



Geography, Venture Capital, and Public Policy

By **Josh Lerner** (Harvard Business School)

From Silicon Valley to Herzliya, Israel, venture capital (VC) firms are concentrated in very few locations. More than half of the 1,000 venture capital offices listed in *Pratt's Guide to Private Equity and Venture Capital Sources* are located in just three metropolitan areas: San Francisco, Boston, and New York. More than 49 percent of the U.S.-based companies financed by venture capital firms are located in these same three regions, which suggests that venture capital plays a primary role in fostering entrepreneurial communities in their home regions.

Reflecting this awareness, states and municipalities increasingly are trying to encourage the establishment and growth of venture capital communities in their regions. As a 2001 National Governors Association report stated, "Venture capital is critical to growing the new businesses that will drive the 'new economy.' Finding ways to nurture the culture of entrepreneurs, and the capital that feeds them, must be the top priority of states."

More recently, the National Association of Seed and Venture Funds estimated that state venture capital funds in 2008 totaled \$2.3 billion. In addition, an increasing share of the approximately \$50 billion that states spend on industrial incentives is going to venture-backed firms, a

trend that is likely to be accelerated by provisions in last year's stimulus bill favoring clean technologies. Thus, it is vitally important to understand the geography of venture capital, its association with success of the underlying portfolio companies, and what, if anything, the public sector can do to facilitate venture capital investments in particular locales.

The Geography of Venture Capital Firms

The number of venture capital firms in the United States grew from 385 firms to over 1,000 firms in 2000, before dropping slightly to 987 firms in 2005. Similarly, the number of branch offices for U.S. venture capital firms grew from 52 offices in 1985 to 165 offices in 2000, before dropping to 122 offices in 2005. (See Table 1)

While the number of firms and branch offices has grown dramatically, there has been little change in the location of those offices. Rather, about 50 percent of the firms and their branch offices have been and continue to be located in three Combined Statistical Areas (CSAs): San Francisco/San Jose, New York City (including Greenwich and Stamford), and greater Boston (which includes Waltham).¹

If this was solely a historical artifact, the shares of offices in each of these three centers should have been stable

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Table 1: Venture Capital Offices by CSA

CSA	Year				
	1985	1990	1995	2000	2005
San Jose-San Francisco, CA Main Offices	15.0%	15.1%	15.9%	17.6%	21.6%
New York, NY Main Offices	21.4%	16.9%	15.7%	16.1%	18.4%
Boston, MA Main Offices	10.1%	10.1%	9.3%	8.6%	7.4%
Washington, DC Main Offices	3.1%	3.0%	2.4%	2.9%	4.8%
Chicago, IL Main Offices	2.9%	3.9%	4.5%	4.6%	3.3%
Dallas, TX Main Offices	4.8%	4.6%	2.8%	3.0%	3.1%
Los Angeles, CA Main Offices	2.4%	1.2%	1.7%	1.3%	2.8%
Seattle, WA Main Offices	1.3%	1.4%	1.2%	1.3%	2.3%
Atlanta, GA Main Offices	1.8%	1.8%	1.6%	1.4%	2.0%
Other - Main Offices	27.1%	25.2%	23.0%	22.9%	23.8%
	88.1%	81.7%	78.8%	86.3%	89.0%
Total Main Offices	385	456	473	1,041	987
San Jose-San Francisco, CA Branch Offices	4.0%	5.9%	6.7%	6.3%	2.8%
New York, NY Branch Offices	0.4%	1.1%	1.7%	1.3%	1.2%
Boston, MA Branch Offices	0.9%	1.6%	2.1%	2.0%	1.1%
Washington, DC Branch Offices	0.0%	0.7%	0.7%	1.3%	0.5%
Chicago, IL Branch Offices	0.2%	0.7%	1.2%	0.9%	0.2%
Dallas, TX Branch Offices	0.2%	1.2%	1.2%	1.2%	0.3%
Los Angeles, CA Branch Offices	1.1%	1.1%	0.7%	0.3%	0.4%
Seattle, WA Branch Offices	0.2%	0.7%	0.7%	0.0%	0.1%
Atlanta, GA Branch Offices	0.0%	0.5%	0.5%	0.3%	0.3%
Other - Branch Offices	3.1%	3.2%	6.2%	6.8%	3.6%
	11.9%	18.3%	21.2%	13.7%	11.0%
Total Branch Offices	52	102	127	165	122

Source: Author’s calculations from data in annual issues of *Pratt’s Guide to Private Equity and Venture Capital Sources*. Sample consists of 2,039 unique venture capital firms in existence between 1975 and 2005. Geographic locations are assigned at the Combined Statistical Area (CSA) level. In cases where a city is not located in a CSA, we assign venture capital offices in the city to the appropriate Metropolitan Statistical Area (MSA). *Main Offices* are defined as the first office opened by the investing venture capital firm. If the firm was established with multiple offices, the CSA in which the firm made the most investments in its first five years of existence is classified as the main office. *Branch offices* are defined as any location in which the firm has an office, other than the main office. Share of offices is defined as the percentage of total venture capital offices located in the CSA.

as well. However, San Francisco/San Jose share of VC offices – particularly main offices – has grown over the past 20 years. In contrast, New York’s share of main offices has dropped while its share of branch offices has grown while Boston’s share of both main and branch offices has dropped slightly.

There also is a paucity of venture capital offices located in smaller CSAs. Less than

a third of all venture capital main offices and branch offices are located outside of the nation’s top nine CSAs. In contrast, approximately 80 percent of the working-age population lived outside of the top nine CSAs in 2000. Furthermore, only 20 percent of all venture capital partners are located outside of the top nine CSAs in 2005 versus 68.5 percent of the population employed in the financial services sector.

The results highlight a “catch 22” issue in the location of venture capital offices. A high level of existing venture capital activity and success induce entry into a market. Yet a nascent start-up market may find it difficult to attract venture capital investors. For example, venture capital offices are concentrated in locales where previous investments by venture capital firms were successful (which we defined as whether the venture-capital backed company went public through an Initial Public Offering or had registered for an IPO at the time we were conducting our research). Specifically, moving from the 25th percentile of the regional success rate for venture capital investments over the past five years to the 75th percentile of the regional success rate increases the number of offices in a CSA by a factor 2.3.

More than 49 percent of the U.S.-based companies financed by venture capital firms are located in San Francisco, Boston, and New York, which suggests that venture capital plays a primary role in fostering entrepreneurial communities in their home regions.

Similarly, the data show that regions with high concentrations of venture capital offices are in states with higher levels of gross state product per capita. Here moving from the 25th percentile value to the 75th percentile value increases the number of offices in a CSA by 4.1. Finally, venture capital offices are concentrated in areas with high levels of innovation as measured by the number of patents per capita issued in the previous year. A CSA in a state at the 75th percentile of innovation as measured by patents per capita will have 1.2 more offices than a CSA in a state at the 25th percentile level of innovation.

The Geography of Venture Backed Firms

While it is much easier for venture capital firms to monitor investments in nearby firms, many venture capitalists do invest outside of their home region. In fact, more than half of the 28,434 investments made by venture capital firms between 1975 and 2005 were outside of the firms’ home CSA. (See Table 2)

Those investments, however, are geographically concentrated. Much like venture capital firms, about half of the 14,006 companies that received funding from a venture capital firm are located in the San Francisco/San Jose, New York, and Boston regions. Moving beyond these three central regions, 79 percent of all portfolio companies are located in the top 12 CSAs and 81 percent of all venture capital investments are made in companies in the top 12 CSAs. (See Table 2)

In addition, there is particularly strong link between the location of VC firms and the location of VC-backed firms in the San Francisco/San Jose, New York, and Boston regions. Of the 12,358 investments that involve a venture capital investor located in the same CSA, 80 percent of these are in one of these three regions. More than 70 percent of San Francisco/San Jose companies are backed by a venture capital investor from that region and more than 50 percent of the New York and Boston area firms also are backed by firms in their region as well. In contrast, less than 15 percent of companies headquartered in the Los Angeles, Philadelphia, and San Diego regions can say the same.

What are the determinants of the number of new venture capital financed companies? On average, 4.2 portfolio companies are formed in a given CSA each year. But moving from the 25th percentile to the 75th percentile of venture capital offices in a CSA increases the number of venture capital-backed companies by 1.8 companies a year. This result suggests that increasing the number of venture capital

Table 2: Venture Capital-Backed Companies by CSA, 1975 - 2005

CSA	Portfolio Company Location		Share of Investments in CSA		
	Share of Total	#	Main Office	Branch Office	Outside
San Jose/San Francisco, CA	29.01%	4,063	56.55%	16.40%	27.04%
Boston, MA	11.67%	1,634	42.34%	8.07%	49.59%
New York, NY	8.74%	1,224	47.94%	2.37%	49.69%
Los Angeles, CA	6.08%	851	11.93%	2.53%	85.54%
Washington, DC	4.17%	584	20.96%	6.37%	72.67%
San Diego, CA	3.53%	494	6.71%	3.75%	89.55%
Dallas, TX	2.93%	411	17.04%	9.25%	73.71%
Seattle, WA	2.73%	383	17.40%	0.25%	82.35%
Denver, CO	2.63%	369	22.68	0.55%	76.78%
Atlanta, GA	2.48%	348	20.50%	0.33%	79.17%
Chicago, IL	2.16%	303	30.70%	0.85%	68.44%
Philadelphia, PA	3.16%	302	12.91%	2.00%	85.09%
Other	21.70%	3,040	16.41%	1.19%	82.40%
Total	100%	14,006	35.63%	7.83%	56.54%

Source: Author’s calculations from data in annual issues of *Pratt’s Guide to Private Equity and Venture Capital Sources*. Sample consists of 28,434 venture capital investments in 14,006 portfolio companies for 2,039 venture capital firms between 1975 and 2005. Geographic locations are assigned at the Combined Statistical Area (CSA) level. In cases where a city is not located in a CSA, we assign portfolio companies in the city to the appropriate Metropolitan Statistical Area (MSA). *Main office investment* is defined as a portfolio company investment in a CSA in which the investing venture capital firm has its main office. *Branch office investment* is defined as a portfolio company investment in a CSA in which the investing venture capital firm has a branch office. *Outside investment* is defined as a portfolio company investment in a CSA in which the investing venture capital firm does not have its main office or a branch office. *Percent Share of Total* equals the percentage of portfolio companies or investment type located in the CSA. *Share of investments in CSA* is defined as the percentage of portfolio company investments in the CSA that are main office investments, branch office investments, or outside investments.

firms in a CSA, and hence the availability of capital in a CSA, should be associated with an increase in the number of innovative start-up companies in the CSA that are backed by a venture capital firm.

Similarly, more venture capital-backed companies are formed in CSAs with greater levels of past success (i.e. whether the company went public through an Initial Public Offering or had registered for an IPO). Moving from a CSA at the 25th percentile of the previous success rate to a CSA at the 75th percentile previous success rate increases the number of venture capital-backed companies formed by 0.4 companies a year.

Determinants of Venture Capital Investment Success

It is natural to wonder whether there are any performance consequences of the geographic concentration. In essence, if there is a venture funding gap in other regions – if the supply of good ideas exceeds the availability of capital – remote venture capital locations may have greater success rates than firms in the three leading venture capital markets.

Overall, venture capital firms based in the three major centers of venture capital activity have an average success rate that is 4.4 percent higher than venture-backed firms based outside those centers. VC firms in these three centers of activity appear to outperform, when assessing only investments made in those three areas (17.3 percent vs. 14.2 percent), as well

as to investments outside of the three core regions (19.0 percent vs. 13.1 percent). This outperformance also persists when the sample is restricted to early-stage (15.1 percent vs. 11.3 percent) or late-stage deals (20.7 percent vs. 15.7 percent). (See Table 3)

Surprisingly, much of the VC outperformance in these venture capital centers arises from their non-local investments. This finding is counterintuitive, since venture capitalists might be expected to be the most involved and add the most value to the geographically closest companies. The higher rates of return on non-local deals may indicate economically meaningful geographic differences in the availability of venture capital. One potential explanation for this higher return to non-local deals is that venture capitalists have a higher hurdle rate (i.e., require a higher expected rate

of return) for investments that have a higher monitoring cost, such as the imputed (personal) cost of traveling to remote locations.

Support for this finding can also be found in the fact that if a venture capital firm has done or will do another investment in the same geographic area, there is a 2 percent drop in the expected success rate. This suggests that venture capitalists may lower their threshold on a potential deal if they have a lower marginal cost of visiting the area. If, for example, they already are visiting one portfolio company, then the personal cost of visiting a second company is substantially lower.

Implications for Public Policy

The concentration of venture capital firms may be a rational allocation of scarce resources. Many venture capital investments

Table 3: Venture Capital Investment Success Rates by Portfolio Company Location

	All Investments		Companies in VC Centers		Companies Outside VC Centers	
	VC Center based VC	All Other	VC Center based VC	All Other	VC Center based VC	All Other
All Deals						
Success Rate	19.9%	13.5%	17.3%	14.2%	19.0%	13.1%
Number	18,888	9,546	12,018	3,320	6,870	6,226
Main Office Investment						
Success Rate	15.4%	11.5%	15.4%	-	-	11.5%
Branch Office Investment						
Success Rate	21.2%	15.2%	22.5%	16.0%	15.1%	12.4%
Outside Investment						
Success Rate	19.3%	13.7%	19.7%	13.1%	19.2%	14.0%

Source: Author’s calculations from data in annual issues of *Pratt’s Guide to Private Equity and Venture Capital Sources* and from VentureXpert (formerly Venture Economics) database. Sample consists of 28,434 venture capital investments in 14,006 portfolio companies for 2,039 venture capital firms between 1975 and 2005. *Main office investment* is defined as a portfolio company investment in a CSA in which the investing venture capital firm has its main office. *Branch office investment* is defined as a portfolio company investment in a CSA in which the investing venture capital firm has a branch office. *Outside investment* is defined as a portfolio company investment in a CSA in which the investing venture capital firm does not have its main office or a branch office. *Success Rate* equals the percentage of investments that led to an Initial Public Offering (IPO). *VC centers* are defined as San Francisco/San Jose, New York, and Boston.

are in industries where geographically localized knowledge spillovers are likely to be important. Accordingly, venture capital firms locate to maximize benefits from these spillovers and also to maximize opportunities for localized knowledge spillovers within the venture capital community as investors and entrepreneurs seeking financing need to visit a smaller number of geographic locations.

Early successes by venture capital firms are reinforced when the most talented new entrepreneurs seek capital from previously successful firms. A “virtuous cycle” of co-location is maintained as entrepreneurs choose to locate their businesses closer to funding sources, pools of talented employees, and academic researchers. The higher success rate for companies based in the venture capital centers suggests that these may be optimal geographies for founding new venture-backed businesses.

While economically efficient, this allocation of resources may be “vicious cycle” for regions with few venture capital firms, few branch offices of existing firms, and relatively few investments by non-local venture capital firms. Consequently, officials and civic leaders in areas with little VC activity often call for public policies designed to support investments in new local firms.

These policies generally take two forms. First, “the neglected act of setting the table”—creating a favorable environment for entrepreneurship is a critically important component that often is ignored by public officials eager to get to the “fun stuff” of handing out money. For example, ensuring that creative ideas can move easily from universities and government laboratories is critically important. Since many entrepreneurs do not come from academia, policymakers also should recognize that entrepreneurial activity is very sensitive to such factors as local tax policies (particularly low capital gains

tax rates), regulatory systems (particularly expedited permitting for new facilities), and amenities (such as high-quality public schools and a range of recreational activities). In addition, exposing business and technology students to classes in entrepreneurship is important as is a judicial system that allows contracts be enforced in a fair and timely fashion.

These factors are particularly important in places that must rely on non-local venture capital firms to make critical early investments in new firms. As noted above, such firms already are wary of investing in new locales. Such concerns are further heightened if local regulatory conditions are not up to global standards.

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The second— and very challenging — role for government is to intervene directly in the entrepreneurial process through such measures as publicly funded venture capital funds, using some money in public pension funds to support local venture-type investments, or providing significant tax breaks for venture capital investments in local firms. Such efforts can play an important role, particularly in the early stages of new industries. However, to succeed, the programs must be carefully designed to avoid two common pitfalls: conceptual failures, which can doom a program from the very start, and implementation failures, which can create problems as the programs enter operations.

One common conceptual failure is ignoring the market’s dictates and, because of hubris

or political considerations, creating programs that encourage funding for industries or in geographic regions where private interest simply does not exist. For instance, a few years ago Massachusetts Governor Deval Patrick proposed a billion-dollar initiative to promote commercially promising biotechnology research at the state's colleges and universities. Not surprisingly, some legislators worked closely with academic institutions in their districts to ensure that some of the money would go to those institutions. To cite just the most egregious example, \$49.5 million was allocated to a science center at the Massachusetts College of Liberal Arts in North Adams, even though the college does not have a graduate program in any scientific discipline. In contrast, the presidents of Harvard, MIT, and the University of Massachusetts, who might have been expected to be enthusiastic about public funding for research, instead criticized the bill's emphasis on individual earmarks. Effective programs can avoid such problems by demanding that credible private-sector players provide funds to match public dollars.

Another common conceptual failure is ignoring the realities of entrepreneurial process. For example, many public venture capital initiatives have been abandoned after a few years because the program's sponsors apparently did not understand that such initiatives take many years to bear fruit. Other programs have included requirements – such as the stipulation that portfolio companies focus only on “pre-commercial” research – that may seem reasonable to policymakers but are counter to the nature of the entrepreneurial process. Reasonable programs, moreover, can also be too tiny to have an impact or so large that they swamp existing venture capital funds.

If ignored, these conceptual problems can doom a program before it begins. But plenty of pitfalls remain once programs begin. One common problem is a failure to build in

proper incentives for those who receive public funds. Consequently, participants in public schemes to promote entrepreneurship often do well financially even if the program does not meet its objectives. The contrast with the best practices among private investors, where scrupulous attention to incentives is commonplace, could not be more striking. Managers of public initiatives should follow suit.

A second common problem is the lack of appropriate evaluative mechanisms. While it is important to recognize that any program will take time to bear fruit, it is important for those who designed the program to periodically

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assess which aspects appear to be working well and which are not. Fund managers and firms backed by those managers also should be regularly scrutinized to ensure that they are the leaders in their fields rather than those who are most adept at currying favor with those who control public funds.

A third common problem is greatly restricting international participation in locally backed investments. While such restrictions can be politically appealing, they fail to recognize that venture capitalists' investments and entrepreneurial firms' spending increasingly flows across borders. Attempting to build a local entrepreneurial sector and venture capital industry without such strong global ties is a recipe for an irrelevant and unsuccessful sector.

These conceptual and implementation problems lead many to conclude that there is no role for public sector investment in the entrepreneurial process. A close read of history, however, suggests a more nuanced conclusion. Government does have a role in stimulating a vibrant entrepreneurial sector, particularly given the early stages of entrepreneurial activities in many regions. At the same time, history also shows that it is easy for government to overstep its bounds, squander its investments, and ignore “the neglected act of setting the table.” If policymakers at all levels of government can apply these key lessons, many sagas of waste and disappointment can be avoided, entrepreneurs will find a more hospitable climate, and more people can benefit from increased economic activity.

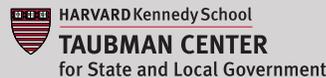
Endnotes

¹ CSAs were used because Metropolitan Statistical Areas (MSAs) often are narrowly defined. For example, the cities of Palo Alto, Menlo Park, Berkeley, and San Francisco are located in three different MSAs. On the east coast, New York City is located in a different MSA from Stamford and Greenwich, Connecticut, where New York area investors often choose to base their operations. Therefore we use CSAs that appropriately assign Palo Alto and San Francisco to one location and similarly assign New York and Greenwich in one location.



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