Bite me! ABC's Shark Tank as a path to entrepreneurship

Baylee Smith[1] and Angelino Viceisza[2]

April 28, 2016

Motivation

The importance of relaxing financial and human capital constraints for entrepreneurial activity has been emphasized both theoretically and empirically (e.g. Holtz-Eakin et al., 1994; Carpenter and Petersen, 2002; Fairlie and Robb, 2007; Bates and Bradford, 2008; Clementi and Hopenhayn, 2006; Kerr et al., 2011; Chatterji and Seamans, 2012; McKenzie and Woodruff, 2014; Bernstein et al., 2015, and the references within). Tangentially, Kerr et al. (2014) stress that experimentation by firms and financiers, who may fund stages of high-risk, high-reward innovations as a means to identify "winners", is important for cultivating entrepreneurship. As business plan competitions are a likely meeting ground for the above aspects, recent research has focused on the determinants of successful pitches (e.g. Milovac and Sanchez-Burks, 2014; Wood Brooks et al., 2014) and the impact of participating/winning competitions on entrepreneurial outcomes (e.g. McKenzie, 2015; Howell, 2016).

This project will collect and analyze data from possibly, the most public, high-stakes pitch competition in the US: ABC's Shark Tank (ST, `http://abc.go.com/shows/shark-tank`). We will construct a novel dataset comprising all firms that have appeared on the show since its initial airing in fall 2009 ($N \approx 530$ as of April 2016)[3] and seek to identify the impact of an intend-to-fund (ITF) by sharks on outcomes such as existence, going public, and obtaining a patent. We are particularly interested in any differential effects across pre-characteristics (such as funding, gender, race, and industry), since those are likely to shed light on mechanisms, i.e. the types of constraints that the ITF relaxes. So, ST will serve as a case study to improve our understanding of how pitch competitions spark entrepreneurship.

Stage 1 of research project

The first stage of the project collects/analyzes a relatively wide set of pre- and post-ST characteristics from publicly available sources such as (1) show episodes, (2) the ST wikipedia page, (3) the ST blog, (4) social media such as LinkedIn, Facebook, and twitter, (5) fundraising sites such as Angellist, crunchbase, and kickstarter, (6) apps such as mattermark (for growth potential) and pretty-o-meter (for beauty ratings), and (7) state, patent, and initial public offering (IPO) registries.

To deal with anticipated endogeneity issues when estimating the impact of ITF, we seek to collect as many characteristics as possible in an attempt to control for potentially confounding factors. Furthermore, we will create "treatment" and "comparison" groups based on at least three approaches. First, we will match on a wide range of pre- and post-ST characteristics (e.g. Abadie and Imbens, 2006). Second, we will document every step of the aired bargaining process in an attempt to identify a comparison group consisting of so-called "near ITFs" (entrepreneurs/firms who almost got a final ITF). Third, such bargaining process will also enable us to apply a fuzzy regression-discontinuity-like approach (e.g. Thistlethwaite and Campbell, 1960; Lee and Lemieux, 2010). The discontinuity will be based on the total number of ITF offers and/or sharks who give rise to such offers. While ST does not have a minimum cut-off for such variables (hence our use of the term "RD-like"), preliminary analysis suggests that the likelihood of an ITF increases by 11 percentage points ($p < 0.05$ for one-sided t-test) between 2 and 3 total offers and by 13 percentage points ($p < 0.05$ for two-sided t-test) between 1 and 2 sharks. The analysis also suggests that entrepreneurs/firms are comparable across pre- and post-ST characteristics around such cut-offs, suggesting that ITF may be "as good as random" for identifying impacts. To some extent, this third approach will resemble Kerr et al. (2011) and Ozier (2015).

The first stage of the project is quite far along in that we have a nearly complete database for the firms that have appeared on the show through April 2016. We have also run some preliminary analysis. What is pending is a complete execution of the above identification strategies and robustness checks.

[1]Senior Economics Major, Spelman College.

[2]Assistant Professor, Economics, Spelman; Visiting Duke Economics, 2015-16; aviceisz@spelman.edu.

[3]Thus far, our requests to obtain internal ST data have been denied.

Stage 2 of research project

The second stage of the project will collect/analyze additional data that are not publicly available. Specifically, pending Institutional Review Board approval, we plan to contact the entrepreneurs/firms who have appeared on the show to date to collect data on (1) the current status of the project/firm/prototype that was aired on ST (this will serve as a check for our existence variable), (2) financials (pre- and post-ST, as possible), (3) the ST trajectory (e.g. when they pitched versus aired, the different stages they went through prior to airing, and what was edited out of the show), (4) for those who got an ITF, the main constraints that have been relaxed, (5) behavioral measures of risk, time, and personality traits, and (6) names and/or contact information of any contestants they may remember or be in touch with. The latter will potentially serve as a sampling frame for contacting "near-contestants", i.e. people who auditioned for ST, but did not make it on an aired episode. We will aim to have a survey of 10-15 minutes, which will be completed by the respondent online, as questions are asked/explained by an enumerator over the phone.

According to ABC, ST has been renewed for another season. So, this second stage will also collect data for firms that air on the next season. Apart from adding these new observations, we also anticipate updating existing variables and adding new variables to the database, particularly as seminar participants suggest additional aspects for consideration.

Request for funding and budget

This proposal requests funding for the following items for a total of **$20,000**:

1. **Payments for participation in the phone/online survey.** In an attempt to increase survey response rates, we believe it is important to keep the survey as brief as possible and reward every participant for her/his response, as opposed to a lottery-based payment procedure. As ST is still ongoing, it is expected that the sample will grow to 560 firms during the 2016-17 season. Assuming a response rate of 50%-75% and a payment of $25 per survey (which is equivalent to an hourly rate of $100-$150), we expect to pay **$7,000-$10,500** to survey participants. Unused funds from this "line item" will be diverted to the following two and/or to secure alternative sources of data, for example by attending future casting calls and collecting basic (in particular, observable) characteristics on the typical entrepreneurs who audition at first go.

2. **Research support.** We will need two types of research support. As Baylee Smith is graduating and will no longer be able to update the database referenced in Stage 1, we may need to pay a student to do so. In addition, a student will need to program and field the surveys as well as clean the data. Assuming a rate of $12/hour and a monthly time allocation of 25 hours for the duration of twelve months, **$3600** will be used for research support.

3. **Travel for dissemination.** The remaining funds will be used to travel to related events. First, Viceisza will travel to the 2016 NBER Summer Institute in Boston. Transportation, food, and accommodation for 3 weeks (using Airbnb) are estimated at $800, $1050, and $2,100 respectively for a total of **$3,950**. Second, Viceisza will travel to the 2016 National Conference on Business Development in Underserved Communities organized by University of Washington's Foster School of Business prior to participating in a Kauffman Foundation workshop around the Academy of Management meetings in Anaheim. One night's hotel estimated at $250 and ground transportation estimated at $100 are not covered by other sources, for a total of **$350**. Third, Viceisza will travel to the 2017 ASSA meetings in Chicago, where he plans to present as part of the National Economic Association. He is also proposing/organizing (and submitting this project as part of) a panel on the impacts of pitch competitions and early-stage financing together with Dan Fehder (MIT), Yael Hockberg (Rice), Sabrina Howell (NYU), Alicia Robb (Kauffman, Berkeley, and UC Boulder), and Sandy Yu (Berkeley). Transportation, food, and accommodation for four nights are estimated at $600, $200, and $800 for a total of **$1,600**.

References

Abadie, A. and G. W. Imbens (2006). Large sample properties of matching estimators for average treatment effects. *Econometrica 74*(1), 235–267.

Bates, T. and W. D. Bradford (2008). Venture-capital investment in minority business. *Journal of Money, Credit and Banking 40*(2-3), 489–504.

Bernstein, S., A. Korteweg, and K. Laws (2015). Attracting early stage investors: Evidence from a randomized field experiment. *Journal of Finance*.

Carpenter, R. E. and B. C. Petersen (2002). Is the growth of small firms constrained by internal finance? *Review of Economics and Statistics 84*, 298–309.

Chatterji, A. K. and R. C. Seamans (2012). Entrepreneurial finance, credit cards, and race. *Journal of Financial Economics 106*(1), 182 – 195.

Clementi, G. L. and H. A. Hopenhayn (2006). A theory of financing constraints and firm dynamics. *The Quarterly Journal of Economics 121*(1), 229–265.

Fairlie, R. W. and A. M. Robb (2007). Why are black-owned businesses less successful than white-owned businesses? The role of families, inheritances, and business human capital. *Journal of Labor Economics 25*(2), 289–323.

Holtz-Eakin, D., D. Joulfaian, and H. S. Rosen (1994). Sticking it out: Entrepreneurial survival and liquidity constraints. *Journal of Political Economy 102*(1), 53–75.

Howell, S. (2016). Very early venture finance: An evaluation of pitch competitions. Working paper, New York University.

Kerr, W. R., J. Lerner, and A. Schoar (2011). The consequences of entrepreneurial finance: Evidence from angel financings. *Review of Financial Studies*.

Kerr, W. R., R. Nanda, and M. Rhodes-Kropf (2014). Entrepreneurship as experimentation. *Journal of Economic Perspectives 28*(3), 25–48.

Lee, D. S. and T. Lemieux (2010). Regression discontinuity designs in economics. *Journal of Economic Literature 48*(2), 281–355.

McKenzie, D. (2015). Identifying and spurring high-growth entrepreneurship: Experimental evidence from a business plan competition. BREAD Working Paper 462.

McKenzie, D. and C. Woodruff (2014). What are we learning from business training and entrepreneurship evaluations around the developing world? *The World Bank Research Observer 29*(1), 48–82.

Milovac, M. and J. Sanchez-Burks (2014). Positivity makes for poor pitches: Affective tone conveyed by entrepreneurs shapes support for creative ideas. *Academy of Management Proceedings 2014*(1).

Ozier, O. (2015). The impact of secondary schooling in Kenya: a regression discontinuity analysis. Policy Research Working Paper WPS 7384, Washington, D.C. : World Bank Group.

Thistlethwaite, D. L. and D. T. Campbell (1960). Regression-discontinuity analysis: An alternative to the ex post facto experiment. *Journal of Educational Psychology 51*(6), 309–317.

Wood Brooks, A., L. Huang, S. W. Kearney, and F. E. Murray (2014). Investors prefer entrepreneurial ventures pitched by attractive men. *Proceedings of the National Academy of Sciences 111*, 4427–4431.

Angelino C. G. Viceisza

April 28, 2016

350 Spelman Lane SW
Giles 402 [if mailing: Box 167]
Atlanta, GA 30314
P: +1 404 270 6055 [F: x6049]

E: aviceisz@spelman.edu
t: @aviceisza
Skype: angelino.viceisza
http://sites.google.com/site/viceisza/

Appointments

Assistant Professor, Department of Economics, Spelman College, 2012-
Visiting Assistant Professor, Department of Economics, Duke University, 2015-16
Research & Post-Doctoral Fellow, Markets, Trade and Institutions Division, IFPRI, 2007-12
Experimentalist, IFPRI Mobile Experimental Economics Laboratory, 2007-12

Affiliations

Affiliated Researcher, Markets, Trade and Institutions Division, IFPRI, 2012-
Fellow, CEAR, Georgia State University (GSU), 2012-
Counterpart, RTG GlobalFood, University of Göttingen, 2011-
Affiliated Researcher, E*x*CEN, GSU, 2007-

Education

Ph.D., Economics, GSU, Atlanta GA, 2003-08
M.A., Economics (Policy), GSU, Atlanta GA, 2003-05
M.A., Economics, Boston University, Boston MA, 2002-04
M.B.A., International Business, Temple University, Philadelphia PA, 2000-01
B.S., Accounting, University of the Netherlands Antilles, Curaçao, 1997-2001

Fields of Interest

Experimental, behavioral, development & agricultural economics, applied game theory
Management, entrepreneurship, innovation

Journal Publications

Potential collusion and trust: Evidence from a field experiment in Vietnam (with Máximo Torero), *African Journal of Agricultural and Resource Economics*, forthcoming, 2016

Three risk-elicitation methods in the field: Evidence from rural Senegal (with Gary Charness), *Review of Behavioral Economics*, forthcoming, 2015

Creating a Lab in the Field: Economics Experiments for Policymaking, *Journal of Economic Surveys*, forthcoming, 2015

To remit, or not to remit: that is the question. A remittance field experiment (with Máximo Torero), *Journal of Economic Behavior and Organization*, 112, 2015, 221–236

Lost in the mail: A field experiment on crime (with Marco Castillo, Ragan A. Petrie and Máximo Torero), *Economic Inquiry*, 52 (1), 2014, 285–303

Contract farming and smallholder incentives to produce high quality: Experimental evidence from the Vietnamese dairy sector (with Christoph Saenger, Matin Qaim and Máximo Torero), *Agricultural Economics*, 44 (3), 2013, 297–308

Breaking the norm: An empirical investigation into the unraveling of good behavior (with Ruth Vargas Hill and Eduardo Maruyama), *Journal of Development Economics*, 99 (1), 2012, 150–162

A field experiment on the impact of weather shocks and insurance on risky investment (with Ruth Vargas Hill), *Experimental Economics*, 15 (2), 2012, 341–371

Other Publications

Treating the field as a lab: A basic guide to conducting economics experiments for policymaking, Food Security in Practice Technical Guide 7, Washington, DC: IFPRI, 2012

Working Papers

Building trust in rural producer organizations: results from a randomized controlled trial (with Tanguy Bernard, Markus Frölich, Andreas Landmann, Pia Naima Unte and Fleur Wouterse), April 2016

Communication and coordination: Experimental evidence from farmer groups in Senegal (with Kodjo Aflagah and Tanguy Bernard), June 2015

Leaders needed: Experimental evidence from rural producer organizations in Senegal (with Tanguy Bernard, Ligane Sène and Fleur Wouterse), November 2014

Work in Progress

Intentions to coordinate in the field (with Kodjo Aflagah and Tanguy Bernard)

Competition and prosociality: A field experiment in Ghana (with Kerstin Grosch and Marcela Ibañez)

Bite me! ABC's Shark Tank as a path to entrepreneurship (with Baylee Smith)

Portfolios of the Atlanta Poor (with Glenn Harrison, Elisabet Rutström and Stephen Shore)

Metacognitive Awareness and Academic Performance (with colleagues from Spelman)

Child influence in the household: A randomized health information intervention in Perú (with Eduardo Maruyama and Máximo Torero)

Teaching (scores out of 5)

2016-17: Mgt, Game Theory, Finance
2014-15: Macro (4.72), Mgt (4.79, 4.89), Finance (4.73), Game Theory (4.99), E-ship (4.97)
2013-14: Micro (4.60), Mgt (4.62, 4.84), Finance (4.57), Game Theory (4.53)
2012-13: Macro (4.68), Micro (4.55), Mgt (4.77), Finance (4.04)
2005-07: Micro (Ph.D., BA; TA; 4.20), Statistics (Ph.D.; TA; 4.50)

Organized Research Conferences

Experimental methods in policy (with Uri Gneezy, UCSD), Curaçao, February 15-18, 2014. With financial support from The World Bank's 2015 World Development Report on Human Behavior, Spelman, the Curaçao Tourism Board, SOAB, and anonymous donors. Conference website available at `https://sites.google.com/site/viceisza/curacao-conference`.

Invited Research Presentations

AAEA (Boston, Aug16), Kauffman Minority E-ship (San Francisco, Jan16), Vanderbilt (Econ, Nov15), John van Huyck Workshop (Dallas, Oct15), Göttingen (AgEcon, Oct15 & Dec14), SEA (Atlanta, Nov14), ASHE & Americas Center Hispanic Econ Issues (Atlanta Fed, Nov14), GlobalFood Symposium (Göttingen, Apr14), Duke (Advanced Hindsight & Econ, Apr14), SIEDW (Atlanta Fed, Dec13), IFPRI (Nov13), UGA (AgEcon, Oct12), Spelman (Apr12), Remittances & Immigration (Atlanta Fed, Nov10), IFPRI (Feb07)

Invited Lectures, Panels, and Workshops

Göttingen (Econ, Nov15), Vanderbilt EDGE (Nov15), Leadership Alliance (LA; Stamford, Jul15), UW Foster-JPMorgan Business Development (New York, Jun15), LA-Mellon Initiative (Dartmouth College, Apr15), GA Tech-USC CIBER (Atlanta, Mar15), UNCF HBCU ICE (Stanford, Nov14), Vanderbilt EDGE (Oct14), LA (Stamford, Jul14), NSF HBCU-UP (Baltimore, Jun14), FRN (NYU, Jun14, declined), AGRODEP (Dakar, May14), DITE (Duke, Feb14 & Jun13), LA (Howard, Oct13 & Chicago, Apr13), UCSD-NHH Spring School (San Diego, Mar13), IFPRI-IFAD Impact Evaluation Course (Maputo, May12), IFPRI-IFAD (Maputo, Aug11), Hohenheim (Nov08), US DOD Compensation Workshop (Gamboa, Jul08), Avian Flu Management Unit (Jakarta, Jul08), IFPRI (Feb08), Avian Flu Workshop (Chiang Mai, Dec07)

Other Research Presentations

Duke (Econ, Apr16), Duke (Political Science and I&E, Mar16), Experimental methods in policy 3 (Ixtapa, Feb16), Duke (Econ, Feb16), ASSA/NEA (San Francisco, Jan16), ESA (Dallas, Oct15), AUC Woodruff Library (Atlanta, Mar15), Experimental methods in policy 2 (Cancún, Feb15), ASSA/NEA (Boston, Jan15), Morehouse (Nov13), ESA (Santa Cruz, Oct13), Spelman (Apr13), SIEDW (Atlanta Fed, Dec12), ESA (Tucson, Nov12), FUR (Atlanta, Jul12), ESA (New York, Jun12), First Caribbean Game Theory Conference (Curaçao, Jan12), ESA (Tucson, Nov11), Econometric Society (St. Louis, Jun11), 8th IZA Annual Migration Meeting (DC, May11), Royal Economic Society (London, Apr11), IFPRI (Mar11), SEA (Atlanta, Nov10), FUR (Newcastle, Jun10), GSU (ExCEN, Sep09), ESA (Washington, DC, Jun09), GRADE (Lima, Jun08), ESA (Tucson, Oct07), LACEA-LAMES (Bogotá, Oct07), Public Choice Society (Amsterdam, Mar07), Atlanta Fed (Feb07), GSU (Econ, Jan07)

Significant Grants, Fellowships, and Awards

Kauffman Foundation, Workshop: Seeking New Insights and Potential Sources of New Entrepreneurial Growth: Minority Entrepreneurship, 2016-17

US Department of Education Grant, Project: Metacognitive Awareness and Academic Performance Among Female African-American Undergraduate Students (co-PI), 2015-19 ($2.7 million)

Visiting Scholar, Federal Reserve Bank of Boston, American Economic Association CSWEP Fellows Program, Summer 2014

Vulcan Award for Excellence in Teaching, Spelman College, 2014

Fellow, Cohort 6 of DITE – a program supported by the Research Network on Racial and Ethnic Inequality, Duke Economics and the National Science Foundation, 2013-16

BMZ Grant, Project: Working together for market access: strengthening rural producer organizations in Sub-Saharan Africa (with researchers from IFPRI, IZA and University of Hohenheim), 2009-12 (1.2 million euros)

USAID Grant, Project: The behavioral and welfare impact of group based insurance provision in Ethiopia (with researchers from IFPRI), 2008-09 ($75,000)

Referee Experience

Agricultural Economics (2x), American Economic Review, American Journal of Agricultural Economics (4x), Applied Economic Perspectives and Policy (2x), Economic Development and Cultural Change, Food Policy (3x), German Economic Review, International Migration Review, Journal of African Development, Journal of Agricultural Economics, Journal of Behavioral and Experimental Economics, Journal of Development Economics, Journal of Economic Behavior and Organization, Journal of Economic Psychology.

Grant Programs: AGRODEP, IFPRI Pakistan Strategy Support Program, National Science Foundation, Netherlands Scientific Organization

Administrative and Advising Duties

Title IX Faculty Advisory Committee on Sexual Assault Prevention & Response (2016-), Faculty Welfare Committee (2014-), LGBTQ Faculty Curriculum Committee (2014-), Social Justice Fellowship Program (2013-), Enactus (2012-), Presidential Awards Committee (2015), Small Business Administration Millennial Trep Day at the AUC (2/27/2015), Economics Club (2014-15), IFPRI Search Committee (MTID, PHND & EPTD, 2009-12), IFPRI Workplace Committee (2009-11)

Professional Associations

Academy of Management, AEA, Econometric Society, ESA

Field Experience

Ethiopia, Moçambique, Senegal; Indonesia, Japan, Vietnam; Curaçao, the Dutch Caribbean; El Salvador, Honduras, Perú; Netherlands, France; USA

Language Skills

Fluent in English, Spanish, Dutch, Papiamentu; competent in French

References

Available upon request