Research Proposal for NBER Grant for Digitization

30 April, 2016

By Jin-Hyuk Kim (University of Colorado Boulder) and Peter Newberry (Pennsylvania State University)

Title: Investment Experience vs. Social Learning: Evidence from a Consignment Crowdfunding Platform

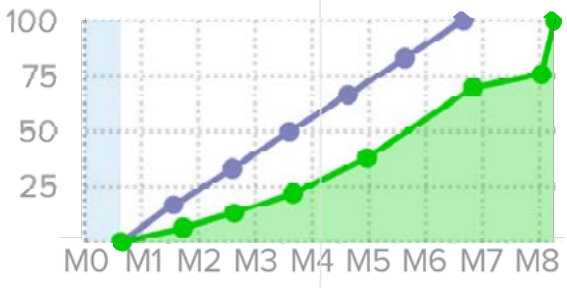
Summary:

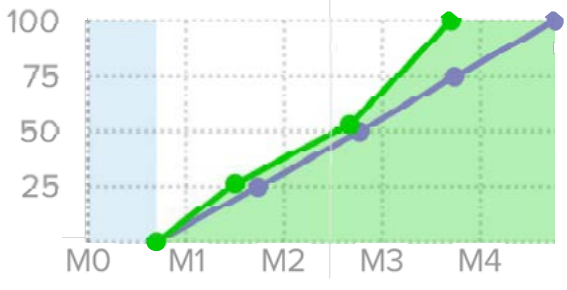
According to the Small Business Administration, there are more than 28 million small businesses in the U.S. and 384,000 new businesses were launched in 2014. However, access to capital was the biggest barrier to growth for small businesses. Although more than 50% of businesses sought $100,000 or less, firms who had an average revenue in $250,000-$500,000 range were often unsuccessful in receiving any financing. In this project, we seek to investigate behavioural mechanisms underlying an innovative crowdfunding platform called Kickfurther.com, which aims to solve this problem by using a consignment-based crowdfunding model.

The platform features small retail businesses that need financing for their *inventory*, much like Kickstarter.com does for the creative projects that need financial support. Backing an offer on Kickfurther is also similar to peer-to-peer lending (e.g., Prosper.com) where backers receive financial returns from their investment. However, Kickfurther is different from any other existing crowdfunding sites in that businesses on Kickfurther raise money specifically to help fund their inventory, and the backers earn profit off of the inventory that is sold.

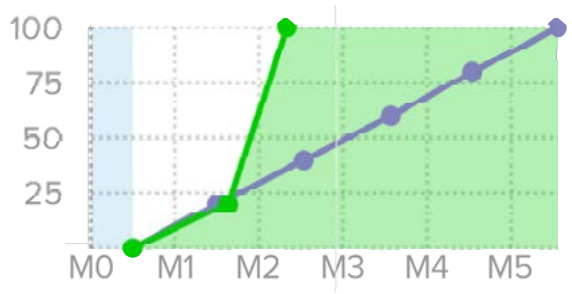
To ensure the success of the platform, Kickfurther subjects each company to a stringent screening process including a review of past sales track record and distribution agreements, and thus far over $6 million have been raised from crowdfunding (non-accredited investors). Each offer on the platform contains a detailed description of the company including the track record and the products. It also specifies return on investments over a specific timeline (e.g., production/shipping lead time and a series of inventory and payout updates).

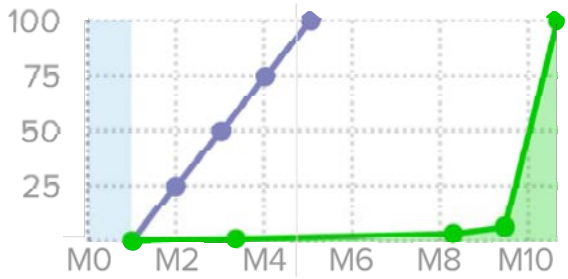
The timeline is based on historical sales volume and the payouts to the backers occur in installments. For instance, the pictures below show the estimated and actual payouts from completed offers, which are archived and easily accessible on the website. The purple (straight) line represents the expected payout schedule while the green line represents actual payments. The picture on the left shows that actual payment (hence inventory sales) was slower than expected and the picture on the right shows that actual payment (hence sales) was faster than expected.





There are certainly cases of early payments (below, left), and also late payments (below, right) in which case the backers can vote to take possession of the inventory that they own and try to sell it by themselves or have Kickfurther liquidate the inventory for them. The past payouts of businesses provide a potentially important signal to the investors given that there are quite a few repeat offers by the same business. However, the past performance does not seem to guarantee a successful completion of inventory sales in the next offer, so backers must decide by aggregating many aspects of the company.





The backing behavior on Kickfurther provides a unique opportunity to study the relative effects of investment returns and social learning in the context of small business crowdfunding. For instance, because we are able to track each individual backer over time observing the list of investments and payoffs, we can examine whether a backer's own experience in prior investments is important for the willingness to invest in the future. We can compare this to the effects of other types of information such as the company stated return on investment and the popularity (funding status) among other backers of on-going offers.

We believe the Kickfurther platform contains potentially important implications for small retail businesses. Consignment-based crowdfunding not only fills the funding gap for those who are unable to borrow from the banks, but it also helps building the brand at the same time by engaging the backer-investors. The backer's investment decision is based on his or her sense of how fast the product inventory will sell in the market (as opposed to the credit worthiness of a borrower per se), and the outcome is typically realized in just several months (unlike equity crowdfunding which is illiquid).

We have an internal access to the backer-level micro data from Kickfurther and we will build a structural model of backer's decision of whether to invest in an offer or not and how much, given the backer's and the company's priori experience on the platform. We have written a related research paper on the dynamic backer behavior using micro data from Kickstarter and investigated how providing funding status information affects the success of the campaign. None of the existing papers, to our knowledge, are able to track individual backers on a crowdfunding platform as we are able to do with these data.

With data on individual backers, we can potentially address other related questions such as how a platform's user base grows over time as the supply of offers grow on the platform. We may be able to obtain data from Kickfurther on the behavior of registered users (where currently there are a large number of registered users who have not made an investment) to address this issue. Grant funding from NBER can support additional data collection/processing as well as the two co-PI's conference travels. We will gratefully use the research funds to pursue the aforementioned issues in the future.

JIN-HYUK KIM

Department of Economics, University of Colorado, Boulder, CO 80309
Email: jinhyuk.kim@colorado.edu; Phone: (303) 492 3827

EMPLOYMENT:

Assistant Professor, Department of Economics, University of Colorado, 2011-Present
College Lecturer, Pembroke College, University of Cambridge, 2008-2011

EDUCATION:

Cornell University, Ph.D. Economics, 2008; M.A. Economics, 2007
Yonsei University, B.A. Economics and Applied Statistics, 2003

RESEARCH AND TEACHING INTERESTS:

Industrial Organization; Organizational Economics; Political Economics

PUBLICATIONS:

"Early-Stage Entrepreneurial Financing: A Signaling Perspective," (co-authored with Liad Wagman). *Journal of Banking & Finance*, 67, 2016, 12-22.

"R&D Investment, Planned Obsolescence and Network Effects," (co-authored with Jong-Hee Hahn). *Journal of Institutional and Theoretical Economics*, 171(4), 2015, 652-665.

"Screening Incentives and Privacy Protection in Financial Markets: A Theoretical and Empirical Analysis," (co-authored with Liad Wagman), *RAND Journal of Economics*, 46(1), 2015, 1-22.

"Team-Based Incentives in Problem-Solving Organizations," (co-authored with Nick Vikander), *Journal of Law, Economics, and Organization*, 31(2), 2015, 262-286.

"Portfolio Size and Information Disclosure: An Analysis of Startup Accelerators," (co-authored with Liad Wagman), *Journal of Corporate Finance*, 29, 2014, 520-534.

"Indirect Network Effects and the Quality Dimension: A Look at the Gaming Industry," (co-authored with Jeffrey Prince and Calvin Qiu), *International Journal of Industrial Organization*, 37, 2014, 99-108.

"Employee Poaching: Why It Can Be Predatory," *Managerial and Decision Economics*, 35(5), 2014, 309-317.

"A Simple Model of Copyright Levies: Implications for Harmonization," *International Tax and Public Finance*, 20(6), 2013, 992-1013.

"Determinants of Post-Congressional Lobbying Employment," *Economics of Governance* 14(2), 2013, 107-126.

"Does Competition Affect Evolutionary Dynamics? Evidence from a Collegiate University," *Applied Economics Letters* 20(8), 2013, 781-785.

"International Convergence of Copyright Production," *Review of Economics and Statistics* 93(4), 2011, 1432-1439.
"Peer Performance Evaluation: Information Aggregation Approach," *Journal of Economics & Management Strategy* 20(2), 2011, 565-587.
"Corporate Lobbying Revisited," *Business and Politics* 10(2), 2008, Article 3.
"A Welfare Simulation of Mixed-Member Electoral Systems," *Public Choice* 136(3), 2008, 447-456.
"Strategic Use of Copyright Protection to Deter Entry," *B.E. Journal of Economic Analysis & Policy* 7(1), 2007, Article 47.

WORKING PAPERS:

"Digital Rights Management and Hardware Market Power," (co-authored with Michael Waldman).
"Peer Reviewed Prior Arts Pilot Program: Some Preliminary Results," (co-authored with Benjamin Mitra-Kahn).
"Quantifying the Impacts of Digital Rights Management and E-Book Pricing on the E-Book Reader Market," (co-authored with Tin Cheuk Leung)
"Evidence for Relational Contracts in CEO Bonus Compensation," (co-authored with Jed DeVaro and Nick Vikander). R&R *Economic Journal*
"User Motivation and the Effects of Multitasking: An Analysis of an Online Q&A Forum," (co-authored with Jed DeVaro, Liad Wagman, and Ran Wolff).
"An Empirical Analysis of a Crowdfunding Platform," (co-authored with Peter Newberry and Calvin Qiu).
"The Impact of Access to Consumer Data on the Competitive Effects of Horizontal Mergers," (co-authored with Liad Wagman and Abraham Wickelgren).

AWARDS AND GRANTS:

Law and Economics Group, Korea Fair Trade Mediation Agency, Research Grant, 2015
Faculty Research and Engagement Program, Yahoo Labs, Research Scientist, 2013-2014
Center for the Analysis of Property Rights and Innovation, University of Texas, Research Grant, 2013a, 2013b
Networks, Electronic Commerce and Telecommunications Institute, New York University, Research Grant, 2008, 2013, 2015
Kwan-Jeong Foundation, Graduate Fellowship, 2003-2006
Korea Foundation for Advanced Studies, Undergraduate Fellowship, 2001-2003

TEACHING EXPERIENCE:

Microeconomic Theory 1 (Graduate), Fall 2011, Fall 2012, Fall 2013, Fall 2014, Fall 2015
Topics in Microeconomics (UG), Fall 2011, Fall 2012
Economics of Organizations (UG), Spring 2012, Spring 2013, Spring 2014, Fall 2014
Economics of Entrepreneurship (UG), Spring 2015, Fall 2015, Spring 2016

Ph.D. Dissertation Committee Member: William Ridley (in progress); Richard Peterson (in progress); Xin Zhao (completed – 2016); Yucheng Ding (completed – 2015); Unjung Whang (completed – 2014); Yongho Choi (completed – 2014); Jieun Chang (completed – 2013); Chris MaMahan (completed – 2013); Scott Hiller (completed – 2013); Maryam Kabiri (completed – 2013);

RECENT PRESENTATIONS:

2015: University of South Carolina, Columbia, SC
Law and Economics Group Symposium, Seoul, Korea
Roundtable for Privacy Fellows (George Mason Univ.)
2014: NBER Digitization Winter Workshop (Stanford Univ.)
Society of Labor Economists Annual Meeting, Washington, D.C.
NET Institute Conference (UC Berkeley)
Searle Conference on Internet Search and Innovation
Western Economic Association International Annual Meeting, Denver, CO
NBER Digitization Summer Workshop, Cambridge, MA
2013: Indiana University–Purdue University, Indianapolis, IN
Indiana University, Bloomington, IN
International Industrial Organization Conference, Boston, MA
Yonsei University, Seoul, Korea
NBER Digitization Summer Workshop, Cambridge, MA
Conference on Finance, Organizations and Markets (Univ. of Southern California)
2012: American Economic Association Annual Meeting, Chicago, IL
International Industrial Organization Conference, Arlington, VA
Western Economic Association International Annual Meeting, San Francisco, CA
Searle Research Roundtable on the Law and Economics of Digital Markets
Hong Kong Economic Association Conference, Hong Kong, China

REFEREEING EXPERIENCE:

American Journal of Political Science, American Political Research, German Economic Review, Information Economics and Policy, International Journal of Industrial Organization, Journal of Business Ethics, Journal of Economics & Management Strategy, Journal of Labor Economics, Journal of Public Procurement, Korean Economic Review, Southern Economic Journal, Cambridge University Press, National Science Foundation, Research Grants Council of Hong Kong

PETER WILLIAM NEWBERRY
Department of Economics
The Pennsylvania State University
Email: pwnewberry<at>psu.edu
Website: https://sites.google.com/site/pwnewberry
Phone: 952.237.6559

Current Position

Assistant Professor of Economics, The Pennsylvania State University, August 2012-present.

Strumpf Early Career Professor, The Pennsylvania State University, July 2014-June 2015.

Education

2012 UNIVERSITY OF WISCONSIN, MADISON
Ph.D. in Economics, May 2012

2008 UNIVERSITY OF WISCONSIN, MADISON
M.S. in Economics, December 2008

2003 COLBY COLLEGE, WATERVILLE, ME
B.A. in Economics and Mathematical Science, Honors, Magna Cum Laude, May 2003

Research Fields

Industrial Organization, Applied Microeconomics

Research Projects

Publications

"An Empirical Study of Observational Learning", *The RAND Journal of Economics*. Vol. 47, Issue 2, (2016)

"The Effect of Competition on eBay". *International Journal of Industrial Organization*. Vol. 40, (2015)

"Vettes and Lemons on eBay" (with Christopher P. Adams and Laura Hosken). *Quantitative Marketing and Economics*, Vol. 9, Number 2, (2011).

"An Analysis of Attendance at Major League Baseball Spring Training Games" (with Michael Donihue and David W. Findlay). *Journal of Sports Economics*, Vol. 8, (2007).

Working Papers

"Price Negotiations and Bargaining Costs" (with Pranav Jindal). Revise and Resubmit *Marketing Science*

"Sales Tax, E-commerce, and Amazon's Fulfillment Center Network" (with J-F Houde and Katja Seim).

"An Empirical Analysis of a Crowdfunding Platform," (with Jin-Hyuk Kim). NET Institute Working Paper No. 15-12

"The Effect of Online Reputation for Local and National Retailers," (with Xiaolu Zhou).

Work in Progress

"Within-Firm Heterogeneity in Bargaining Outcomes," (with Pranav Jindal).

"Contract Regulations and Ownership Structure in Franchising," (with Charles Murry).

"A Non-parametric Approach to Measuring Beliefs and Their Role in Extended Warranty Purchases," (with John R. Howell and Pranav Jindal).

Seminar Presentations and Conferences

2015 Seminars: Carnegie Mellon University, University of Minnesota, Rochester University, Simon School of Business, Federal Trade Commission. Presenter: International Industrial Organization Conference, Boston, MA, Barcelona GSE Summer Forum, Applied Industrial Organization Workshop, Barcelona, Spain, Penn State/Cornell Econometrics and IO Conference, Ithaca, NY, NET Institute Conference, NYU Stern, New York, NY.

2014 Presenter: International Industrial Organization Conference, Chicago, IL. Participant: NBER Summer Institute 2014, Industrial Organization, Cambridge, MA. NBER Summer Institute 2013, Economics of Information Technology and Digitization Workshop, Cambridge, MA. Quantitative Marketing and Economics Conference, University of Southern California, Los Angeles, CA.

2013 Seminar: Wharton School of Business. Presenter: International Industrial Organization Conference, Boston, MA., Econometric Society Summer Meetings, Los Angeles, CA., NBER Summer Institute 2013, Economics of Information Technology and Digitization Workshop, Cambridge, MA., Quantitative Marketing and Economics Conference, University of Chicago Booth School of Business, Chicago, IL. Participant: NBER Summer Institute 2013, Industrial Organization, Cambridge, MA.

2012 Participant: Society of Economic Dynamics Annual Conference, Limassol, Cyprus. Presenter: Midwest Economics Association Annual Meeting, Evanston, IL., International Industrial Organization Conference, Washington, DC.

2010 Seminar: Colby College Research Seminar Series, Waterville, ME.

2006 Participant: 2nd Annual Statistical Challenges in E-commerce Research, Minneapolis MN.

2005 Organizer: FTC Economics of Internet Auctions Roundtable 2005, Washington, D.C.

Teaching Experience

2012-present Instructor, The Pennsylvania State University

428 Environmental Economics (fall 2015)

444 The Economics of the Corporation (fall 2012, fall 2013, fall 2014)

543 Industrial Organization (spring 2013, spring 2014)

596 Advance Topics in Industrial Organization (spring 2015)

2007-2010 Teaching Assistant, Department of Economics, University of Wisconsin, Madison.

Other Positions

2010-2011 Project Assistant for J-F Houde, Department of Economics, University of Wisconsin, Madison.

2003-2006 Research Assistant, Bureau of Economics, Federal Trade Commission, Washington, D.C.

Referee Service

Journal of Political Economy, The RAND Journal of Economics, Journal of Industrial Economics, AEJ-Microeconomics, Journal of Law, Economics, and Organization, Journal of Economics & Management Strategy, Management Science, Information Economics and Policy, The Journal of Media Economics, Review of Industrial Organization

Graduate Supervision

Dissertation Committee Member: Rong Luo (University of Georgia, 2015), Jicheng Li (Private Sector), Huihui Li (in progress), Xaiolu Zhao (in progress), Iryna Demko (in progress, Ag Econ), Lidia Kosenkova (in progress).

Third Year Paper Committee Member: James Wei (2013), Suraj Shekhar (2013), Xaiolu Zhao (2015), Bo Bain (2015), Gunhaeng Lee (2015).

Master's Thesis Committee Member: Haerim Sun (2013), Sergio Petralia (2013), Pranav Pareek (2014).

Undergraduate Supervision

REU Supervisor: Michael Huwyler (2013).

Honors Thesis Supervisor: Michael Huwyler (2014), Alec Galanti (2015), Chelsie Rimel (2015), Michelle Pistner (2015).

Committee Work

2015 Graduate Admissions, Junior Faculty Recruitment, Academic Planning Committee

2014 Graduate Admissions, Junior Faculty Recruitment

2013 Graduate Admissions, Junior Faculty Recruitment, Policy, Evaluation, and Planning Committee

Honors and Awards

2015 The Networks, Electronic Commerce and Telecommunications ("NET") Institute Summer Grant, "The Role of Information in Crowdfunding" (with Jin-Hyuk Kim).

2014 Strumpf Early Career Professor, The Pennsylvania State University.

2011 Nominated for the College of Letters and Sciences Capstone PhD Teaching Award, University of Wisconsin, Madison.

2010 Anna Morris Ely Teaching Award, University of Wisconsin, Madison. College of Letters and Sciences Teaching Fellow, University of Wisconsin, Madison.

2003 Christian A. Johnson Award for significant contributions to the Department of Economics, Colby College.