

**Online Appendix to “Reducing Information Frictions in  
Venture Capital: The Role of New Venture Competitions”**

**Sabrina T. Howell**

**Table A.1**  
**Competitions**

This table lists the programs whose competitions are used in this paper.

---

*Panel A*

Competition name	City	State	Years	# unique ventures	# unique judges	# rounds per comp.
Arizona Innovation Challenge Fall	Phoenix	AZ	2012-2015	489	90	2
Arizona Innovation Challenge Spring	Phoenix	AZ	2012-2015	610	87	2
Angel Capital Summit	Denver	CO	2014-15	195	55	1
BRF Entrepreneur Accelerator Program (EAP)	Shreveport	LA	2014	22	4	1
CU CleanTech New Venture Challenge	Boulder	CO	2012-13	27	35	1
Clean Energy Challenge	Chicago	IL	2013	50	55	2
Cleantech Open: California	Redwood City	CA	2009-14	231	163	2
Cleantech Open: North Central	Minneapolis	MN	2010-13	109	103	2
Cleantech Open: Northeast	Boston	MA	2009-13	233	137	2
Cleantech Open: Pacific Northwest	Portland	OR	2009-13	62	38	2
Cleantech Open: Rocky Mountain	Denver	CO	2009-13	133	61	2
Cleantech Open: South Central	Austin	TX	2011-13	11	12	2
Cleantech Open: Southeast	Atlanta	GA	2011-13	24	37	2
Colorado Capital Conference 2013	Denver	CO	2013	52	23	2
Colorado Digital Health Challenge	Denver	CO	2014	33	46	2
DOE Cleantech Business Plan Competition	Washington	D.C.	2013	6	5	2
Energize 2013	Snowbird	UT	2013	22	12	1
Energy Security Prize, EIA Track	Washington	D.C.	2013	16	18	2
Harvard Business School New Venture Competition	Boston	MA	1999-2015	817	563	2 <sup>‡</sup>

---

Panel 2

Competition name	City	State	Years	# unique ventures	# unique judges	# rounds per comp.
Illinois Clean Energy Student Challenge	Chicago	IL	2013	26	9	1
Imagine H2O Infrastructure Challenge	San Francisco	CA	2013-15	160	31	3
Innosphere Admissions	Fort Collins	CO	2013-15	32	46	1
MIT Clean Energy Prize	Cambridge	MA	2013-15	156	80	2-3 <sup>^</sup>
Missouri Clean Energy Student Challenge	St. Louis	MO	2013	14	9	1
OEDIT Advanced Industries Accelerator	Denver	CO	2015	36	7	1
Energy and Natural Resources						
Ohio Clean Energy Student Challenge	Cleveland	OH	2012-13	12	8	1
TransTech Energy Conference 2012	Morgantown	WV	2012	20	25	1
Massachusetts Clean Energy Center Catalyst Grant Program	Boston	MA	2012-15	250	134	2
Rice University Business Plan Competition	Houston	TX	2004-2015	480	694	3 <sup>†</sup>

Notes: <sup>‡</sup>First round done in panels of 4-8 ventures and 5-15 judges per panel, varies somewhat year to year (note: there is small finals for top three teams, all of which win a cash prize. Do not have data for this final round) <sup>†</sup>First round, challenge round, and semifinal rounds all "tracked" into panels (what RBPC calls "flights"). First round tracked by sector, then firms randomized across panels. non-winners of first round go on to "Challenge" round. There is also pre-competition business plan stage. <sup>^</sup>Depends on year.

**Table A.2**

## University and MBA rankings

This table describes the university rankings used in analysis.

---

<i>Top Twenty US Universities</i>		<i>Top Ten MBA Programs</i>	
Rank	Name	Rank	Name
1	PRINCETON	1	HARVARD
2	HARVARD	2	STANFORD
3	YALE	3	CHICAGO
4	COLUMBIA	4	UPENN
5	STANFORD	5	MIT
6	CHICAGO	6	NORTHWESTERN
7	MIT	7	UC BERKELEY
8	DUKE	8	DARTMOUTH
9	UPENN	9	YALE
10	CALTECH	10	COLUMBIA
11	JOHNS HOPKINS		
12	DARTMOUTH		
13	NORTHWESTERN		
14	BROWN		
15	CORNELL		
16	VANDERBILT		
17	WASH ST LOUIS		
18	RICE		
19	NOTRE DAME		
20	UC BERKELEY		

---

*Note:* Source: US News & World Report 2016 Rankings.

**Table A.3****Sector and judge data**

This table lists the number of ventures by technology type and the number of judges by profession.

<i>Panel A: Sectors</i>			<i>Panel B: Judge Professions</i>	
	Sectors <sup>‡</sup>			# unique judges
	Ventures	Judges		
			All	2,514
Air/water/waste/agriculture	146	31	Venture Capital Investor	676
Biotech	182	64	Elite VC <sup>†</sup> (by IRR/Multiple)	21
Clean tech/renewable energy	712	273	Angel Investor*	397
Defense/security	64	66	Mean (med) AngelList investments	12.8 (8)
Education	37	118	Professor/Scientist	44
Energy (fossil)	61	373	Business Development/Sales	83
Fintech/financial	53	522	Corporate Executive	498
Food/beverage	88	24	Founder/Entrepreneur	240
Health (ex biotech)	270	291	Lawyer/Consultant/Accountant	369
IT/web	1,404	586	Non-Profit/Foundation/Government	164
Manuf./materials/electronics	323	96	Other	193
Media/ads/entertainment	57	157		
Real estate	61	82	# judge-venture pairs in which judge	
Retail/consumer goods	139	159	personally invested in venture	3
Social enterprise	42	42	# judge-venture pairs in which	
Transportation	136	51	judge's firm invested in venture	95
			Total # judge-venture score pairs	47,066
			# judge-venture pairs in same sector	8,139

*Note:*<sup>†</sup>Preqin top 20 VC firm by either IRR or Multiple, as of 2016. \*Identifies as angel investor in competition data, or has AngelList profile and at least one investment (160 judges). <sup>‡</sup>Venture sectors from competition data; each venture assigned to one sector. Judge sectors based on LinkedIn profile or firm webpage; judges may have expertise in multiple sectors.

**Table A.4****Company & Competition States**

This table lists the number of competitions and unique ventures by state. Companies that changed states are assigned their earliest state.

State	# competitions in state	# ventures located in state	State	# competitions in state	# ventures located in state
Arizona	8	665	Idaho		9
California	7	298	Kentucky		13
Massachusetts	34	1,146	Michigan		24
Colorado	16	250	Rhode Island		9
New York		85	Arkansas		14
Minnesota	2	46	North Carolina		14
Utah	3	48	Montana		7
Washington		40	Florida		16
Illinois		62	Hawaii		6
Nevada		28	Indiana		21
Texas	14	70	Missouri	1	19
Oregon	3	21	South Carolina		4
Wisconsin		28	Vermont		4
Connecticut		20	DC		4
Iowa		17	Kansas		9
Maryland		23	Alaska		2
Maine		8	Tennessee		10
New Jersey		14	New Hampshire		5
Ohio	2	28	South Dakota		3
Pennsylvania		26	Delaware		3
Virginia		20	Wyoming		5
North Dakota		7	Louisiana		13
New Mexico		10	West Virginia	1	2
Georgia		18	Mississippi		1
Oklahoma		4	Foreign		26

**Table A.5**

## Unconditional association between characteristics and success

This table contains the unconditional association of characteristics and success.

Dependent variable:	Financing after round		$\geq 10$ employees as of 8/2016	
	(1)	(2)	(3)	(4)
Founder student at round	-0.023 (0.047)	0.016 (0.028)	0.029 (0.042)	0.043 (0.028)
Founder top 10 college	0.061* (0.035)	0.051*** (0.018)	0.035 (0.037)	0.032 (0.022)
Founder has MBA	-0.052 (0.034)	-0.0095 (0.017)	-0.061 (0.038)	-0.054*** (0.018)
Founder top 10 MBA	-0.034 (0.041)	-0.029 (0.021)	0.042 (0.046)	0.028 (0.023)
Venture age > median	-0.023 (0.028)		0.0091 (0.025)	
Venture in VC hub state	0.093** (0.038)	0.088*** (0.018)	0.057* (0.034)	0.09*** (0.019)
Financing before round	0.088** (0.038)	0.19*** (0.028)	0.15*** (0.036)	0.16*** (0.023)
Venture incorp. at round	-0.0049 (0.036)	0.021 (0.018)	0.033 (0.032)	0.07*** (0.017)
Founder # jobs before round	0.029*** (0.0056)	0.014*** (0.0027)	0.023*** (0.0059)	0.0091*** (0.0026)
Founder age > median	-0.02 (0.029)		-0.063** (0.031)	
Venture social/ clean tech	-0.14*** (0.039)	-0.13*** (0.015)	-0.024 (0.047)	-0.044** (0.017)
Venture Internet/software	0.14*** (0.039)	0.12*** (0.021)	0.068* (0.038)	0.074*** (0.021)
Venture # team members	0.03** (0.014)	0.0087 (0.0063)	0.035*** (0.01)	0.017*** (0.0058)
N	1,184	3,346	1,184	3,346
$R^2$	0.072	0.1	0.06	0.061

*Note:* This table contains the unconditional association of characteristics and success, using the OLS regression:  $Y_i^{Post} = \alpha + \beta' \mathbf{C}_i + \varepsilon_{i,j}$  where  $\mathbf{C}$  is a vector of characteristics. Standard errors clustered by competition-round. Columns 2 and 4 have a much larger sample because they omit venture and founder age, which are not available for many ventures.

**Table A.6****Representativeness of Sample**

This table compares the frequency of ventures in this sample with US VC deals from the National Venture Capital Association's 2016 Yearbook.

---

*Panel A: Venture sectors*

	% ventures in data	% US VC deals	% US VC deal amt
Air/water/waste/agriculture	3.9%		
Biotech	4.8%	10.8%	12.9%
Clean tech/renewable energy	18.9%	3.3%	2.0%
Defense/security	1.7%		
Education	1.0%		
Energy (fossil)	1.6%		
Fintech/financial	1.4%	1.9%	5.4%
Food/beverage	2.3%		
Health (ex biotech)	7.2%	8.8%	6.1%
IT/software/web	37.2%	40.4%	39.8%
Manuf./materials/electronics	8.6%	7.4%	6.0%
Media/ads/entertainment	1.5%	9.6%	8.0%
Real estate	1.6%		
Retail/apparel/consumer goods	3.7%	6.8%	9.9%
Social enterprise	1.1%		
Transportation	3.6%		

---



---

*Panel B: Venture states (top 20 states in data)*

	% ventures in data	% US VC deals	% US VC deal amt
Massachusetts	35.5%	9.7%	9.6%
Arizona	20.6%	0.6%	0.2%
California	9.2%	40.6%	57.3%
Colorado	7.8%	2.0%	1.3%
New York	2.6%	10.6%	10.6%
Texas	2.2%	3.7%	2.0%
Illinois	1.9%	2.2%	1.9%
Utah	1.5%	1.3%	1.2%
Minnesota	1.4%	0.7%	0.6%
Washington	1.2%	2.6%	2.0%
Nevada	0.9%	0.1%	0.0%
Wisconsin	0.9%	0.5%	0.2%
Ohio	0.9%	1.6%	0.4%
Pennsylvania	0.8%	4.6%	1.1%
Michigan	0.7%	0.1%	0.6%
Maryland	0.7%	1.6%	1.5%
Oregon	0.7%	1.0%	0.4%
Indiana	0.7%	0.4%	0.1%
Connecticut	0.6%	1.3%	0.8%
Virginia	0.6%	1.7%	0.7%

---

---

*Note:* This table compares the frequency of ventures in this sample with US VC deals from the National Venture Capital Association's 2016 Yearbook.

**Table A.7**  
**Effect of winning preliminary round on types of acquisitions**  
 This table shows regression estimates of Eq. 1.

Dependent variable:	Acquisition that is...		
	Low value	High value	Very high value
	(1)	(2)	(3)
Won round	0.015** (0.0077)	0.011 (0.0099)	0.000046 (0.0012)
Decile rank winners	-0.00092 (0.0012)	-0.0022 (0.0015)	0.00032 (0.00032)
Decile rank losers	0.0011 (0.00073)	-0.002** (0.00082)	0.00019 (0.00025)
Comp.-round- panel f.e.	Y	Y	Y
N	4,406	4,406	4,406
$R^2$	0.081	0.1	0.081

*Note:* The dependent variables are indicators for whether the venture was acquired, and that transaction had a certain value. In column 1, the dependent variable is 1 if the transaction amount was less than \$10 million or where no amount was made available. In column 2 the dependent variable is 1 if the transaction amount was above \$10 million. In column 3 the dependent variable is 1 if the transaction amount was above \$200 million. The level of observation is a venture-round. Some rounds divide ventures into panels. Rank is defined as in Table 3. Competition fixed effects control for the date. Errors clustered by competition-round-panel. \*\*\* indicates p-value<.01.