, Palais du Luxembourg, Paris, France, Mar. 17, 2017.
- Malani, Anup. “Do Conflict of Interest Disclosures Work: Evidence from Citations in Medical Journals,” at the Law & Social Science Workshop, University of Southern California, Los Angeles, CA, Jan. 9, 2017.
- Mulligan, Casey. “Some Effects of the Affordable Care Act on Small-Business Hiring,” at Saint Vincent College Center for Political and Economic Thought, Latrobe, PA, Oct. 25, 2017.
- Murphy, Kevin. “The Economic Value of Improved Health and Longevity,” and “Human Capital and the Growth in Inequality,” at The Johns Hopkins University School of Medicine, Baltimore, MD, May 4–5, 2017.
- Philipson, Tomas. “The Value and Pricing of Personalized Medicine,” at the 2017 iHEA Biennial World Congress, Boston, MA, Jul. 11, 2017.
- Philipson, Tomas (Session Chair). “Policy, Regulation, and Research Priorities,” at The Future of Long-Term Care Insurance Markets, New York University Stern School of Business, New York City, NY, Jun. 2, 2017.
- Philipson, Tomas. “Financial Health Economics: Implications for Biopharmaceuticals,” at the UCLA Seminar on Pharmaceutical Economics and Policy, Los Angeles, CA, Jan. 26, 2017.
- Shapiro, Bradley. “Advertising in Health Insurance Markets,” presented at the following events:
- The 73rd Annual Congress of the International Institute of Public Finance, Tokyo, Japan, Aug. 20, 2017.
 - Summer Institute in Competitive Strategy (SICS), University of California Haas School of Business, Berkeley, CA, Jun. 17, 2017.
 - The 15th Annual International Industrial Organization Conference, Boston, MA, Apr. 8, 2017.
- Shapiro, Bradley. “The Non-Market Effects of Direct-to-Consumer Pharmaceutical Advertising,” presented at the following events:
- 39th Annual ISMS Marketing Science Conference, University of Southern California, Los Angeles, CA, Jun. 9, 2017.
 - 2017 Life Sciences Symposium, Bates White Economic Consulting, Washington, DC, May 23, 2017.
 - Junior Health Economics Summit, Whistler, BC, Canada, Feb. 11, 2017.
- Tebaldi, Pietro. “Estimating Equilibrium in Health Insurance Exchanges: Price Competition and Subsidy Design under the ACA,” presented at the following events:
- IFS/STICERD Seminar, ESRC Centre for the Microeconomic Analysis of Public Policy at Institute for Fiscal Studies, London, England, Oct. 18, 2017.
 - NBER’s Program on Industrial Organization, Stanford University, Stanford, CA, Jan. 28, 2017.
 - 2017 North American Winter Meeting of the Econometric Society, Chicago, IL, Jan. 6, 2017.
- Tebaldi, Pietro (Panelist). “Quick Reports from the Academy,” at The 5th Annual Health Insurance Exchange Conference—The Individual Market: Strategy for an Uncertain Health Reform Landscape, University of Pennsylvania Leonard Davis Institute of Health Economics, Philadelphia, PA, Sept. 15, 2017.

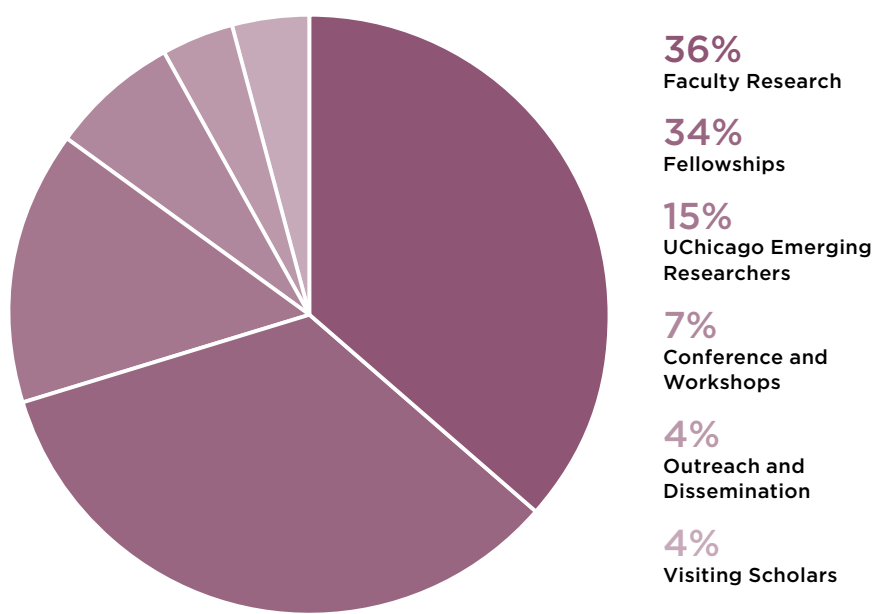
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The chart below details how our non-operating expenses were distributed in 2017.



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Photos from the Economic Consequences of Health Care Reform panel, 2017 Emerging Scholars Roundtable, and The Health Sector and the Economy 2017 are credited to Joe Sterbenc | joe@buzzpictures.tv.