December 1, 2014

Productivity, Innovation and Entrepreneurship Program
Innovation Policy (IPE) Working Group
NBER

To whom it may concern:

I currently hold a position as an Assistant Professor of Economics at Colgate University and I will be on junior leave during the 2015-2016 academic year. The postdoctoral fellowship from the NBER Productivity, Innovation and Entrepreneurship Program provides an excellent opportunity for me to expand my research portfolio while contributing to, and benefiting from, the Innovation Policy Working Group. My research experience and interests can provide unique insights into the relationship between firm innovation and the current, and resulting, industry market structure.

My research interests lie at the intersection of two strands of research in industrial organization economics; the relationship between market structure and firm incentives to innovate and strategic firm interactions via intellectual property agreements. I approach this problem from both theoretical and empirical perspectives and I have experience in modeling these relationships theoretically, deriving empirically testable hypotheses, and estimating whether the data on firm innovation and market structure fit the resulting hypotheses. Copies of all of my working papers are available on my website: http://sites.google.com/site/bcanderson.
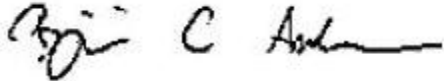
In the first of a series of papers exploring these issues, I extend a model of endogenous market structure and fixed costs in research and development (R&D) to consider the role of technology licensing between rivals. The theoretical results imply that technology licensing under endogenous fixed costs increases both the level of R&D investment and market share of firms offering the market-leading level of quality. However, the total amount of investment in R&D decreases after permitting technology licensing as other firms prefer adopting the licensed technology rather than pursuing their own innovation and the subsequent effects on consumer welfare are ambiguous. I anticipate extending these theoretical results to consider an alternate strategic interaction, namely research joint ventures (RJV), upon these endogenous relationships as well as assuming a functional form for consumer utility in order to derive consumer welfare implications.

Although product-level data on the amount of R&D is notoriously difficult to acquire, I compile a dataset of firm R&D at an intermediate stage of research for agricultural biotechnology firms and genetically modified seed varieties. Although previous literature have empirically tested the model implications using data on advertising or other fixed cost investments, this paper is the first to examine the model using firm R&D data at the product level. I derive the empirically testable hypotheses on the concentration in R&D activities, a particular concern within the agricultural biotechnology industry, and find that the data on agricultural biotechnology R&D fits the empirically testable hypotheses well. Moreover, I also find little to no impact of merger and acquisition activity between rivals in significantly increasing the concentration of R&D within the industry.

December 1, 2014

Enclosed, you will find my CV and a research proposal for the one-year postdoctoral fellowship for the Innovation Policy Working Group. Please feel free to contact me for any references or if you have any additional questions. I plan on attending the ASSA meetings in Boston and I look forward to speaking with you about the position. Thank you for your consideration.

Sincerely,

Benjamin C. Anderson

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Enclosed: Anderson (CV); NBER Research Proposal

BENJAMIN C. ANDERSON

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Employment:

July 2011 – Present	Assistant Professor Department of Economics, Colgate University
Sept 2007 – May 2010	Graduate Research and Teaching Assistant AED Economics, The Ohio State University

Education:

Ph.D., AED Economics, The Ohio State University, 2011
  Dissertation Title: "*Essays on Market Structure and Technological Innovation*"

M.Sc., Economics, London School of Economics, 2006

B.S. in Business Administration, Ohio Northern University, High Distinction, 2003

Current Working Papers:

Anderson, Benjamin C. 2014. "Extending Sutton's "Bounds": A Model of Endogenous Market Structure, Innovation and Licensing." (*Submitted*)

Anderson, Benjamin C. and Ian M. Sheldon. 2013. "R&D Concentration under Endogenous Fixed Costs: Evidence from the Agricultural Biotechnology Industry." (*Submitted*)

Anderson, Benjamin C. and Michael J. Sinkey. 2014. "Like Mike or Like Lebron: Do the Most Able Need College to Signal?"

Gropper, Catherine C. and Benjamin C. Anderson. 2014. "Sellout, Blackout, or Get Out: The Impacts of the 2012 Policy Change on TV Blackouts and Attendance in the NFL." (*Submitted*)

Anderson, Benjamin C. 2009. "Consumption Smoothing Responses to Natural Disasters: Evidence from a Quasi-Natural Experiment in Nicaragua."

Work in Progress:

Endogenous Strategic Alliances: R&D Investment, Licensing, and Research Joint Ventures

Commitment and Satisfaction on the Field and in the Classroom: A Case Study of Student Athlete Experiences at a Liberal Arts College (with Caitlin Cremin)

Happy Cows vs. Laughing Cow: Endogenous Market Structure under Generic and Brand Advertising

Grants:

Summer Research Apprenticeship Funding, Colgate University (PI), "Performance Evaluation and Contract Theory: Subjective vs. Objective Assessments and Reference Points", June 2012 – August 2012 ($4,500).

Conference Presentations:

2014	84th Southern Economic Association Annual Meeting, Atlanta, GA. (*Accepted*)
	2014 AAEA & NAREA Joint Annual Meeting, Minneapolis, MN. (*Accepted – Unable to Attend*)
	2014 SOLE (Society of Labor Economists) Conference, Arlington, VA.
	12th Annual International Industrial Organization Conference, Chicago, IL.
2013	1st Annual Liberal Arts Development Conference, Amherst, MA (*Accepted – Unable to Attend*)
	3rd DIAL Development Conference (Institutions and Development), Paris, France.
	3rd GAEL Conference (Product Differentiation and Innovation on Related Markets), Grenoble, France.
	11th Annual International Industrial Organization Conference, Boston, MA.
2012	82nd Southern Economic Association Annual Meeting, New Orleans, LA.
	2012 AAEA & NAREA Joint Annual Meeting, Seattle, WA. (*Accepted – Unable to Attend*)
	10th Annual International Industrial Organization Conference, Washington, D.C.
2011	2011 AAEA & NAREA Joint Annual Meeting, Pittsburgh, PA.
	9th Annual International Industrial Organization Conference, Boston, MA.
2010	80th Southern Economic Association Annual Meetings, Atlanta, GA.
	2010 AAEA, CAES, & WAEA Joint Annual Meeting, Denver, CO.
2009	79th Southern Economic Association Annual Meetings, San Antonio, TX.
	2009 Northeast Universities Development Consortium (NEUDC) Conference, Cabot Intercultural Center at Tufts University, Medford, MA. (*Accepted – Unable To Attend*)
	2009 Midwest Economic Association Annual Meetings, Cleveland, OH.

Invited Seminars:

2013	Colgate University (*Department of Economics Brown Bag Series*)
2012	Colgate University (*Department of Economics Brown Bag Series*)
2011	Colgate University (*Department of Economics*), University of Arkansas (*Department of Agricultural Economics and Agribusiness*)

Fellowship, Honors, and Awards:

2008	Honorable Mention for a Research Manuscript by a Second-year Ph.D. Student, Department of AEDE, The Ohio State University. "Financial Markets, Informal Networks, and Consumption Smoothing: Evidence from a Quasi-Natural Experiment in Nicaragua."
2006	Distinguished University Fellowship, Graduate School, The Ohio State University.
2003	Taffy Howard/Brenda Johnson Leadership and Service Award, College of Business Administration, Ohio Northern University.
1999	Presidential Scholarship, Ohio Northern University.

Teaching Experience:

Colgate University

Introduction to Economics (ECON 151)	Fall 2014, Spring 2014, Fall 2013, Spring 2013, Fall 2012, Spring 2011
Intermediate Microeconomics (ECON 251)	Fall 2011
Seminar in Sports Economics (ECON 436)	Spring 2014
Current Economic Issues (FSEM 181)	Fall 2013

Honors Advising:

2014	Caitlin Cremin, *Honors*, "The Winning Formula: A Case Study on the Makings of a Successful Collegiate Athlete."
2013	Steven Xu, *Honors*, "Efficiency, Biases and Price Changes in the NFL and College Football Betting Market"
2012	Christine Hebert, *Honors*, "The Exogenous Effect of Corn Prices on Beef Prices in the U.S. Using R&D as an Instrumental Variable"

Institutional Service:

Search Committee, Department of Economics, Colgate University (2013).
Brown Bag Coordinator, Department of Economics, Colgate University (2011 – *present*).
Faculty Academic Liaison, Football Team, Colgate University (2014 – *present*).

Professional Service:

Referee   *American Journal of Agricultural Economics*

NBER Productivity, Innovation and Entrepreneurship Program Post-Doctoral Fellowship Research Proposal

Benjamin C. Anderson
Colgate University

My current research focuses on incorporating strategic interactions between firms, specifically technology licensing, into models in which market concentration and the level of innovative activity are determined endogenously via fixed (sunk) firm investments in research and development (R&D). My research agenda for the next year and a half consists of extending this analysis in several directions, each of which incorporates a specific objective for analyzing policy implications.

My previous theoretical research finds that technology licensing between competitors leads quality-leading firms to increase R&D investment and are compensated with greater market concentration. These results hold independently of any specific assumptions regarding consumer or firm behavior. Although the general nature of the model is a feature, it limits interpretations of consumer welfare, as well as subsequent policy implications, as the gains from greater R&D investment by the leading firm may be offset by the more concentrated markets and decreased R&D activity by other firms. I am currently working on an applied theory model which assumes a quality-indexed linear demand function for consumer utility in order to derive welfare implications for the more general model. Outside of some very strong assumptions on the R&D cost parameter, solving for the endogenous entry, licensing, and R&D investment decision does not lend itself to a closed-form solution such that computational methods are required. I plan on completing this ongoing research within the next six months.

My current research has focused solely upon technology licensing as a specific strategic interaction. As a second extension, I propose examining an alternate form of strategic interaction between firms in the form of research joint ventures (RJV). In particular, I plan on relaxing the assumption of deterministic R&D investment by introducing uncertainty into the relationship between product quality and sunk cost R&D investments. Conditional on observable product quality, *ex post* technology licensing is feasible under investment with no uncertainty. However, RJVs are typically formed prior to the realization of R&D investments and are commonly argued as a strategic alliance which diminishes the risk associated with substantial commitments to R&D. As such, the specific policy implications for technology licensing under deterministic investment do not necessarily align with the implications from an endogenous model of RJV and R&D investment.

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The empirical analyses of endogenous market structure and R&D investments that I have completed previously have focused on innovation in a single industry, namely agricultural biotechnology firms and R&D into genetically modified seed varieties. However, the empirically testable hypotheses that I have derived in my theoretical work are more suitable to cross-industry estimations of market concentration, innovation, and strategic interactions. With this in mind, I propose compiling an industry-level dataset utilizing the NSF NCSES Business and Development and Innovation (BRDIS) database, the NSF Industrial Research and Development Information System (IRIS) database, or both. In order to estimate the empirically testable hypotheses, it is likely that I will have to link the data, at the industry-year level, to both the NBER-CES Manufacturing Industry Productivity database as well as the NBER U.S. Patent Citations database. Finally, the theoretical models make predictions on the lower bounds to the single-firm market concentration levels. Thus, it is necessary to supplement the industry-level data with additional data on the market-leading firm within each industry in order to compile a dataset appropriate to the structure of the model. I anticipate collecting this data for a particular set of relevant and comparison group industries using Compustat or some comparable firm-level database.

Finally, previous research employing the endogenous fixed cost framework has largely ignored the role of both government innovation policy and R&D from public institutions in affecting either the level of market concentration or R&D investment by private firms. The final project that I hope to commence in the next year and a half would explore this deficient aspect of the theory in greater detail. My short-term priority would be in developing a set of theoretical models of market structure and innovation in order to analyze both government innovation policy as well as the ability of public institutions, specifically universities, to license their innovations to the private sector. The university-licensing scheme is a natural extension of my current theoretical model whereas government innovation policy may incentivize firm R&D activity via a reduction in either the cost or uncertainty of R&D investments.