The Motivations to Create

Why do humans create new books, new songs, or new inventions? Is creation an innate and instinctive need that is being expressed, or is it an attempt to achieve rewards such as money and fame? Although this question has long beguiled philosophers and psychologists, our concern is the more prosaic one of wishing to understand how economic systems might promote creation, or at least promote creations where the benefits are greater than the costs.

The evidence from several recent academic studies may be interpreted as suggesting that intellectual property is not necessary for stimulating innovation. For instance, Boldrin and Levine (2005) study various industries and their conclusion is that intellectual property "is not necessary for innovation and as a practical matter is damaging to growth, prosperity and liberty." Scherer (2007) studies musical copyright in the 18th and 19th centuries, and he concludes that "the absence of effective copyright certainly did not cause creative musical output to be stalemated." A few studies focus on the supply of new music following the reduction in the effective copyright protection caused by file sharing, such as Waldfogel (2012) who finds "no evidence that changes since Napster have affected the quantity of new recorded music or artists coming to market."

Of prime importance in the discussion of whether intellectual property rights are necessary or useful is the assessment of the intellectual property's effectiveness in stimulating innovation. Because intellectual property provides pecuniary rewards to creators, assessing the intellectual property's effectiveness in promoting innovation hinges on the question of the extent to which monetary incentives induce new creations. If the behavior of firms and individuals is unresponsive to monetary incentives, or if labor supply curves are backward bending, intellectual property could decrease social welfare since it would bestow some unnecessary and socially costly monopolies to creators.

Some findings in the intellectual literature might be interpreted as suggesting the conclusion that nonmonetary rewards might suffice to induce innovation (e.g., the study by Scherer 2007 concludes that "many people became composers because they loved what they were doing"). Although these findings in the intellectual property literature are typically based on case studies using limited data (e.g., Scherer 2007 uses a dataset of 646 composers), the labor literature has used more comprehensive data and a typical finding in this literature is that wages do not substantially affect, at the margin, the labor supply for regular workers (i.e., the wage elasticity of the labor supply has been estimated to be fairly small – see Saez, Slemrod, and Giertz 2012).

The goal of this paper is to empirically study the extent to which innovators are financially motivated. Our focus is on the market for books. We use a large and detailed dataset of over two million books that contains information on book sales by author and title for the years 2004 through 2016 to measure the extent to which monetary incentives induce authors to publish additional books. One way to assess financial motivation using our data is to examine

the relationship between authors' past revenues from selling books and their future creation of new works.

Our purchased data cover thirteen years, 2004-2016, and in most of our analysis we group books into two periods, a six-year first-half consisting of years 2004-2009 and a seven-year second-half consisting of years 2010-2016, referred to as period 1 (P1) and period 2 (P2) respectively. To have a more homogenous group of authors and avoid complicated life cycle considerations, we conduct our analysis using only authors who published their first book in P1. More formally, we consider the following empirical model for the number of titles authors write in period 2:

$$Number\ of\ titles\ in\ P2_i = \alpha_0 + \alpha_1\ Revenues\ in\ P1_i + \alpha_2\ (Revenues\ in\ P1_i)^2 + \alpha_3\ Number\ of\ titles\ in\ P1_i + \alpha_4 Z_i + u_i$$

where we use the variable $Revenues\ in\ P1_i$ as a proxy for expected revenues for period 2, control for $Number\ of\ titles\ in\ P1_i$ as a way to capture author-level instinctual production as well as other factors that might be considered to be constant at the author level, and control for a vector of author-level characteristics, Z_i . Our hope is to use this model to predict production in P2 due to revenues in P1, and also predict production in P2 for a zero level of revenues in P1 as it would be the case if copyrights were to be abolished.

Using this model over various samples of authors and time periods (e.g., prior to e-books) we find evidence that authors publish more new books when they earned higher payments for previously written books, although at high enough levels of payment their production of new works begins to decline, consistent with a backward bending supply function. We also find that few authors are in the backward bending region and that the overall effect of payments to authors is to increase their output. Our results are also consistent with the belief that instinctual elements may play a large role in the creation of books.

Overall, the hope of this paper is to avoid a reliance on anecdotes and to answer, using an extensive data set, the question of how much creation is due to the prospect of monetary gain, at least among book authors in the early decades of the twenty-first century.

We have a preliminary version of a working paper that I could share upon request.

I have a coauthor in this project (Stan Liebowitz), but I am individually applying to this grant. I will be on Sabbatical in the spring of 2019 and I would use the funds to visit other schools.

Budget Estimate

I will be on sabbatical in the Spring of 2019 and would use all the funds to visit other schools during this time.

Alejandro Zentner
University of Texas at Dallas
Naveen Jindal School of Management
Managerial Economics and Finance

Educational History:

Ph.D., 07/2005, University of Chicago, 5801 South Ellis Avenue, Chicago, Illinois 60637, Field: Economics

Dissertation title: "Demand and supply responses of digital goods protected by intellectual property rights to advances in digital technologies"

Master of Arts, 06/2002, University of Chicago, 5801 South Ellis Avenue, Chicago, Illinois 60637, Field: Economics

Master, 12/1999, Universidad Torcuato Di Tella, Miñones 2177, C1428ATG Buenos Aires, Capital Federal, Argentina, Field: Economics

Employment History:

Associate Professor of Economics, 2013 – present, University of Texas at Dallas, 800 West Campbell Road, Richardson, TX 75080

Member of the Council of the Center for U.S. – Latin America Initiatives (CUSLAI), December 2014 – present

Faculty Associate, August 2013 – present; Center for U.S. – Latin America Initiatives (CUSLAI)

Visiting Assistant Professor of Information Systems and Economics, 09/2011-07/2012, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213

Assistant Professor of Economics, 09/2005-09/2011, University of Texas at Dallas, 800 West Campbell Road, Richardson, TX 75080

Advisor to the Secretary of Political Economy, 1997-2000, Ministry of Economy of Argentina, Hipólito Yrigoyen 250, C1428ATG Buenos Aires, Capital Federal, Argentina

Professional recognitions and honors:

Scholarship Award, 2000-2001, Central Bank of Argentina

Fellowship Award, 2002-2004, University of Chicago, Department of Economics

Henry Morgenthau Jr. Memorial Fund Dissertation Fellowship, 2004-2005, University of Chicago

JSOM Faculty Teaching Idol Finalist - Annual OWLIE Awards 2016

Speaker at the 2017 Full Time Cohort MBA Graduation Party (Invited by the students)

Achievements in original investigation:

Google Scholar Citations: 1057
Google Scholar Citations Divided by the Number of Authors in Each Paper: 986

Articles in referred journals:

Single Author

"File Sharing and International Sales of Copyrighted Music: An Empirical Analysis with a Panel of Countries," *Berkeley Electronics, Topics in Economic Analysis & Policy*: Vol. 5 (2005): No. 1, Article 21, Included in the Special Collection on Law and Economics, May 2007

"Measuring the Effect of File Sharing on Music Purchases," *The Journal of Law and Economics*, April 2006, p. 63-90

"Online Sales, Internet Use, Music Downloads, and the Decline of Retail Music Specialty Stores," *Information Economics and Policy*, Volume 20, Issue 3, September 2008, Pages 288-300

"The Effect of the Internet on Advertising Expenditures: An Empirical Analysis Using a Panel of Countries," *Journal of Economics and Management Strategy*, Northwestern University, Volume 21 Number 4, Winter 2012

With Coauthors

"Program Substitutability in Network Television: Evidence from Argentina," (with Octavian Carare), *Information Economics and Policy*, Vol. 24, Nr. 2 (2012), p. 145-160

"Clash of the Titans: Does Internet Use Reduce Television Viewing?," (with Stan Liebowitz), *The Review of Economics and Statistics*, MIT Press, vol. 94(1), pages 234-245, 07, (2012)

"Bricks, Clicks, Blockbusters, and Long Tails: How Video Rental Patterns Change as Consumers Move Online," (with Michael Smith and Cuneyd Kaya), *Management Science,* 59(11), pp. 2622–2634.

"Internet Effects on Retail Industries?," (with Michael Smith), *Handbook on the Economics of Retailing and* Distribution. March, 2016.

"The Internet as a Celestial TiVo," (with Stan Liebowitz)," *Journal of Cultural Economics.* vol. 40(3), pages 285-308, 2016.

"Internet Adoption and the Survival of Print Newspapers: A Country Level Examination," (with Michael Smith and Daegon Cho), *Information Economics and Policy*, Volume 37, December 2016.

"Role of Monetary Incentives in the digital and physical inter-border labor flows," (with Jing Gong and Kevin Hong), *Journal of Management Information Systems*, Forthcoming.

Working Papers and Work in Progress

"Measuring Online – Offline Channel Complementarities" (with Gonca Soysal and Eric Zheng), under review at a top journal – (within the UTD top list of leading journals). Second round.

"Measuring E-Commerce Concentration Effects When Product Popularity is Channel-Specific," (with Gonca Soysal), under review at a top journal (within the UTD top list of leading journals).

"Motivations to Create," (with Stan Liebowitz), in progress.

"Examining How Prices Affect Movie Format and Channel Consumption Choices: A Natural Experiment Using State Tax Changes," (with Michael Smith, Abhishek Vibhanshu and Jing Gong- colleagues from Information Systems @ Carnegie Mellon and Temple), in progress.

"Equilibrium Responses to Online Reviews," (with Ernan Haruvy and Julio Elias), in progress.

"Measuring the Impact of File Sharing on the Movie Industry," (Research Award from the MPAA).

Oral presentations at professional meetings:

2013-2018, FCC, "Video Marketplace Workshop," invited as a speaker and presenter of a position paper (Washington, DC), Data Science in the Entertainment Industry (Santa Monica), Wake Forest University (North Carolina), HKU (Hong Kong), SMU (Singapore), Wharton Consumer Analytics (Philadelphia), HICSS (Hawaii), Statistical Challenges in e-Commerce Research (Tel Aviv), Statistical Challenges in e-Commerce Research (Lisbon), Informs (Rome), BCSI (Conference Chair and Presenter-Singapore)

2013, Organizer of the session "Economics of the Internet" for the American Economic Association Meetings – Presenting "Bricks, Clicks, Blockbusters, and Long Tails: How Video Rental Patterns Change as Consumers Move Online."

2013, Session on "Internet Effects" on Media Markets at the American Economic Association Meetings – Presenting "Measuring the Impact of File Sharing on the Movie Industry: An Empirical Analysis Using a Panel of Countries."

2011-2012, NBER Economics of IT and Digitization Workshop (Boston), Searle Center Conference on Internet Search and Innovation (Northwestern), Statistical Challenges in e-Commerce Research (Montreal), Singapore Management University, National University of Singapore, UT Arlington, UT Dallas (International Conference on Management Science and Engineering), Wesleyan University, International Industrial Organization (Session on "Technology and Information" sponsored by Microsoft – DC), Management and Economics of ICT Conference (Munich), Carnegie Mellon University, Federal Communications Commission (FCC), ZEW (Manheim), UT Dallas (Management Information Systems Seminar)

2005-2011, American Law and Economics (New York), Royal Economic Society (London), International Industrial Organization (Boston), European Association for Research in Industrial Economics (Istanbul), International Industrial Organization (Vancouver), Telecom ParisTech Conference- Plenary Invited Speaker (Paris), WIPO and SERCI Conference (Geneva), Southern Economic Association Conference (South Carolina, Session on File Sharing), SERCI Conference (Singapore), University of Pennsylvania (Law School, File Sharing Symposium), Universidad de San Andres (Argentina), Universidad de La Plata (Argentina), University of Munich (Workshop on the Economics of Information and Network Industries), University of Chicago, University of Texas at Dallas, Universidad Carlos III (Madrid), Instituto de Empresa

(Madrid), Universidad Pompeu Fabra (Barcelona), NERA (New York), Charles River Associates (Boston), LECG (Madrid), ITAM (Mexico)

Discussant at various conferences (Economics, Marketing, and Information Systems).

Radio Programs and Newspapers Interviews:

I have been interviewed by radio programs and newspapers.

Grants/contracts awarded:

"File Sharing Effects on the Movie Industry," Motion Picture Association of America -MPAA, $20,000, 2015

"Internet Adoption and the Survival of Print Newspapers: A Country-Level Examination," Center for the Analysis of Property Rights and Innovation, $5,000, 2015

"Online – Offline Channel Synergies: Evidence from the Video Rental Market," Center for the Analysis of Property Rights and Innovation, $10,000, 2012-2013

"How Consumption Patterns Change as Consumers Move Online: Consumer Heterogeneity and Long Tails," Center for the Analysis of Property Rights and Innovation, $10,000, 2012-2013

"Bricks, Clicks, Blockbusters, and Long Tails: How Video Rental Patterns Change as Consumers Move Online," Center for the Analysis of Property Rights and Innovation, $15,000, 2011-2012

"Measuring Substitution between Internet Usage and Television Viewing. An International Perspective," Stan Liebowitz and Alejandro Zentner, Center for the Analysis of Property Rights and Innovation, $20,000, 2010

"The Impact of File Sharing on the Movie Industry: An Empirical Analysis Using a Panel of Countries," Center for the Analysis of Property Rights and Innovation, $10,000, 2009

"Ten Years of File Sharing and its Effect on International Sales of Copyrighted Music: An Empirical Analysis Using a Panel of Countries," Center for the Analysis of Property Rights and Innovation, $10,000, 2009

"Measuring Substitution between Internet Usage and Television", Stan Liebowitz and Alejandro Zentner, Center for the Analysis of Property Rights and Innovation, $20,000, 2008

"Business Stealing and Market Expansion with Differentiated Products: Entry in the Brazilian Movie Exhibition Industry", Center for the Analysis of Property Rights and Innovation, $5,000, 2008.

"Online Sales, Music Downloads and the Decline in Music Specialty Stores" Alejandro Zentner, Center for the Analysis of Property Rights and Innovation, $10,000, 2006

Teaching:

MECO 6303, Business Economics (Full Time Cohort MBAs, Part Time MBAs, and Masters)

MECO 7313, Applied Econometrics (new Pd.D. course).

MECO 6312, Business Forecasting and Time Series Analysis

MECO 6320, Introduction to Econometrics

MECO 6312, Applied Econometrics

Economic Analysis (master), Carnegie Mellon University

Econometrics (PhD), Carnegie Mellon University

Semester	Prefix	Number	Course Name	Enrollment	Format	Syllabus Posted	Overall this instructor is excellent (0 to 5)
Fall 2015	MECO (MBA Full Time Cohorts)	6303 (MBC)	Business Economics	58	1	Y	4.91
Fall 2015	MECO (MBA-Master)	6303 (501)	Business Economics	60	1	Y	4.68
Fall 2015	MECO (MBA-Master)	6303 (001)	Business Economics	60	1	Y	4.74
Fall 2016	MECO (MBA Full Time Cohorts)	6303 (MBC)	Business Economics	50	1	Y	4.57
Fall 2016	MECO (MBA-Master)	6303 (501)	Business Economics	60	1	Y	4.76
Fall 2017	MECO (MBA Full Time Cohorts)	6303 (MBC)	Business Economics	50	1	Y	NA
Fall 2017	MECO (MBA-Master)	6303 (002)	Business Economics	60	1	Y	NA

Fall 2017	MECO (MBA-Master)	6303 (005)	Business Economics	60	1	Y	NA
Spring 2018	PhD		Applied Econometrics	NA	NA	NA	NA

Teaching Evaluations:

http://coursebook.utdallas.edu/zentner/term_15f/includeindstudy_1?

https://coursebook.utdallas.edu/zentner/term_16f?

JSOM Faculty Teaching Idol Finalist - Annual OWLIE Awards 2016

Speaker at the 2017 Full Time Cohort MBA Graduation Party (Invited by the students)

Service:

Academic Senate, Faculty Member, August 2014– present

Member of the Council of the Center for U.S. – Latin America Initiatives (CUSLAI), December 2014 – present

Faculty Associate, August 2013 – present; Center for U.S. – Latin America Initiatives (CUSLAI)

Center for U.S. – Latin America Initiatives (CUSLAI), Research Grant Applications Review Ad Hoc Committee

Research Grant Ad Hoc Committee, Center for U.S. – Latin America Initiatives (CUSLAI)

Faculty Advisor of a Student Organization – Asociación de Empresarios Mexicanos

Guest Speaker - Ram Rao's MBA class.

Guest Speaker - Sumit Sarkar's PhD class.

Guest Speaker - Indranil Bardhan's and Eric Zheng's PhD class.

Masters committee

MBA Review Sub-Committee

Ad Hoc Committees for Promotion and Tenure

2005-2006, 2009-2010, Managerial Economics Recruiting Committee

Outside Chair – Final Oral Examinations

Electronic Commerce Research and Applications (Senior Editor 2015- present)

Tenure review for promotion to the rank of Associate Professor (performed evaluation of a candidate for Singapore Management University)

MIS Quarterly (Guest Associate Editor)

Referee: American Economic Review, Berkeley Electronic, CESifo Economic Studies, Eastern Economic Journal, Economic Inquiry, Economic Journal, Economic Letters, Ensayos Económicos, HICSS, Information Economics and Policy, International Review of Law and Economics, Information Systems Research, Journal of Cultural Economics, Journal of Economic Behavior and Organization, Journal of Economics and Management Strategy, Journal of Industrial Economics, Journal of Law and Economics, Journal of Law Economics and Organization, Journal of Management Information Systems, Journal of Media Economics, Journal of Political Economy, Management Science (Information Systems and Marketing Departments), MIS Quarterly (Reviewer and Guest Associate Editor), Review of Economics and Statistics, Review of Industrial Organization, Southern Economic Journal, Strategic Management Journal

Co- chair, 2nd Annual Workshop on Analytics for Business, Consumer and Social Insights, SMU, Singapore

Organizer, American Economic Association Conference Session