Free-riding in healthcare innovation

Deepak Hegde and Justin Tumlinson*

The U.S. faces a crisis of bloated healthcare costs—15 percent of GDP, compared to 11 percent in France and Germany, 10 percent in Canada, and 8 percent in the United Kingdom and Japan in 2006 (OECD, 2008). Yet, Americans do not enjoy superior health outcomes relative to their Canadian and European cousins (Schoen et al., 2007). Scholars have argued that cost differences between the US and other developed countries stem from differences in national healthcare systems and market incentives rather than underlying disease profiles (Garber and Skinner 2008).

We propose to examine the linkages among disease incidence, local economic factors and policy on global spillovers on healthcare innovation and welfare. We start with the premise that treatments developed for patients in one developed country can readily be exported to another. As a result, changes in profits expected from the treatment of the sick in one country have externalities on the rate of health-related innovation experienced in other countries. We examine free-ridership associated with R&D carried out primarily for the benefit of the US population.

The notion that the some countries subsidize medical breakthroughs for the rest of the world is not new—Commissioner of the Food and Drugs Administration (FDA), Mark McClellan, created a media stir by arguing that pharmaceutical companies shift the costs of drug development disproportionately to US consumers to recover the lower profits from European and Canadian markets which are subject to strong price controls (McClellan 2003).Relatedly, academics have discussed the long-term trade-offs in innovation that developing countries like India face by sidestepping IP protection for the short-run benefit of cheaper access to drugs (Lanjouw 2003). However, to our knowledge, the importance of differing disease profile correlations between specific countries, and in particular, among developed countries (which differ from each other not so much in the willingness to pay of consumers but in their institutions that regulate pharmaceutical prices) and their effects on pharmaceutical innovation has not been studied.

Theoretical Framework

We propose to study the spillover effects of medical innovation with a focus on the correlated patterns of disease between countries. We begin by developing a formal model to capture the game between profit motivated innovators, who react to global incentives, and regulators, who have the incentive to shift surplus from foreign pharmaceutical firms to local consumers. A preliminary sketch of the model delivers the following hypotheses.

1. Changes in R&D investment by pharmaceutical innovators in specific diseases are positively related to changes in the incidence of those diseases. The sensitivity of this responsiveness varies with the average profit margins in country *i* (although not articulated to account for the geography of markets, this is the main message in Acemoglu and Linn 2004).

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2. Countries where pharmaceutical industries are a more important part of the national economy will allow higher profit margins (because producer surplus accruing to innovators counts as welfare to same-country policy makers); however, conditional on profit margins, innovators are no more responsive to national disease incidence changes than they are to foreign ones.

3. Health care systems are endogenously determined with disease incidence. All else equal, countries whose disease profiles are less correlated to the diseases of high profit countries have less ability to free-ride and thus will allow innovators higher profit margins.

Empirical Approach and Data

In the second phase of the project, we propose to empirically test the above propositions. The key variables required for the tests are: (i) disease incidence by disease-country-year, (ii) measure of expected profit margins by country-year, and (iii) R&D investments by pharma firms by disease-year. For (i), we use the number of people dying from a disease by country-year. This data is available from the World Health Organization, and is as recorded by national civil registration systems annually. For (ii), we use a proprietary database developed by his, Pharma Online International, that provides data on ex-factory price, wholesale price, retail price, and daily cost of treatment for various drugs and diseases across over 40 international markets. Finally, we proxy for R&D investments by the number of new clinical trials initiated by pharma firms in a year for a specific disease. The source is IMS' R&D Focus which provides a history of all projects in development from the mid-1980s. As in Kyle and McGahan (2013), we focus on the first stage of human clinical testing, to capture early R&D efforts.

The basic empirical specifications estimate the effect of R&D investments by firms of each country 'i' for disease 'j' in year 't' as a function of disease-incidence and expected profit margins across a vector of countries for which we have data on incidence and margins. We also control for several other country-level variables that may drive pharmaceutical investments such as IP protection and income levels. If the first two of our propositions are correct, they should yield a positive estimate of the relationship between incidence and R&D investments and profit-margins and incidence. However, the coefficient estimate of responsiveness of innovators should not be different for national disease incidence changes than for foreign ones.

Policy Implications

We plan to use the estimates of sensitivity to profit margins to calibrate the effect of policy changes in any given country (that affect profit margins) on innovation both in that country and other countries as a function of the correlations among disease-incidence for any given pair of nations. As incidence correlations between nations evolve, they may change the direction of innovation spillovers in the future. And as medicine begins targeting disease at its genetic source, the interaction of differing immigration flows into Europe and North America, may begin to drive a wedge between the continents' incentives to free-ride on each other. Our study, when complete, can thus shed light on how factors such as changes in country-specific economic factors, incidence, and policy have global spillovers and endogenously influence healthcare innovation.

References

Acemoglu, D. and J. Linn (2004), "Market Size in Innovation: Theory and Evidence from the Pharmaceutical Industry," *Quarterly Journal of Economics*, 119 (August), pp. 1049-1090.

Garber, A. M. and J. Skinner (2008). "Is american health care uniquely inefficient?" *Journal of Economic Perspectives,* Volume 22, Number 4, pp. 27–50.

Kyle M, McGahan A. (2012) "Investments in pharmaceuticals before and after TRIPS." *Review of Economics and Statistics* 94(4): 1157–1172.

Lanjouw, J. (2003), "Intellectual Property and the Availability of Pharmaceuticals in Poor Countries," Innovation Policy and the Economy 3, pp. 91-129.

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Schoen, Cathy, Robin Osborn, Michelle M. Doty, Meghan Bishop, Jordon Peugh, and Nandita Murukutla. (2007). "Toward Higher-Performance Health Systems: Adults' Health Care Experiences in Seven Countries, 2007." Health Affairs, November/December, 26(6): w717–w734

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ACADEMIC APPOINTMENTS

New York University, Stern School of Business
Associate Professor of Management and Organizations (with tenure), 2016 – present
Founding Director, Creative Destruction Lab—New York City, 2017 - present
Assistant Professor of Management and Organizations, 2010 – 2016

OTHER AFFILIATIONS

New York University School of Law, The Engelberg Center on Innovation Law & Policy
Faculty Affiliate, 2015-Present

United States Patent and Trademark Office
Thomas Alva Edison Research Fellow, 2014-2015; Visiting Scholar, May 2011 – Present

CESifo Research Network, University of Munich
Affiliate, August 2013 – Present

EDUCATION

University of California, Berkeley
Doctor of Philosophy, 2010 (Thesis committee: David Mowery, Bronwyn Hall, Steve Tadelis, Catherine Wolfram and Brian Wright)

University of California, Berkeley
Master of Science in Business Administration, 2008

Georgia Institute of Technology, Atlanta
Master of Science in Public Policy, 2005

The National Institute of Engineering, Mysore, India
Bachelor of Industrial Engineering, 2000 (with Distinction)

AWARDS & HONORS

Faculty Leadership Award (for exceptional leadership through service), NYU—Stern, 2018
Nominated for Professor of the Year (for teaching excellence), Stern MBA program, 2016-2017
Nominated for Professor of the Year (for teaching excellence), Stern Langone program, 2016
The World's Best 40 Under 40 Business School Professors, Poets & Quants, 2015
G-Forum Entrepreneurship Research New Comer Award, 2014 (with coauthor)

Thomas Edison Innovation Fellowship, George Mason University School of Law, 2014-2015
Academy of Management, Technology and Innovation Management Division, Emerging Scholar Award First Runner Up, 2014
Thomas Alva Edison Research Fellow, US Patent and Trademark Office, 2014-2015
Kauffman Foundation Junior Faculty Fellow, 2012-2013
Management Science Meritorious Referee Award, 2013
Finalist, International Society for New Institutional Economics Dissertation Competition, 2010
Kauffman Dissertation Fellow, 2009
Regents Fellow, Sasakawa Young Leader, Bradley Fellow (UC Berkeley), 2005-10
International House Graduate Fellow, 2005-06
Outstanding Student (School of Public Policy, Georgia Tech), 2004
Statistics Guru (The Student Body of Ivan Allen College, Georgia Tech), 2003
1st prize in Technical Quiz (Society of Industrial & Production Engineers), 1998

PUBLICATIONS

SSRN profile: http://ssrn.com/author=1572429
Google Scholar profile: https://scholar.google.com/citations?hl=en&user=4ZvIfUMAAAAJ

[1] Patent publication and the market for ideas (with Hong Luo)
Management Science, published online in Articles in Advance on January 12, 2017

[2] Debtor rights, credit supply, and innovation (with Geraldo Cerqueiro, Fabiana Penas and Robert Seamans)
Management Science, published online in Articles in Advance August 12, 2016

[3] Can private money buy public science? Disease lobbying and federal funding for biomedical research (with Bhaven Sampat)
Management Science, 61(10) p.2281-2298 (Lead Article), Oct 2015
- Featured in *Nature* 515(19), Nov 2014

[4] What is the probability of receiving a US patent? (with Michael Carley and Alan Marco)
Yale Journal of Law & Technology, Volume 17, 203, 2015. pp 204-223

[5] Disclosing patents' secrets (with Stuart Graham)
Science, 347(6219) p.236-237, 16 Jan 2015
- Longer version available as "Who values secrecy in patenting? Evidence from the American Inventor's Protection Act of 1999" at http://ssrn.com/abstract=2170555

[6] An organizational perspective on patenting and open innovation (with Ajay Bhaskarabhatla)
Organization Science, 25(6) p.1744-1763, Nov 2014

[7] Does social proximity enhance business relationships? Theory and evidence from ethnicity's role in US venture capital (with Justin Tumlinson)
Management Science, 60(9) p.2355-2380, Oct 2014

[8] Tacit knowledge and the structure of license contracts: evidence from the biomedical industry
Journal of Economics & Management Strategy, 23(3), Fall 2014

[9] Funding and performance at the US Patent and Trademark Office
Nature Biotechnology, 30(2) p.148–150, Feb 2012

[10] Political influence behind the veil of peer review: an analysis of public biomedical research funding in the U.S.
Journal of Law & Economics, 52(4) p.665-690, Nov 2009

[11] Applicant citations, examiner citations, and the private value of patents (with Bhaven Sampat)
Economics Letters, 5(3) p.287-289, 2009

[12] Pioneering inventors or thicket-builders: which firms use continuations in patenting? (with David Mowery & Stuart Graham)
Management Science, 55(7) p.1214–1226, Jul 2009

[13] Politics and funding in the US public biomedical R&D system (with David Mowery)
Science, 322(5909) p.1797-98, Dec 2008

[14] Maturation of global corporate R&D: evidence from the activity of U.S. foreign subsidiaries (with Diana Hicks)
Research Policy, 37(3) p.390-406, Apr 2008

[15] Knowledge, technology trajectories and innovation in a developing country context: evidence from a survey of Malaysian firms (with Philip Shapira)
International Journal of Technology Management, 40(4) p.349-370, Dec 2007

[16] Public and private universities: Unequal sources of regional innovation?
Economic Development Quarterly, 19(4) p.373-386, Nov 2005

[17] Highly innovative small firms in the markets for technology (with Diana Hicks)
Research Policy, 34(5) p.703-716, Jun 2005

OTHER ARTICLES

[18] Reply to "A Replication of 'Political influence behind the veil of peer review' (Journal of Law & Economics, 2009)"
Public Finance Review, September 29, 2015

WORKING PAPERS

[19] What is a patent worth? Evidence from the U.S. patent 'lottery' (with Joan Farré Mensa and

Alexander Ljungqvist), latest version: http://ssrn.com/abstract=2704028
R&R at *Journal of Finance*

[20] Asymmetric information and entrepreneurship (with Justin Tumlinson), latest version: http://ssrn.com/abstract=2596846
R&R *at Management Science*

[21] Human Capital, firm capabilities and innovation (with Ajay Bhaskarabhatla and Thomas Peeters) Latest version: http://ssrn.com/abstract=3084638
R&R *at Management Science*

[22] Patent disclosure (with Kyle Herkenhoff and Chenqi Zhu)
Latest version: https://ssrn.com/abstract=3158031

[23] What determines US patent allowance? (with Alan Marco), Available on request

WORK IN PROGRESS

[24] Patent disclosure and market reaction (with Chenqi Zhu)

[25] Market reaction to pharma product announcements (with Patrick Augustin, Gunnar Grass and Marti Subrahmanyam)

[26] Scientific inference in organizational research (with Zur Shapira)

[27] Patents: Speed v/s Scope (with Alexander Ljungqvist and Chenqi Zhu)

[28] Examiner culture and patent outcomes (with Alexander Ljungqvist and Manav Raj)

PRESENTATIONS

2018 (includes planned): Washington University—Olin Business School, NYU-Stern Management Department brownbag, Federal Reserve Bank of Dallas, Bocconi University, Academy of Management Meetings

2017: Antonin Scalia Law School (George Mason University), New York University—Stern School of Business (Finance Research Day), University of California, San Diego (School of Global Policy and Strategy), Empirical Patent Law Conference (Duke University), Searle Center Research Roundtable on Patents and Technology Standards (Northwestern Law), New York University—Langone Medical Center, Technical University of Munich, New York University School of Law, Purdue University (Krannert School of Management) , NYU-Stern Undergraduate Honors Seminar

2016: Ivey Business School—University of Western Ontario, Center for the Protection of Intellectual Property Thomas Edison Meeting (Florida), University of Colorado, Boulder, Columbia Business School, NYU—Stern Management Department Brownbag, London Business School, Wisconsin School of Business (Madison), Hoover IP2 conference (Stanford University), US Patent and Trademark Office (Alexandria), 2016 Wharton Technology Conference, Workshop on Innovation in a Global Economy (Harvard Business School), National Bureau of Economics Research Summer Meeting (Intellectual Property and Innovation Group), Congressional Inventions Caucus Briefing (Washington, DC), Conference on Intellectual Property & Global Prosperity (George Mason University), NYU-Stern Management Department brownbag, University of Michigan (Ann Arbor), Harvard Business School (Entrepreneurship Unit)

2015: Tata Consultancy Services (Bangalore), University of Maryland—Smith School of Business, Universidad de Piura—Economics Department (Lima), Hoover IP2 Conference (Stanford University), Hebrew University of Jerusalem (EMBA students on tour at New York), Center for Protection of Intellectual Property Meetings (San Diego), NYU Stern Faculty Lunch Seminar Series (New York), Sumantra Ghoshal Conference on Managerially-Relevant Research (London Business School), Innovation and International Business Conference (George Washington University), Hoover-United States Patent and Trademark Office Conference (Washington DC), US Patent and Trademark Office (Chief Economist's Office), University of California, Berkeley (via Skype), University of Chicago—Booth School of Business, Harvard Business School (Strategy unit)

2014: Indian Institute of Management (Bangalore), Georgia Institute of Technology (Scheller School of Business), 10th Smith Entrepreneurship Research Conference (University of Maryland), Entrepreneurship and Innovation Research Workshop (NYU-Stern) SRF Conference (Santa Fe), Academy of Management (Philadelphia), US Patent and Trademark Office (Chief Economist's Office), University of California, Berkeley (Fall Innovation Seminar), Kauffman Emerging Scholars Conference (Kansas City), University of California, Los Angeles (Anderson School of Management), National Bureau of Economics Research Winter Meeting (Entrepreneurship Group), U.S. Patent and Trademark Office (Webinar)

2013: University of California, Berkeley (Spring Innovation Seminar), Utah-BYU Winter Strategy Conference, 2013 Wharton Technology and Innovation Conference, Atlanta Competitive Advantage Conference, University of Oregon (Causal Inference Seminar, via Skype), Sixth Annual Conference on Innovation and Entrepreneurship, Northwestern University School of Law, 10th Annual International Industrial Organization Conference (Boston), Ludwig Maximilian University of Munich, 5th ZEW/MaCCI Conference on the Economics of Innovation and Patenting (Mannheim), Fourth Workshop for Junior Researchers on the Law & Economics of Intellectual Property and Competition Law (Munich), Ludwig Maximilians Universität—Microeconomics and Management Seminar (Munich), Erasmus School of Economics (Rotterdam), National Bureau of Economics Research Summer Meeting (Intellectual Property and Innovation Group), Academy of Management Meetings (Orlando, Florida), UK Intellectual Property Office—Patent Use Conference (London), Rutgers Business School (Newark, NJ), 4th HEC Workshop on Entrepreneurship (Paris), New York University (Stern Management Department Seminar, Fall)

2012: Duke University (Economics of Innovation Seminar), Ohio State University (Glen School of Public Affairs), Georgia Tech (School of Public Policy), New York University (Stern Management Department Seminar, Spring), Indian Institute of Management (Ahmedabad), Indian Institute of Management (Bangalore), New York University (Stern Economics of Strategy workshop), Academy of Management meetings (Boston), New York University (Wagner School of Public Affairs), Harvard Business School (Strategy Unit), University of Michigan, Ann Arbor (Ross School of Business), Roundtable on Engineering Entrepreneurship Research (Georgia Tech), The 5th Israel Strategy Conference (Tel Aviv), Columbia Business School 3rd Annual Strategy Conference (New York)

2011: University of California, Berkeley (Spring and Fall Innovation Seminars), NYU-Stern Management Department Seminar (Spring, Summer and Fall) NYU-Poly, National Bureau of Economics Research Summer Institute (IPE Group), The Strategy Research Initiative Workshop (Annapolis), Columbia University (Mailman School of Public Health), NYU(Department of Politics), Harvard University (Science-Based Business Initiative Seminar Series), Duke University (Fuqua Strategy Seminar), Harvard Business School (Institutions and Innovation Conference), National Bureau of Economics Research Winter Meeting (Entrepreneurship Group)

2010: Stern School of Business (New York University), Wharton School (University of Pennsylvania), Goizueta School of Management (Emory University), Rotman School of Management(University of Toronto), Sauder School of Business(University of British Columbia), School of Public Policy (George Mason University)

2009: Carey School (Johns Hopkins University), Copenhagen Business School, School of Management (Boston University), National Bureau of Economics Research (Productivity Seminar Series)

2008: Roundtable on Engineering Entrepreneurship Research (Georgia Tech)

2005: American Association for the Advancement of Science: Conference-3 (Washington D.C.)

SELECTED WORKSHOPS

- Roundtable on Empirical Methods in Intellectual Property, Cardozo Law School (May 2017)
- Strategy Junior Faculty Summer Camp, Tuck School of Business at Dartmouth (July 2013)
- Workshop for Junior Researchers on the Law & Economics of Intellectual Property and Competition Law, International Max Planck Research School for Competition and Innovation and the Center for Law & Economics at ETH Zurich (June 2013)
- Commercializing Technology through the Power of IP. Licensing Executives Society (October 2009)
- Entrepreneurship Research Boot Camp. National Bureau of Economics Research (July 2009)
- PhD Seminar in Entrepreneurship. Ewing Marion Kauffman Foundation, (June 2008) Cleveland, OH

TEACHING

Competitive Strategy. Langone MBA program. NYU-Stern; August 2010–present
Corporate Strategy. Langone MBA program. NYU-Stern; September 2011-present
Strategy. MBA program. NYU-Stern; August 2014 –present
Doctoral Course on Innovation. Spring 2016
Session on Innovation and Public Policy (2013, 2014, 2015)
Session on Entrepreneurial Strategy (2017)

GRANTS

National Bureau of Economics Research, Innovation Policy Grant, 2015-2016, $20,000
United States Patent and Trademark Office, 2014-2015, $108,503.7
United States Patent and Trademark Office, 2012-2013, $58,000
United States Patent and Trademark Office, 2011, $15,000
Kauffman Foundation Junior Faculty Fellow Award, 2012-2013, $40,000
Kauffman Foundation Grant #20110112, 2011, $8,145
National Bureau of Economic Research, Entrepreneurship Working Group Travel Grant, Summer 2008, $1,000
Institute of Business and Economic Research dissertation grant, 2009, $1,500

ACADEMIC SERVICE

Editorial and Refereeing

- Senior Editor, *Organization Science* (2015-)
- Guest Associate Editor, *Management Science* (2014, 2015, 2016)
- Refereed manuscripts for *Science*, *Management Science, Review of Economic Studies, Rand Journal of Economics, Review of Economics & Statistics, Journal of Law & Economics, Organization Science, Strategic Management Journal, Journal of Economics & Management Strategy, Research Policy, Industrial & Corporate Change, Journal of Technology Transfer, Minerva, Journal of Law, Economics & Organization, International Journal of Industrial Organization, IEEE Transactions on Engineering Management, Journal of the European Economic Association, Scientometrics, Labour Economics, California Management Review, Public Finance Review, Public Choice, Technovation, International Journal of Technology Management, Economic Inquiry, Economics & Politics*
- Invited to referee grant proposals for *National Science Foundation* and *Kauffman Foundation*
- Invited to referee book proposals for *Stanford University Press, Oxford University Press* and *Palgrave Macmillan*

Student Mentorship and Supervision

- PhD Supervision: Jin-Hyun Bae, Junghyun Suh, Daniel Keum, Francis Park, Chenqi Zhu, Wendy Bradley (HEC—Paris)
- Undergraduate Supervision: Khushali Upadhyay (Advisor, Honors Thesis)
- Mentor for Kauffman dissertation award recipients at the Kauffman Entrepreneurship Mentoring Workshop, January 6-7, 2013. San Diego, CA

Conference and Seminar Organization

- Co-chair, 22nd Annual Organization Science Winter Conference (2016)
- Organizer, NYU-Stern Economics of Strategy Conference (2012, 2015)
- Faculty Discussant, Columbia-Stern PhD Student Conference (2013, 2014)
- Organized presenters' session on intellectual property at AOM (2014)
- Organizer, Professional Development Workshop on Patents at AOM (2015)
- Organizer, NYU-Stern Creativity & Innovation Research Initiative (2014-)

External and Internal Committees

- Academy of Management—Technology, Innovation and Management Best Student Paper Awards Committee (2014)
- NYU-Stern Management Department Research Committee (2014-2015)
- NYU-Stern Management Department Annual Merit Review Committee (2014-2015)
- NYU-Stern Management Department Doctoral Program Committee (2016-)

Memberships

American Economic Association, Academy of Management, The Econometric Society, Strategic Management Society, Strategy Research Forum

MEDIA COVERAGE

Research featured in outlets such as *Nature*, *NPR Marketplace, Wall Street Journal, Chronicle of Higher Education, USNews, Inc. Magazine, ArsTechnica, Outlook India, Dawn, Harvard Business Review, Frankfurter Allgemeine Zeitung, Engineering.com,* and others

INDUSTRY EXPERIENCE

Abt Associates, Cambridge, MA. Intern, 2004
Robert Bosch, Stuttgart and Bangalore. Software Engineer, 1999 – 2002

PERSONAL

Born: November 05, 1977
U.S. Citizen
Married to Aparna Hegde née Padmanabhan with one child (Amogh, born on August 29, 2015)
Languages: English, Kannada (Native), Hindi (Conversational), Sanskrit (Basic), German (Basic)

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PRIMARY ACADEMIC POST:

Loughborough University, *Sr. Lecturer (eqv. Associate Professor) of Innovation and Entrepreneurship* 2017-Present
Entrepreneurship, Finance and Innovation MSc Program Director 2017-Present

OTHER CURRENT PROFESSIONAL AFFILIATIONS:

Alexander von Humboldt Foundation, *Fellow*. 2004-Present
ZIVIS LLC, *Founder/Managing Partner* 2004-Present

EDUCATION:

Ph.D., Business & Public Policy	*University of California at Berkeley (UCB)*	2011
M.S., Business Administration	*University of California at Berkeley*	2008
M.S.E., Operations Research	*University of California at Berkeley*	2003
B.S.E., Computer Engineering	*Northern Arizona University (NAU)*	1997
PNdS (German Language Cert.)	*Universität-Tübingen*	1995

ACADEMIC JOURNAL PUBLICATIONS:

"Corporate Provision of Public Goods," with John Morgan

- *Forthcoming* at *Management Science*

"Does Social Proximity Enhance Business Partnerships? Theory and Evidence from Ethnicity's Role in US Venture Capital," with Deepak Hegde (2014) *Management Science 60*(9):2355-2380.

- Featured in *Frankfurter Algemeine Zeitung* (#2 national German newspaper) (16Mar14), National Public Radio's *Marketplace* (world's most popular business radio program) (1Apr14), and *Harvard Business Review* (19Jun14)

"A STELLA-II teaching simulation of the dynamics of action model," with Virginia Blankenship, Mark A. Sims. *Behavior Research Methods,* 27, no. 2 (1995): 244-250.

- Published as undergraduate student

"Teaching the Rescorla-Wagner model using STELLA-II," with Virginia Blankenship, Stephen S. Schorie, Angela J. Shaw. *Behavior Research Methods* 26, no. 2 (1994): 128-133.

- Published as undergraduate student

ACADEMIC JOURNAL ARTICLES UNDER SUBMISSION:

"Asymmetric Information and Entrepreneurship," with Deepak Hegde

- *Major Revision* requested at *Management Science*

- "Förderkreis Gründungs-Forschung e.V. (FGF) Best Entrepreneurship Research Newcomer Award, 2014," with 1000 EUR prize

- Featured in SSRN's "Weekly Top 5 Papers" four times (9April18, 16Apr18, 23Apr18, 30Apr18), *Forbes* (10Apr18), *VentureBeat* (12Apr18), *Quartz* (18Apr18), *Inc.com* (19Apr18), *Trend Following with Michael Covel* (Radio, 23Apr18)

"Learning Capitalism the Hard Way—Evidence from German Reunification," with Thomas Triebs

- *National Bureau of Economics Research* working paper: *w19209*

"Adverse Selection in Team Formation under Discrimination"

"Net Metering Distorts Solar Panel Adoption," with Jörg Claussen, Anders Ørding Olsen

OTHER WORKING PAPERS:

"Limits of Meritocracy," with John Morgan, Felix Várdy

"Egalitarianism's Impact on Social Mobility in Assortative Mating"

"The (Un)Level Playing Field: How Color Blind Tracking Leads to Unequal Access," with John Morgan, Thomas Triebs

"Production Scale and the Gains from Trade—a U-turn," with John Morgan

"The Peter Principle—Promotions in the Shadow of Incompetence," with Thomas Triebs, Felix Várdy

"Cultural Theory of Income Inequality Dynamics"

BOOK CHAPTERS:

"Predatory Pricing" in *The New Palgrave Encyclopedia of Strategic Management.* Eds. David Teece and Mie Augier. Palgrave Macmillan, October 2015.

"Externality" in *The New Palgrave Encyclopedia of Strategic Management.* Eds. David Teece and Mie Augier. Palgrave Macmillan, October 2015.

POLICY REPORTS AND ARTICLES:

"Does Social Proximity Enhance Business Relationships?" with Deepak Hegde, *CESifo DICE Report* 3/2016. ISSN 1612-0663/1613-6373 (print/electronic).

"Study on the Competitiveness of the Electrical and Electronic Engineering Industry," as member of *ECSIP Consortium*. Contracted by the *European Commission. 2014.*

SELECTED HONORS:

IBER Dissertation Award, UCB ($3,000)	2009
Levi Strauss Small Grant ($1,000)	2009
Sasakawa Young Leaders Fellow ($12,000)	2008
German Chancellor's Fellow ($60,000)	2004
US Fulbright Scholar *(declined prize)*	2003
Bosch Foundation Future Leaders of America Fellow *(declined prize)*	2003
US National Science Foundation GSF ($82,000 + tuition/fees)	2001-2003
2 Intel Divisional Recognition Awards	1998, 2000
Magna Cum Laude & New Century Honors, NAU	1997

1st Place Engineering Design Competition, NAU *(team leader)* 1997

COURSES TAUGHT:

MSc Managerial Economics, MSc Business Statistics, Undergrad International Business, MBA Strategy, MBA Ethics, PhD Research Seminar

PHD STUDENTS SUPERVISED:

Lena Langosch 2018-Present

REFEREEING:

American Economic Review, Management Science, Strategic Management Journal, Organization Science, Journal of Public Economics, European Economic Review, Games and Economic Behavior, Journal of Business Venturing, Eurasian Business Review

PREVIOUS WORK EXPERIENCE:

Academic:

Ifo Institute at the University of Munich, *Research Fellow*	2011-2017
CESifo Research Network, Applied Microeconomics, *Area Assistant*	2012-2017
EM LYON Grande Ecole, *Visiting Professor.*	2014-2017
University of California, Berkeley, *Lecturer*	2010
University of California, Berkeley, *Graduate Student Instructor*	2010
Research Assistant to John Morgan, UCB, Economics	2008-2009
to Rui de Figueiredo, UCB, Business Admin	2007-2008
to Ernesto Dal Bó, UCB, Business Admin	2006-2007
to Cathy Small, NAU, Anthropology	1995-1996
to Virginia Blankenship, NAU, Psychology	1995

Professional:

EARLYBIRD Venture Capital, Munich.	2004-2005
Intel Corporation, *Researcher* and *Sr. Operations Engineer.*	1997-2003

REFERENCES:

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