Does Crowdfunding Reduce Regional Advantages?

Shiri M. Breznitz, University of Toronto
Douglas S. Noonan, Indiana University-Purdue University Indianapolis

Theme 3 - Diffusion of ICT across Economic Sectors

Crowdfunding projects on Kickstarter by project locations -- Digital Media/Local categories and compare this with more traditional funding.

Acknowledgement

- Funding for the project - *Creating Digital Opportunity: Canada's ICT Industry in Global Perspective*. SSHRC Partnership Grant.
- Kickstarter data from the **Economics Finance and Innovation (EFI) group of Politecnico di Milano.**

Geography of Finance

- 21st century – expect finance not to cluster (O'Brian 1992).
- Mainstream finance industry still highly clustered (Klagge and Martin 2005, Garretson et al 2009, Mason and Harrison 2002).
- Geographers maintain the importance of space – about networks and institutional actors (Martin 1999, Giddens 2013).

Why Crowdfunding

- Are digital funding platforms flattening the world for early stage funding?
- You can start a project anywhere.
- You can succeed (get funded) anywhere in the world.

Crowdfunding

Five distinct business models:

- 1. Donation Models
- 2. Reward Model
- 3. Pre-purchase Model
- 4. Peer-to-Peer
- 5. Equity Model

***Three stakeholders: the project initiator, the backers and the crowdfunding platform (Gierczak et al 2016).

Crowdfunding

Five distinct business models:

- 1. Donation Models
- 2. Reward Model Kickstarter
- 3. Pre-purchase Model
- 4. Peer-to-Peer
- 5. Equity Model

***Three stakeholders: the project initiator, the backers and the crowdfunding platform (Gierczak et al 2016).

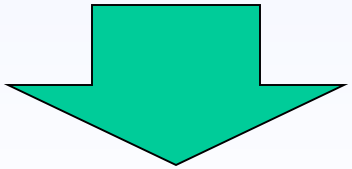
Crowdfunding – Spikey or Flat?

- Limited research on the geography of crowdfunding (Mollick 2014, Gray and Zhang 2017).

- Still clustering, especially high tech products (Mollick 2014).

Geography Matters for Backers

- Agrawal et al 2011 – close friends and family (local) invest early.
- Mendes-Da-Silva et al 2016 – Backers locate within 50k of projects.
- Burtch et al (2014) – Need for geographically and culturally proximate individuals.



Why even with digital funding do we still find geographical clustering?

Hypothesis 1 - Clustering

- Culture and creativity - Mollick (2014), Cha (2017).
- Population, population density, and income is important - Agrawal et al. (2013).
- Correlation between support from the NEA and crowd-based funding for arts projects + between VC and crowd-based high-technology projects - Sorenson (2016), Mollick and Robb (2016).

Crowdfunding activity spatially clusters, and activity for different types of projects clusters differently

Hypothesis 2 - Decentralization

- Crowdfunded cluster is the same east-west pattern of traditional sources of finance but significantly ‘flatter’ - Mollick and Robb (2016), Sorenson et al. (2016).
- Rurally-based social ventures are more likely to use crowdfunding - Bernardino et al. (2016).

Crowdfunding activity conditional on local and regional economic indicators decentralizes.

Method

- Crowdfunding database – reward based.
- USA and Canada.
- City-level approach.
- Quantitative analysis.
- GIS analysis.
- Digital Media industry.
  - Contrast with local (e.g. food truck/community garden).

Data

- Kickstarter data -
  - USA and Canada kickstarter projects.
  - 2009-2014.
  - 45,000 cities.
  - 3500 counties.

Clustering?

- Kickstarter projects by any of the categories are clustered.
- P values are higher for Total number of projects.
- Successful projects and # of buckers show stronger clustering.

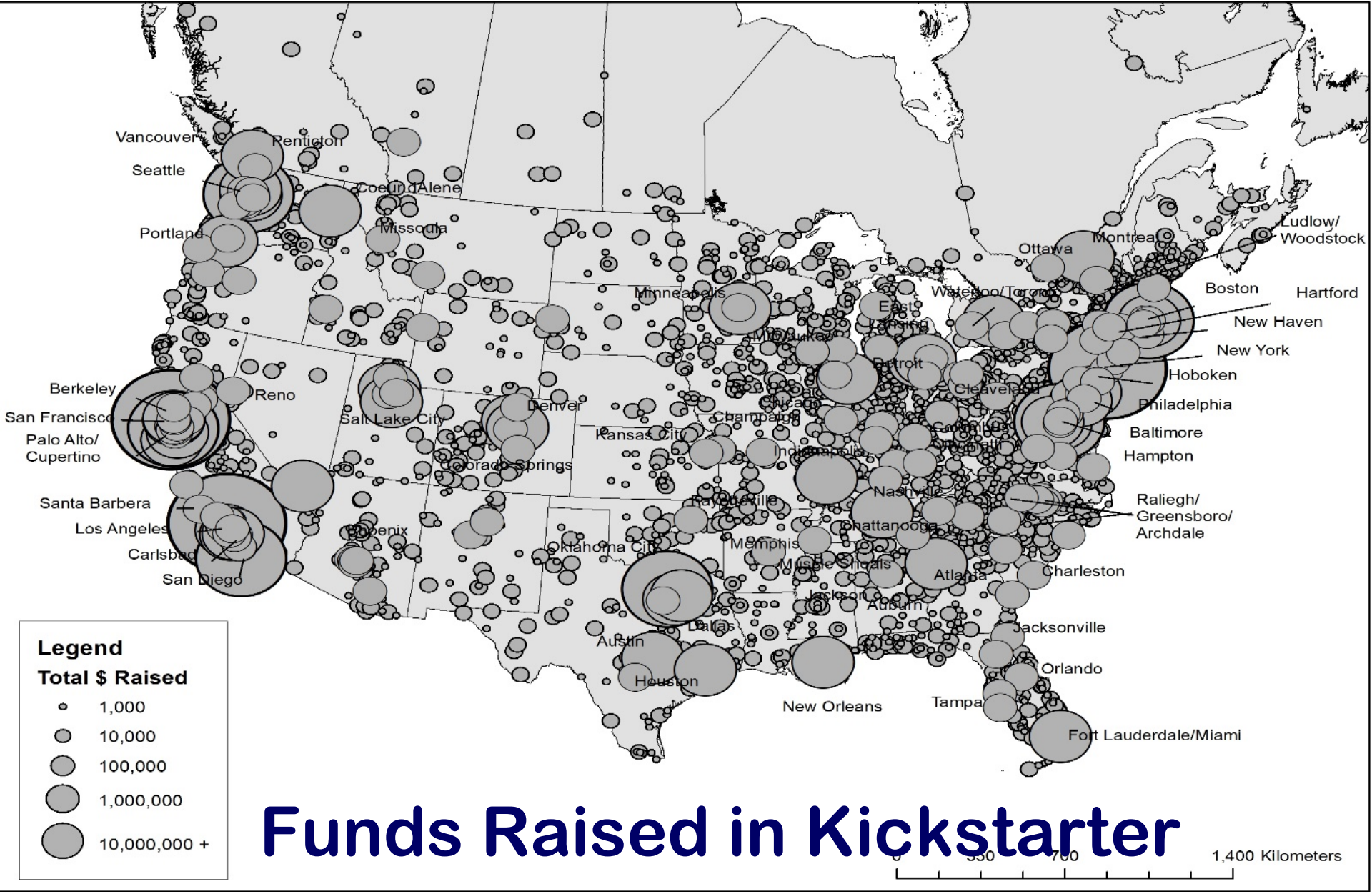
	Moran's I	Z	P
Total Kickstarter $ Raised	0.05	6.9	0.002
Total Kickstarter Backers	0.06	14.2	0.001
Total Kickstarter Projects	0.01	1.9	0.011

DM vs Local

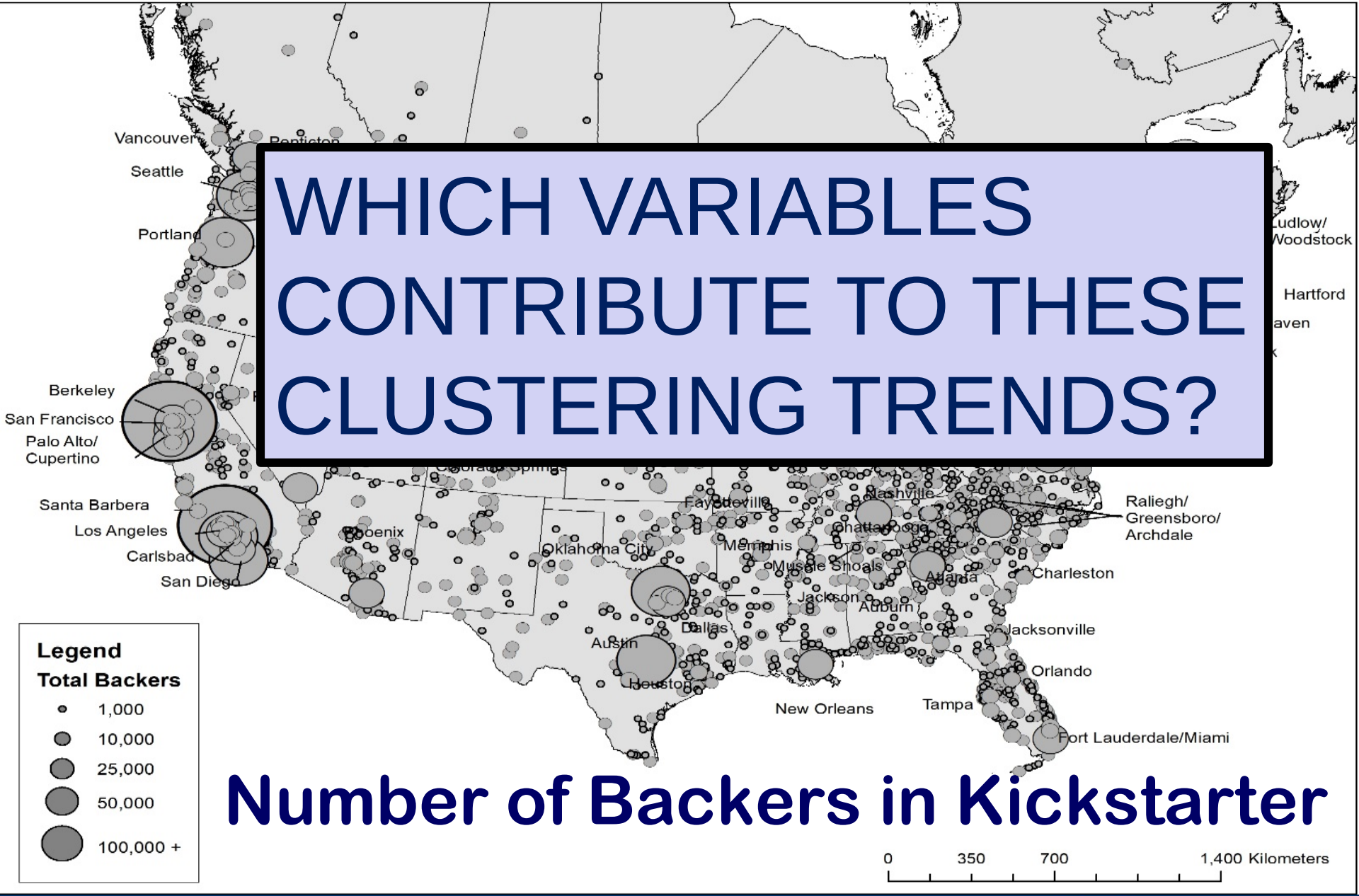
- **DM$** and number of **Backers** are more spatially clustered than the average Kickstarter activity.
- Z stat values are lower in the local activity vs DM.

SUPPORT HYPOTHESIS 1

Variables	MI	Z	P
Kickstarter $ raised DM	0.05	14.6	0.00
Backers DM	0.07	17.9	0.00
Total DM Projects	0.01	2.6	0.01
Kickstarter $ raised Local	0.02	5.8	0.01
Backers Local	0.02	4.5	0.01
Total Local Projects	0.01	1.2	0.01



Funds Raised in Kickstarter



Number of Backers in Kickstarter

More funds raised in one area leads to less funds raised in its neighboring areas.

Dep. Var.:	Total $		DM $		Local $	
Variable	Coef.		Coef.		Coef.	
Spatial lag	-0.020	***	-0.018	***	-0.031	***
CONSTANT	167343	***	75381.7	**	3591.13	
Outlying/rural	411349	**	151609		36455.9	***
Canada	47540		24389.3		2731.71	
Nonprofits per capita	1067020	***	614936	***	86542.2	***
%BA +	108925	***	61211.8	***	4822.46	***
%BA + in outlying/rural	-296529	***	-119569	***	-21981.5	***
log of HH income	-19359	***	-8815.54	***	-493.925	
log of HH income in outlying/rural	-57688.6	***	-27423.6	**	-4110.5	***
%area of county	250445	***	162961	***	10343.4	***
# cities in outlying/rural	-11645.2	***	-5396.2	***	-778.358	***
Pop.	1.378	***	0.655	***	0.090	***
Pop. density	-0.001	***	-0.0003	***	-0.0001	***
Creative class per capita	14098.3		930.963		-863.364	
employment controls	Y		Y		Y	
N	14832		14832		14832	
R^2	0.514		0.424		0.698	

Variable	Total Backers	Total Backers (DM)	Total Backers (Local)
Spatial Lag	-0.0204662***	-0.014421**	-0.0308462***
Constant	1663.71***	907.004**	49.8065
Outlying/Rural	5517.89**	2677.82*	473.929***
Non-Profit/Charities	14448.5***	9608.16***	1137.15***
% BA +			
% BA + Rural			
Log HH Inc			
Log HH Inc Rural	-817.051***	-462.4***	-54.9698***
% Area of Country	3749.04***	2561.49***	150.287***
# of Rural Cities	-152.326***	-85.3568***	-10.2061***
Pop.	0.0179742***	0.0101287***	0.00119399***
Pop. Density	-0.00000874624***	-0.00000466395***	-0.00000068357***
Employment controls	Y	Y	Y
N	14832	14832	14832
R2	0.607422	0.547385	0.625246

Support Hypothesis 2

Conclusions

Strong clustering of pledges and backers. Hardly any clustering of number of projects.

Different categories of projects show different clustering patterns.

- DM cluster more than the average kickstarter projects. Local are spread out.

Conclusion II

- What impacts the clustering that we see?

KS success has a *checkerboard pattern* - one area's success 'drains' the success of its neighbors.

KS FLATTENS AN ALREADY SPIKEY WORLD.

Theme 3 - Diffusion of Digital Technology across the Economy

- Behavior of projects in Canada is no different in the USA.

- Concentration in non-traditional cities in Canada - Victoria, Whistler, Edmonton, Banff, Portage La Prairie, Winnipeg, Mississauga, Cambridge, Lachute.

shiri.breznitz@utoronto.ca

THANK YOU!

Local Categories

· Architecture	· Food Trucks	· Public Art
· Civic Design	· Installations	· Residencies
· Comedy	· Live Games	· Restaurants
· Community Gardens	· Makerspaces	· Spaces
· Dance	· Movie Theaters	· Theater
· Events	· Performance Art	· Workshops
· Farmer's Markets	· Performances	
· Farms	· Places	
· Festivals	· Plays	

Variables

- Dummy variable indicating whether the unit is a city boundary (0) or the remainder of the county (or CD) not in city boundaries (1)
- Dummy variable indicating whether the unit is in Canada (1) or US (0)
- Nonprofits (US) or charities (Canada) per capita in the county (US) or city (Canada)
- % of population with a bachelor's degree or more, by county in 2010 (US) or CD in 2006 (Canada)
- rem*Univ
- log of median household income (2009$US or 2011$CA)
- rem*lnInc
- % of the county (US) or CD (Canada) area that the unit covers
- number of cities contained in the portion of the county (US) or CD (Canada) outside of city boundaries
- Population for city or for outlying area in 2010 for US; otherwise (in Canada or when missing) estimated population based on CD population in 2011 (Canada) or county population in 2010 (US) apportioned by Areashare
- Population density based on unit population in 2010 (US) or CD population in 2011 (Canada); estimated density computed when missing in US by using simple county population density
- Jobs in the creative class per capita at the CBSA level (US) or city level (Canada)

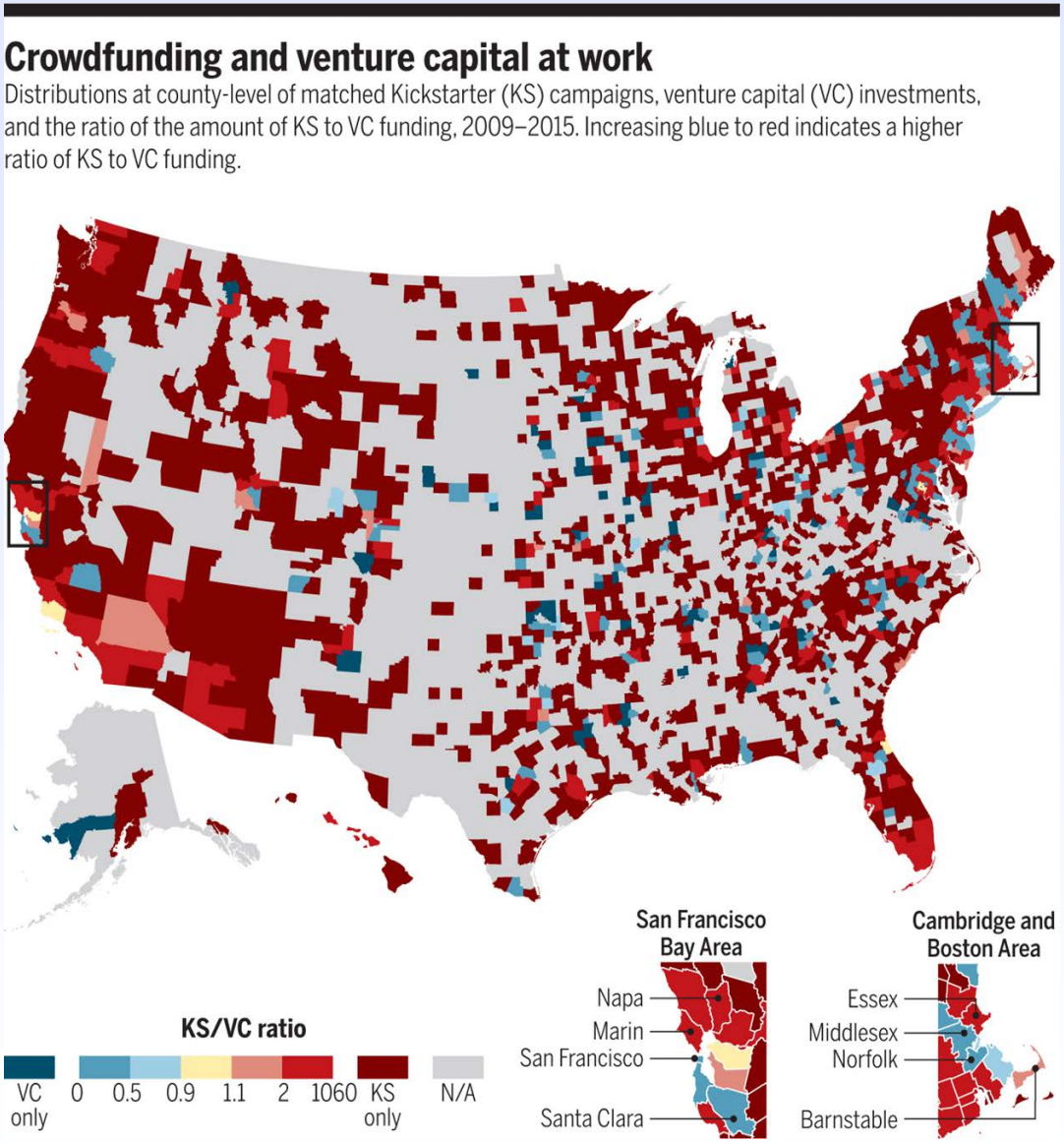
	Total	DM	Local
Publishing	+	+	-
Movies & sound	-	-	-
Broadcasting	-	-	-
Info services	+	+	-
Professional Services	+	-	-
Perf. arts, sport	-	-	-
Museums	-	-	+
Movies	+	+	+
Advertising	-	+	-
Newspaper	-	-	+
Computer systems	-	+	-
Photo services	-	-	+

Here is the full list of cities in Canada –

- British Columbia: Abbotsford, Langley, Saanichton, Victoria, Comox, Prince George, Kelowna, Whistler, Revelstoke.
- Alberta: Lethbridge, Edmonton, Medicine Hat, Banff, Calgary.
- Saskatchewan: Moose Jaw, Regina, Saskatoon, Hudson Bay.
- Manitoba: Portage La Prairie, Winnipeg.
- Ontario: Thunder Bay,Sudbury, Mississauga, Cambridge, Kitchener/Waterloo, Barrie, Guelph, Milton, Markham, Pickering, Stratford, Brandtford, Hamilton, London, Ottawa.
- Quebec: Lachute, Gatineau.
- Prince Edward Island: Summerside, Charlottetown.
- Nova Scotia: Halifax.
- New Brunswick: Moncton.
- Newfoundland: Labrador City, St. John's, Corner Brook

Project funding is more spread-out than venture capital funding.

- KS campaign < $ but a broader spread than VC.
- Several places with the largest number of successful campaigns have not been magnets for VC investments, e.g., Chicago, Los Angeles, and Seattle.
- VC investments highly concentrated. Four counties, Boston area and Silicon Valley = 50% of all matched VC investments.



Source:

Sorenson et al, 2016. Expand innovation finance via crowdfunding. Science: Vol. 354, Issue 6319, pp. 1526-1528.