Startup City:

The Urban Shift in Venture Capital and High Technology

MARTIN Prosperity Institute

The Martin Prosperity Institute (MPI) is the world's leading think-tank on the role of sub-national factors — location, place, and city-regions — in global economic prosperity. It takes an integrated view of prosperity, looking beyond traditional economic measures to include the importance of quality of place and the development of people's creative potential.

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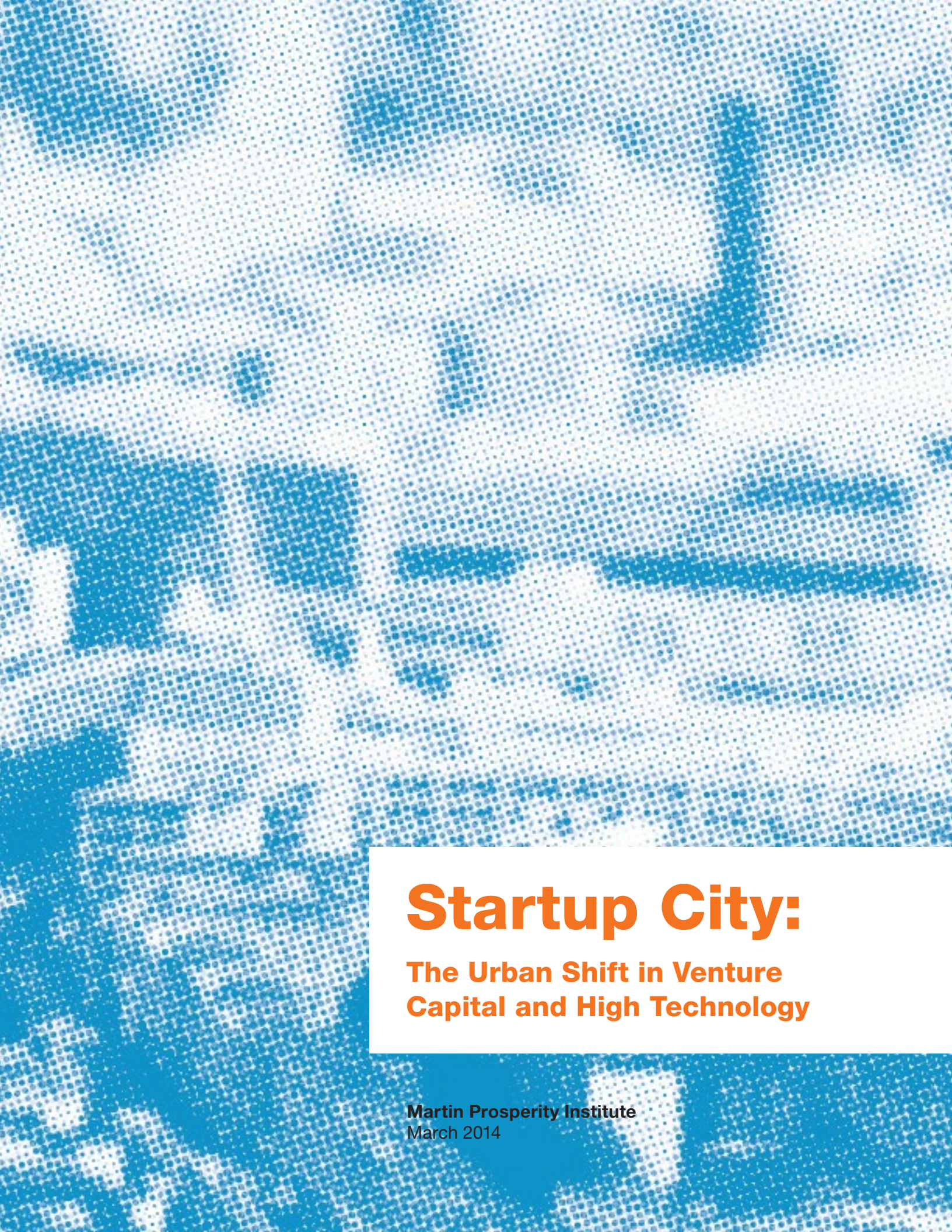

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EXECUTIVE SUMMARY

High tech startups are taking an urban turn. Manhattan and Brooklyn, downtown San Francisco, and Santa Monica are all becoming tech hubs. This is a new development. While large urban centers have historically been sources of venture capital, the high tech startups they funded were mainly, if not exclusively, located in suburban campuses in California's Silicon Valley, Boston's Route 128 corridor, the Research Triangle of North Carolina, and in the suburbs of Austin and Seattle. But high tech development, startup activity, and venture investment have recently begun to shift to urban centers and also to close-in, mixed-use, transit-oriented walkable suburbs. This report, which is based on unique data from the National Venture Capital Association, Thompson Reuters and Dow Jones, examines this emergent urban shift in high tech startup activity and venture capital investment.

The key findings are as follows.

Bay Area still on top: As a whole the San Francisco Bay Area—which includes greater San Francisco and Silicon Valley—accounted for more than 4 in 10 of all venture capital dollars invested across the entire United States.

The city of San Francisco leads the way: San Francisco proper now attracts a larger volume of venture capital investment than Silicon Valley.

East Coast Acela Corridor ranks 2nd: The Boston-New York-Washington corridor on the East Coast has emerged as the second major center for venture capital investment.

New York City is a rising startup hub: Metro New York is now the nation's third largest center for venture capital. Nearly 80 percent of the metro's venture investment was invested in the city itself.

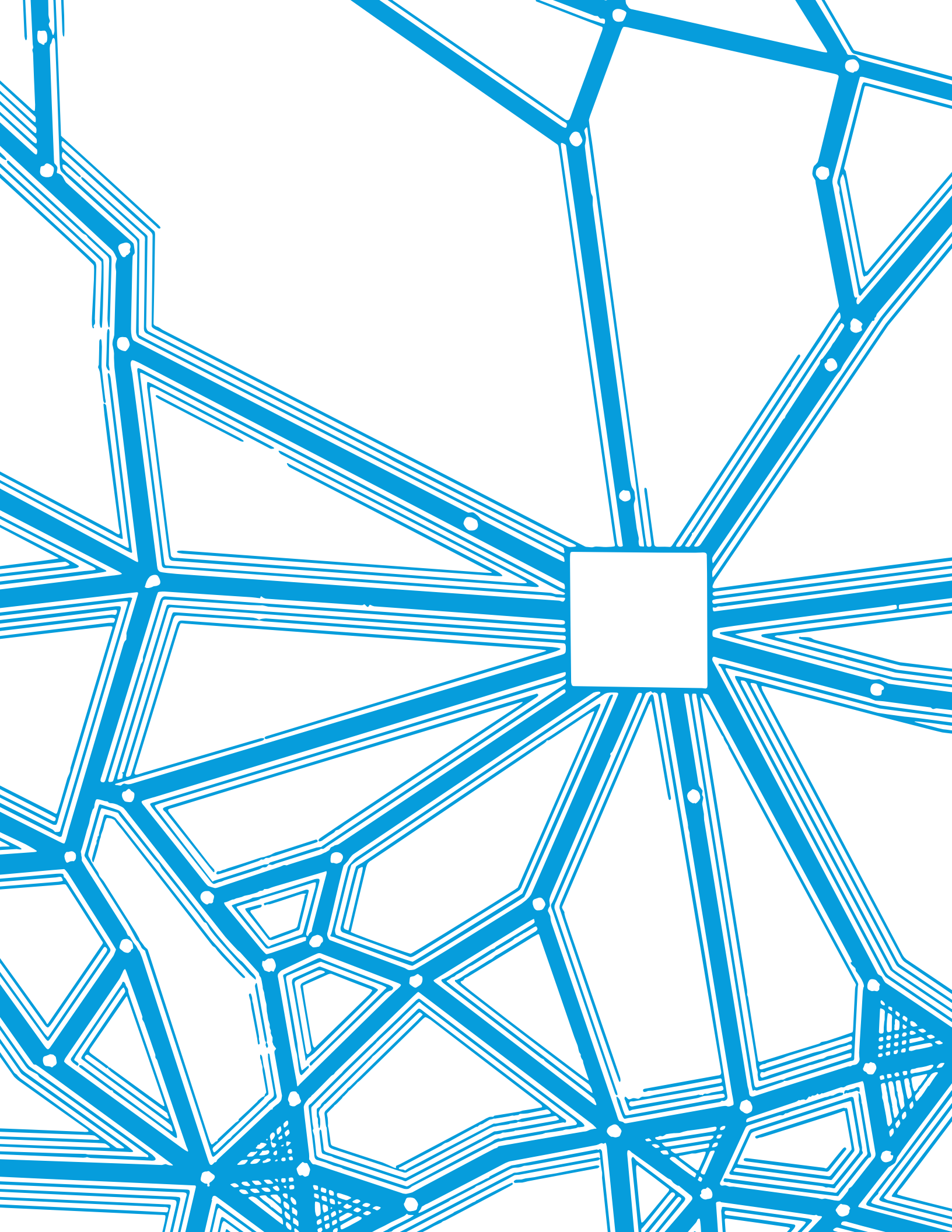
College towns attracting venture capital too: College town tech hubs like Austin and Raleigh-Cary in the North Carolina Research Triangle have long been magnets for venture capital, but Boulder, Ann Arbor, and Lawrence, Kansas attract considerable venture capital on a per capita basis as well.

Talent matters: Venture investment tracks the geography of talent, especially the percentage of adults who are college grads and the creative class.

Eds and meds don't matter for tech: While many states and cities have pinned their hopes on education and medical centers, our research finds little to no significant statistical associations between eds and meds employment and venture capital.

Tolerance *does* matter: We find venture capital investment to be associated with several markers of the diversity of metros, including their shares of immigrants and gays.

When combined with walkable, mixed used suburbs, urban centers account for substantial shares of venture capital investment in most leading high tech metros. Suburban high tech is not going away—established companies that need large footprints will continue to occupy suburban campuses. But the newest and most innovative developments in the industry are likely to emerge from urban and urban-like locations.



INTRODUCTION

High technology industry of the sort that is associated with semiconductors, personal computers, software, and biotech, has a long history of locating in the suburbs. Think of Intel, Apple, Google, and Facebook's campuses in Silicon Valley; Microsoft's vast headquarters in Redmond, Washington outside Seattle; and of the office parks along Route 128 outside Boston, amid Austin's sprawling suburbs, and throughout the North Carolina Research Triangle. High tech workers, in their turn, settled in housing developments that became known as "*nerdistans*."[1] Since the 1960s and 1970s, the geography of venture capital and high tech industry has paralleled the great migration of people and businesses to the suburbs.

My own research, conducted in the 1980s with Martin Kenney, documented the suburban orientation of venture capital investment and high tech startups in a series of detailed studies of the geography of venture capital-financed high technology. This research found that venture capital flowed out of urban financial centers like New York and Chicago to suburban centers of high tech industry, namely Silicon Valley and the Route 128 suburbs of Boston.[2] We could not identify any substantial high tech startup activity inside denser cities or urban areas.

But recently, a growing number of industry commentators and academic researchers, including myself, have called attention to an urban shift in high tech startups.[3] A large body of literature documents the return of people, jobs and commerce to the urban core, a trend Alan Ehrenhalt has dubbed "the great inversion." And several studies have charted the rise of significant high tech startup clusters in urban locations. A recent study identified nearly 500 companies that received venture capital funding in New York City between 2007 and 2011.[4] A separate study of London identified a high tech cluster of more than 3,000 companies and nearly 50,000 jobs in and around East London's Shoreditch district, a formerly derelict industrial area.[5] Other studies have documented the rise of urban startup clusters in San Francisco, Seattle, Boston and Cambridge, Berlin and elsewhere.[6]

Viewed from the perspective of urban theory, the urban shift in venture capital, startups, and high tech industry makes sense. As Jane Jacobs long ago argued, cities and urban centers are crucibles of innovation. In her classic book *The Death and Life of Great American Cities*, she famously quipped that "old ideas can sometimes use new buildings. New ideas must use old buildings," invoking the flexibility and affordability of older industrial use spaces, the interactive quality of urban neighborhoods, and the role of density in innovation.[7] Economists like Robert Lucas, Edward Glaeser, and Michael Porter have noted the underlying importance of talent and industrial clustering in spurring innovation and economic growth.[8] My own writings have documented the preference of the creative class of innovators and entrepreneurs, scientists and technologists, knowledge workers, artists, and designers for dense, diverse, and stimulating urban settings.[9]

This report examines the changing geography of venture capital investment and high tech startup activity, looking explicitly at the degree to which such activity is taking place in center cities and urban areas as opposed to suburbs. Previous research on this issue has been hampered by the dearth of data on the precise locations of venture capital investments and startup activity. Most of the available data is highly aggregated and covers whole states or a limited number of broadly defined geographic regions.[10] This research benefits from more detailed and granular data, provided by the National Venture Capital Association and Dow Jones.[11] These data span three geographic levels:

- The first dataset, provided by the National Venture Capital Association, covers venture capital investment across U.S. metro areas. These data include figures on the total number of venture capital deals, the number of companies receiving venture investment, and the dollar value of those investments by metro areas for the year 2012. While these data do not conform exactly to the definitions of Standard Metropolitan Statistical Areas (SMSAs) used by conventional government data sources like the U.S. Census Bureau and the Bureau of Labor Statistics, my Martin Prosperity Institute (MPI) research team approximately matched them to 134 U.S. metros, allowing us to parse the economic and demographic factors that are associated with venture capital investments.

- The second dataset matches venture capital and startup activity to telephone area codes for the year 2012. Provided to us by the National Venture Capital Association based on data from Thomson Reuters, it covers the 181 U.S. area codes (out of 275 total) that have significant venture capital activity.
- The third dataset covers venture capital investment at the zip code level. These data, provided by Dow Jones, enable us to map and track the geography of venture capital investment and startup activity between primary or central cities and surrounding suburbs for 11 metros — San Francisco, Boston-Cambridge, New York, Los Angeles, San Diego, Seattle, Austin, Chicago, Washington, DC, Dallas, and Philadelphia and two combined regions: the San Francisco Bay Area (San Francisco and San Jose) and Washington, DC-Baltimore. These metros account for almost three quarters of U.S. venture capital activity. These data are for 2011 (and thus differ from the metro and area code data above that cover 2012).

The report is organized as follows:

The first section presents the results of an analysis of venture capital investment across U.S. metros.

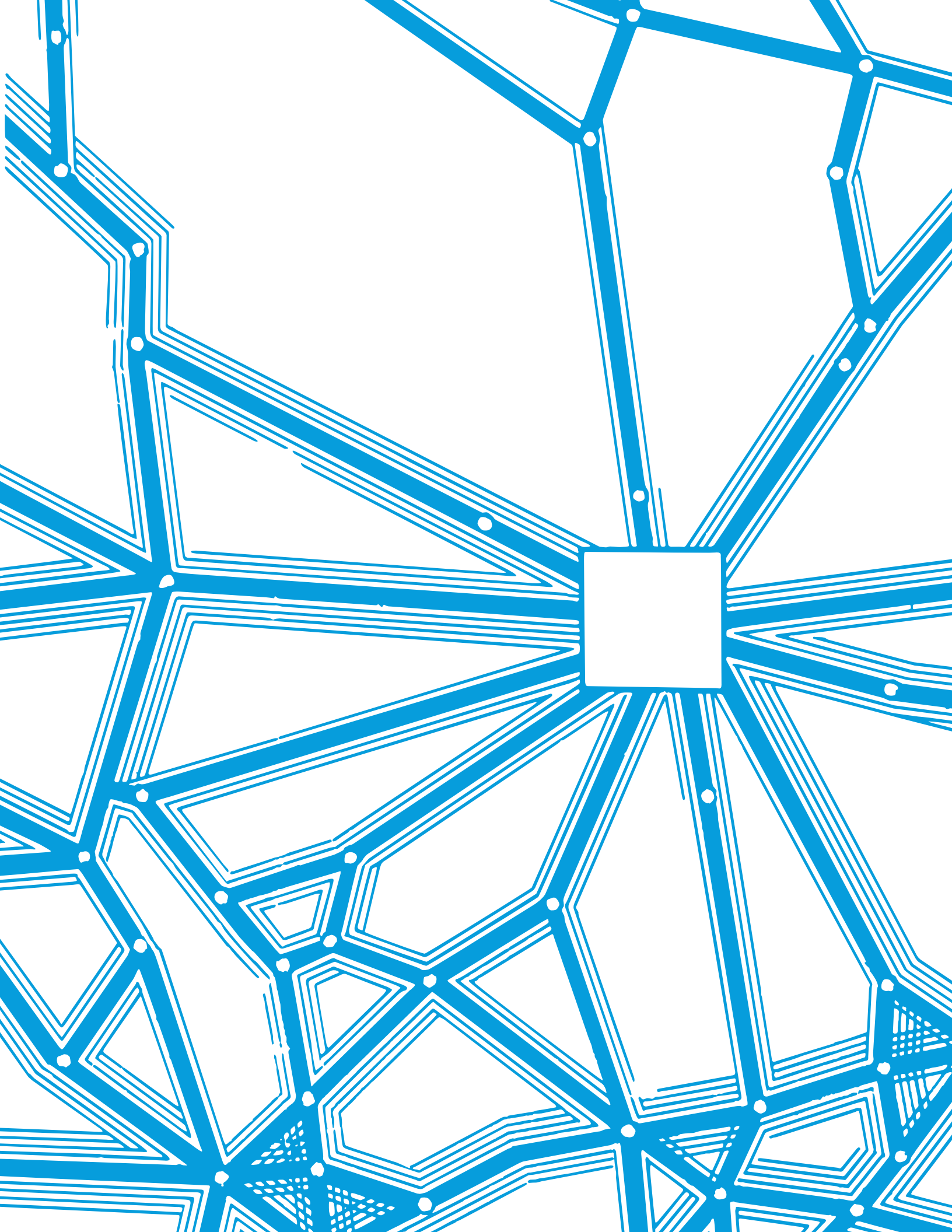
The second section summarizes a statistical analysis of the demographic and economic factors that are associated with the levels of venture capital investment across metropolitan regions.

The third section charts venture capital investment across telephone area codes.

The fourth section maps the geography of venture capital investment and startup activity at the zip code level for eleven leading regions, providing a more precise gauge of the geography of venture capital and startup activity between center cities and suburban areas.

The conclusion summarizes the key findings and trends identified in the analysis and outlines future research.

This report is the first installment of a larger and ongoing Martin Prosperity Institute research project examining the changing and increasingly urban geography of venture capital and high tech startups. It provides an overview of broad trends in venture capital and startup activity at the metro level, while zeroing in more closely on venture investment and startup activity at the zip code level for eleven leading metros and cities in the United States. Future reports will use even more detailed data at the zip code level for a much broader number of cities and metro areas over a substantial time series.



VENTURE CAPITAL AND STARTUP ACTIVITY ACROSS METROS

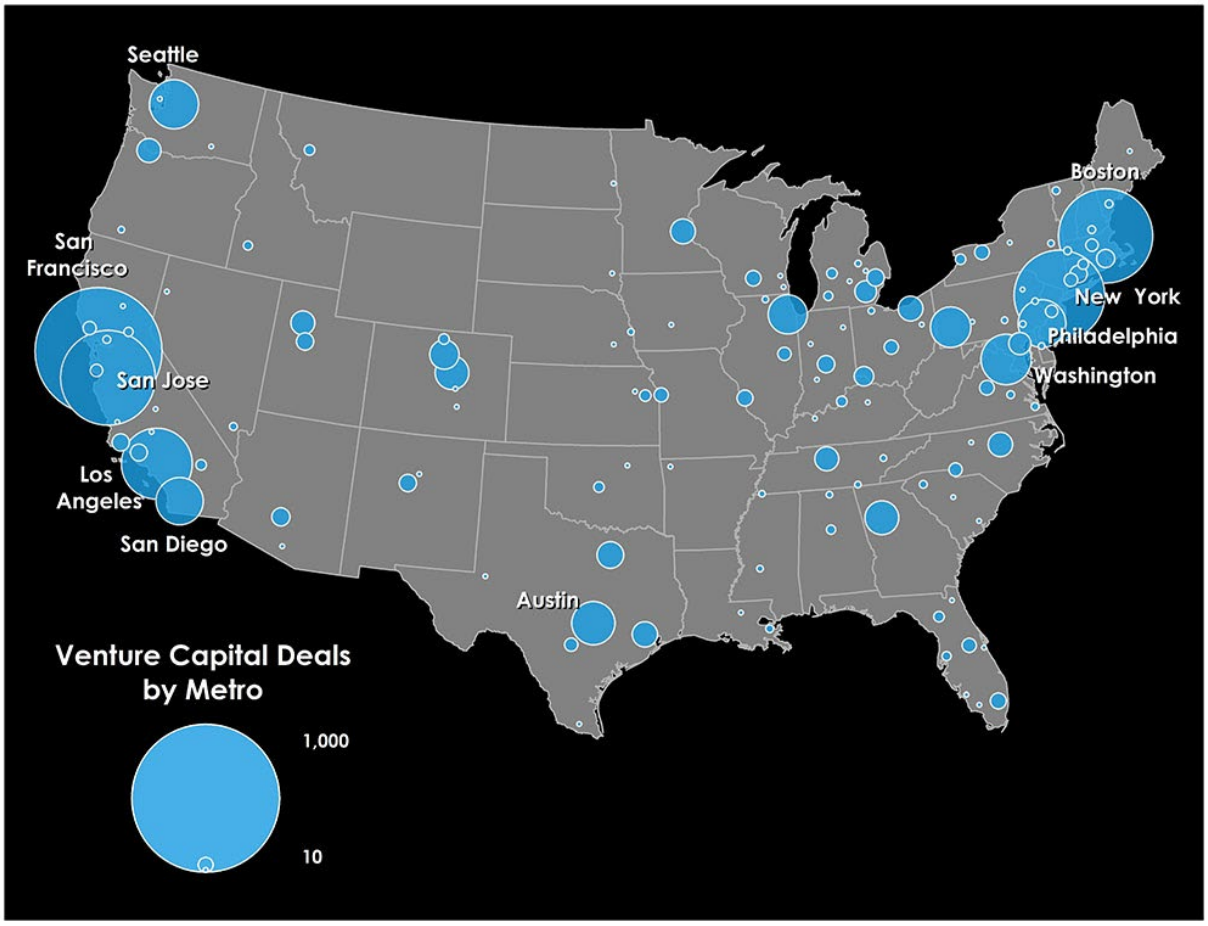
We begin by mapping the geography of venture capital at the metro level. (We abbreviate metro names in the text for readability. The Appendix tables provide full metro names and greater detail for these metros.)

Map 1 charts the geography of venture capital deals. **Map 2** shows the dollar value of venture capital investments by metro.

Several trends are apparent, as **Exhibits 1** and **2** show. Taken as a whole, the San Francisco Bay Area—which includes Greater San Francisco and Silicon Valley to its south—accounted for nearly $11 billion in venture investment, more than 4 in 10 of all venture capital dollars invested across the entire United States. But San Francisco proper actually tops Silicon Valley as a center for venture investment, attracting nearly $7 billion (a quarter of the national total) compared to roughly $4 billion for Silicon Valley (roughly 15 percent of venture investment nationally).

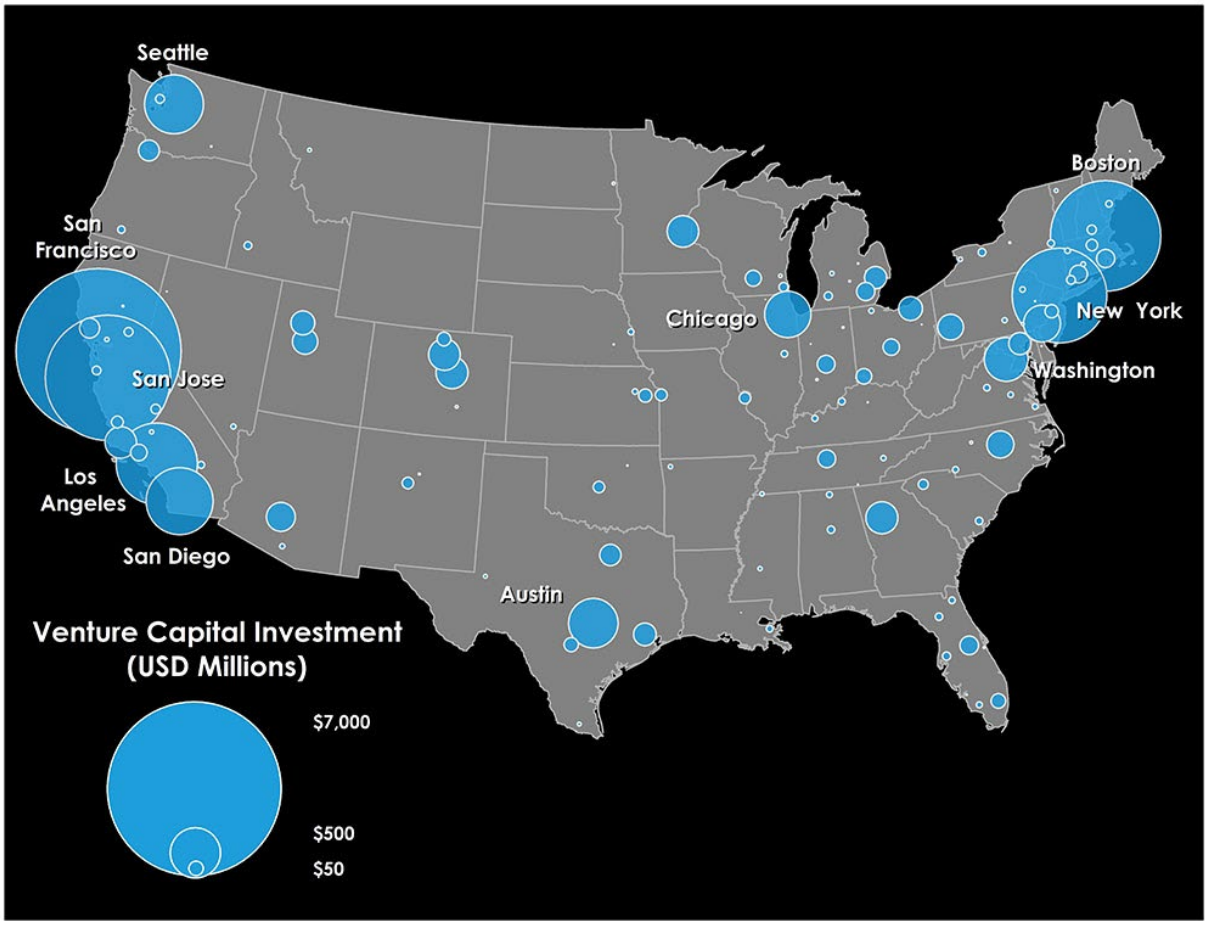
The Boston-New York-Washington (BosWash) corridor on the East Coast is the second major center for venture capital investment. The top center here is the Boston area, which attracted just over $3 billion in venture capital investment. What's striking, however, is the rise of greater New York as a center for venture investment. The metro attracted more than $2 billion. Washington, DC is in tenth place with nearly $500 million,

Venture capital deals by metro — Map 1



Venture capital investment by metro

Map 2



and Philadelphia is 11th with roughly $350 million. Together, the metros that make up the BosWash corridor account for $6.2 billion in venture capital investment—23 percent of the national total.

Southern California, stretching from LA to San Diego, is a third major center for venture capital investment. LA ranks fifth overall with $1.7 billion in venture investment, San Diego sixth with $1.1 billion, and Santa Barbara 16th with roughly $250 million. All told, the Southern California area accounts for $3 billion in venture investment, or 11.4 percent of the national total.

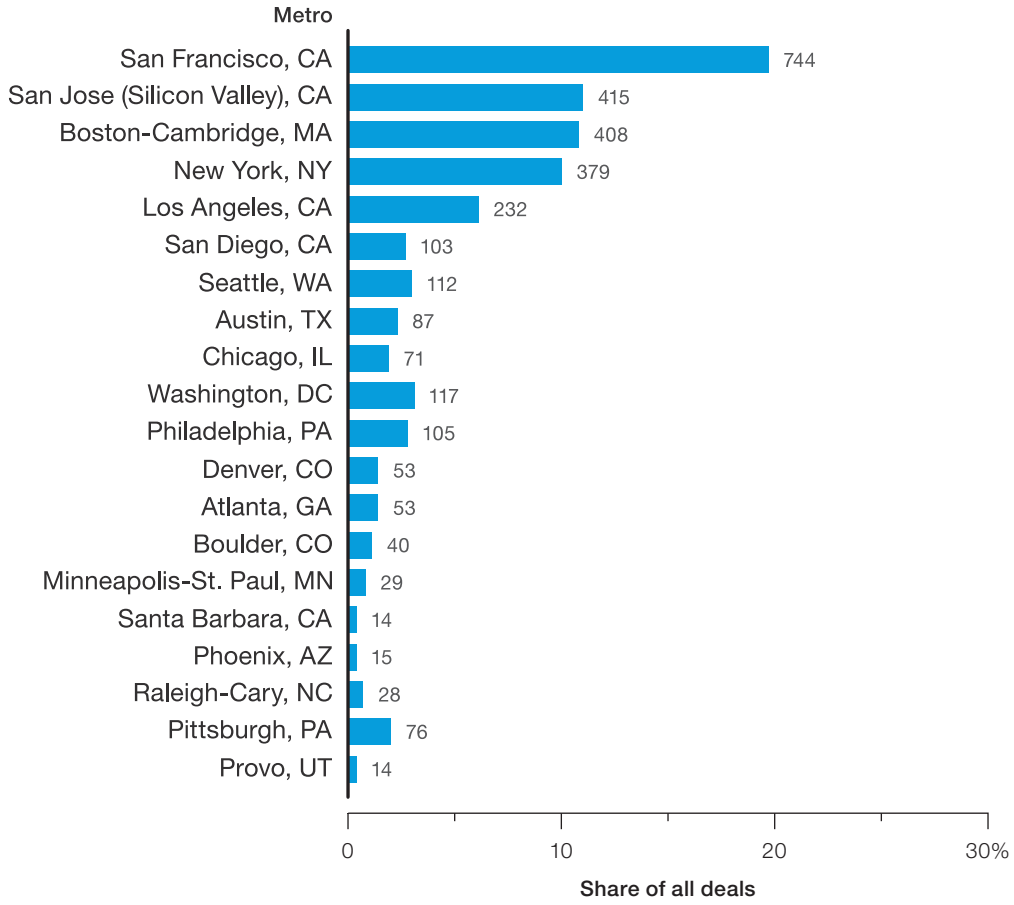
Other leading venture capital centers include: Seattle ($886 million), Austin ($626 million), Chicago ($547 million), Denver ($264 million) and nearby Boulder ($256 million), Atlanta ($262 million), Minneapolis-St. Paul ($256 million), and Phoenix ($214 million).

Eleven additional metros account for more than $100 million in venture capital investment: Raleigh-Cary, Pittsburgh, Provo and its neighbor Salt Lake City, Cleveland, Houston, Detroit, Baltimore, Dallas, Portland, and Santa Rosa.

The main takeaways: The Bay Area (including Silicon Valley and Greater San Francisco) remains the dominant center of venture capital-funded high technology, attracting more than 40 percent of venture capital dollars, but its center of gravity has shifted from suburban Silicon Valley to urban San Francisco. Greater New York has clearly risen as a venture capital center as well.

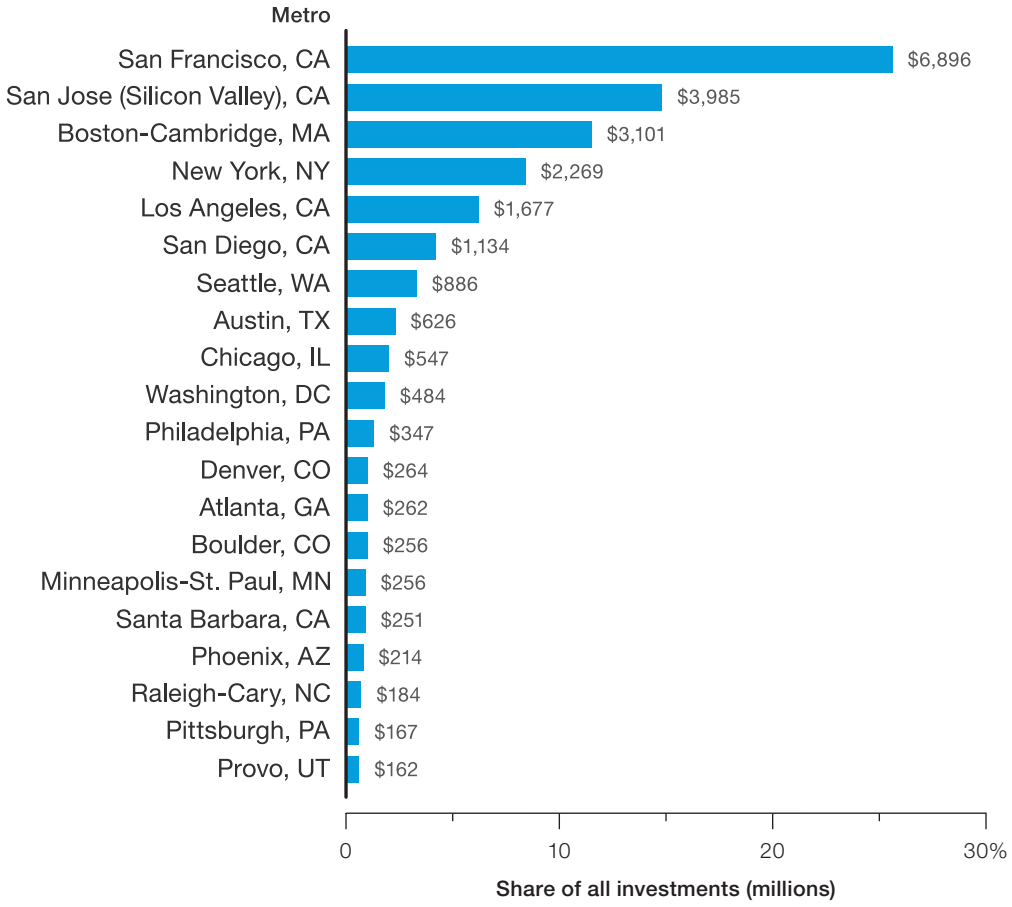
Top 20 metros for venture capital deals

Exhibit 1



Top 20 metros for venture capital investment

Exhibit 2



VENTURE CAPITAL AND STARTUP ACTIVITY PER CAPITA

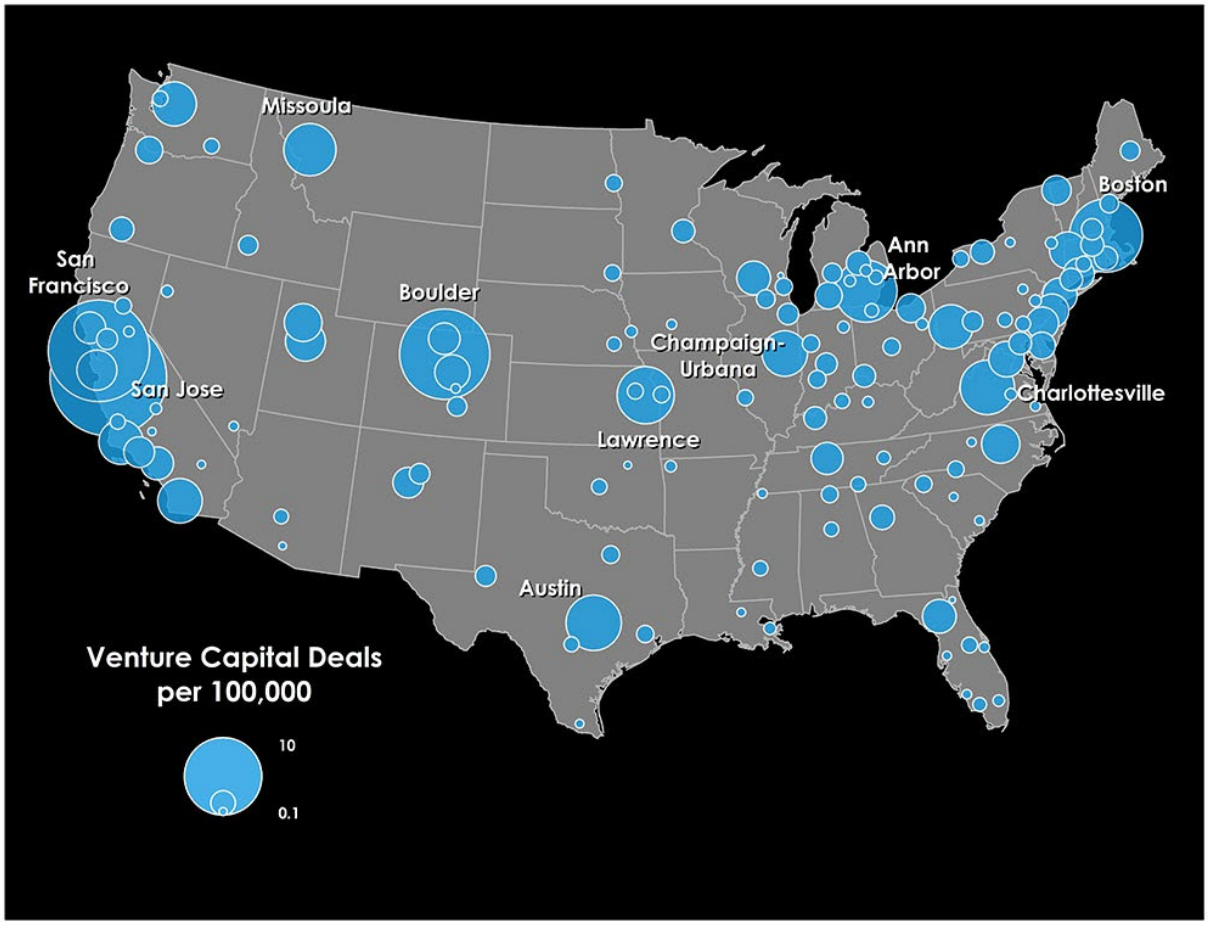
We now know which metros attract the largest amounts of venture capital. But it is important to look at how metros stack up when we control for population, by charting the geography of venture capital and startup activity on a per capita basis.

As **Map 3** shows, the San Jose and San Francisco metros also have the greatest number of venture capital deals per capita, with 22.6 and 17.2 deals per 100,000 people respectively. Boston remains near the top of the list as well, with 9 deals per 100,000. But a number of smaller metros, especially ones with major colleges and universities, also do well. Boulder, Colorado, home to the University of Colorado, is third with 13.6 deals per 100,000 people. Ann Arbor, home to the University of Michigan, is in fifth place with 6.4 deals per 100,000. Lawrence, Kansas, home of the University of Kansas, has 5.4 and Austin (University of Texas) has 5.1. Santa Barbara, Charlottesville, Missoula, and Champaign-Urbana all score highly as well (**Exhibit 3**).

The pattern is similar for venture capital dollars per capita, as **Map 4** shows. San Jose is first with $216.9 million in venture capital investments per 100,000 people and San Francisco is second with $159.1 million. Boulder is third with $86.9 million, followed by Boston ($68.1 million), Santa Barbara ($59.1 million), Lawrence, Kansas ($40.8 million), and San Diego ($36.6 million). Austin ($36.5 million), Provo ($30.7 million), and Seattle ($25.8 million) round out the top ten (**Exhibit 4**).

The bottom line: Silicon Valley takes the number one spot in terms of venture investment on a per capita basis, but the San Francisco metro is an impressive challenger. Larger metros like Greater Boston, Seattle, San Diego, and even New York also number among the top twenty regions in venture investment per capita. What is perhaps most striking is

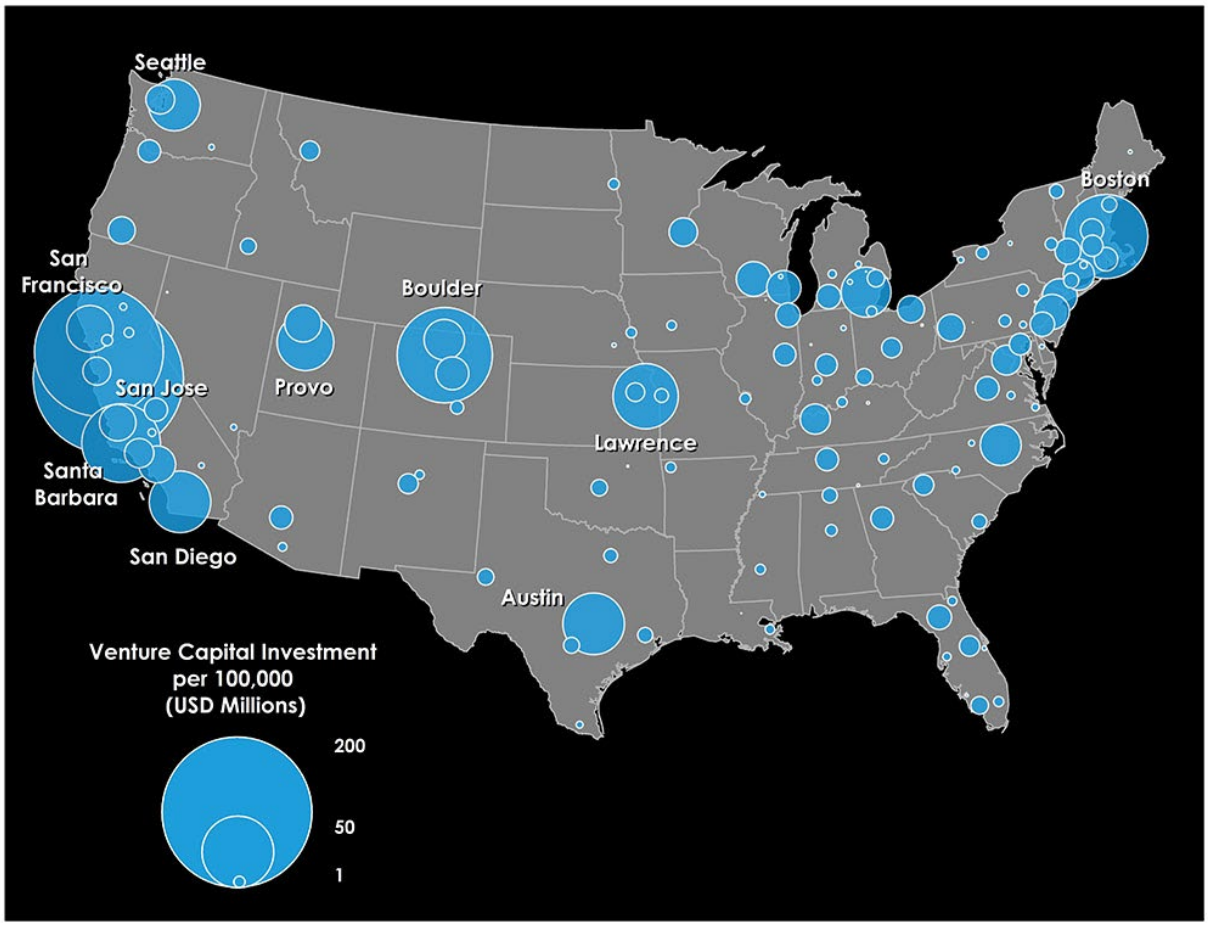
Venture capital deals per 100,000 people — Map 3



the performance of college towns, not just Austin and Raleigh-Cary in the North Carolina Research Triangle, but smaller college towns like Boulder, Ann Arbor, and Lawrence, Kansas, when we consider venture capital investment on a per capita basis.

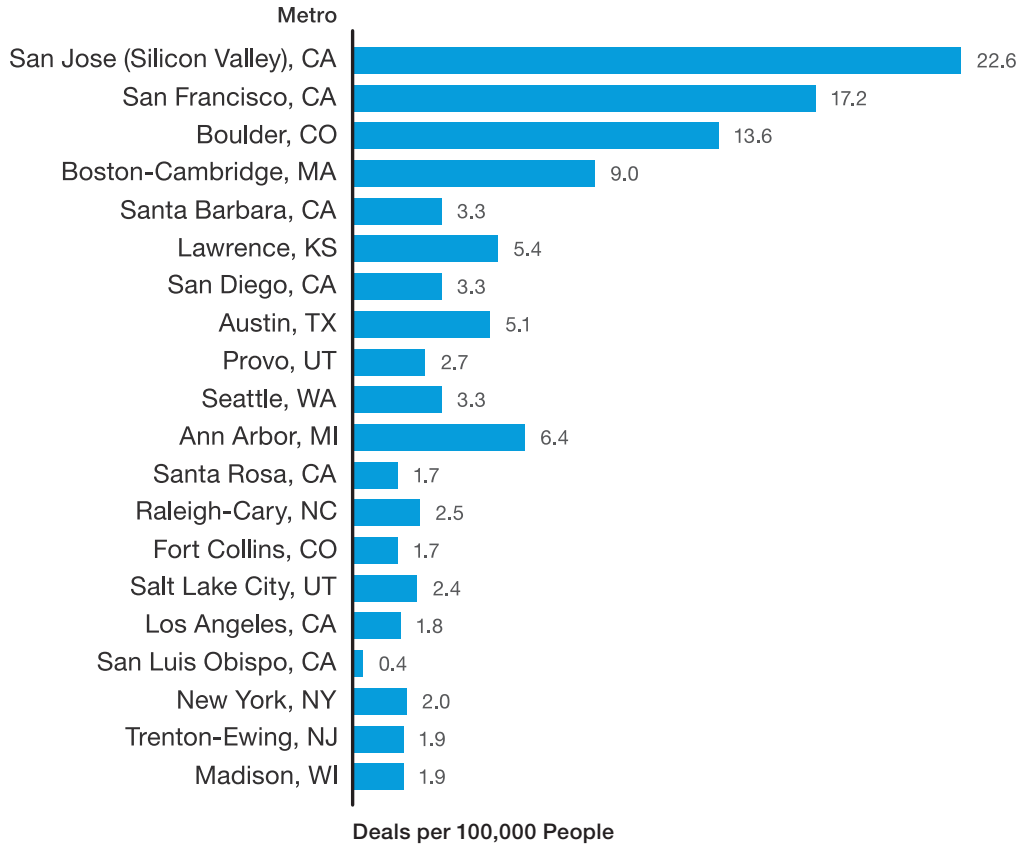
Venture capital investment per 100,000 people

Map 4



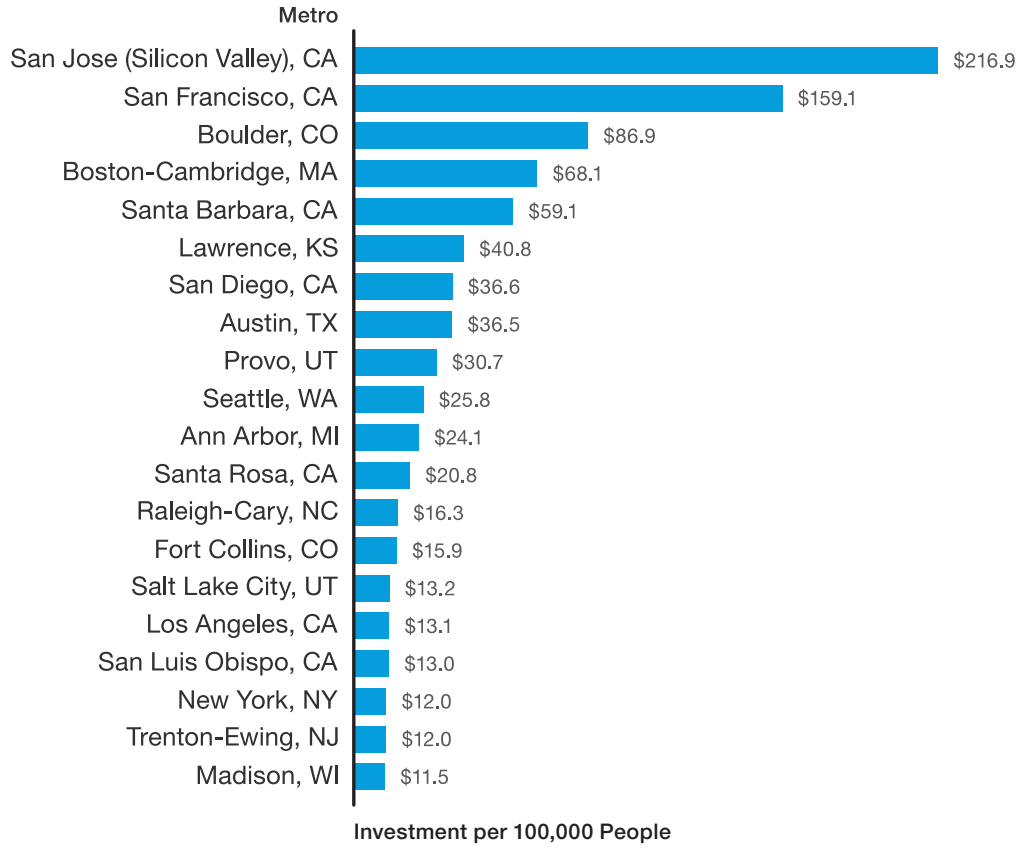
Top 20 metros for venture capital deals per capita

Exhibit 3



Top 20 metros for venture capital investment per capita

Exhibit 4



KEY FACTORS IN THE GEOGRAPHY OF VENTURE CAPITAL INVESTMENT

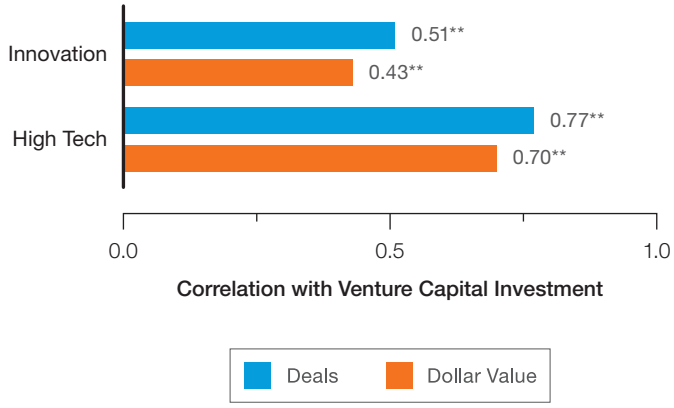
This section turns to the factors that help shape the geography of startup activity and venture capital investment. To probe this, my colleague Charlotta Mellander ran a correlation analysis of the economic, demographic, and social factors that are associated with venture capital investment across metros. The analysis covers the 130 metros that received venture capital investment, including all 51 metros with over one million people, 35 with between 500,000 and one million people; 25 with between 250,000 and 500,000 people; and just 19 with less than 50,000 people. Since bigger metros will attract more venture capital on balance, Mellander ran a partial correlation analysis that controls for metro population. The correlations cover both the number of venture capital investments as well as the dollar amount of these venture capital investments. As usual, I emphasize that correlation does not equal causation. The exhibits below summarize the results. Full detail is provided in the **Appendix Table 4**.

Venture capital investment, it has long been said by those in the business, follows the quality of deals. If venture capital is invested in a location where the companies and products are of low quality, the money will soon flow elsewhere. So, it is not surprising that we find venture capital investment to be significantly associated with levels of innovation (measured patents per capita) and even more so with the concentration of high tech industry (**Exhibit 5**).

Venture capital investment is closely correlated with incomes and wage levels. This relationship likely goes both ways, and also reflects the greater concentration of high tech industry in venture capital metros (**Exhibit 6**).

Venture investment tracks the geography of talent, being correlated with the percentage

Venture capital investment correlation: High tech and innovation — Exhibit 5

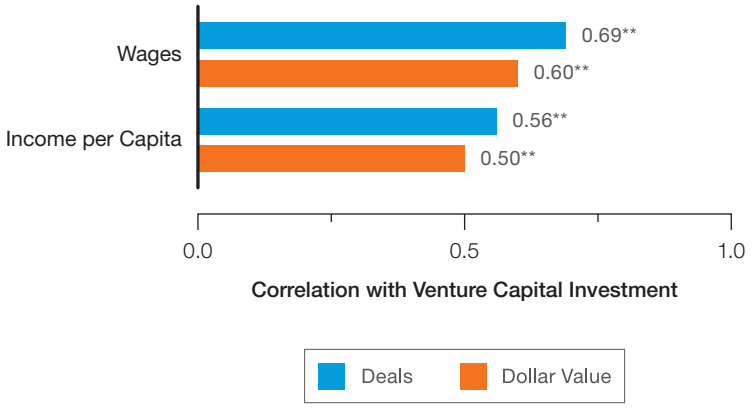


Note: * reflects significance at the 95 percent confidence level and ** reflects significance at the 99 percent confidence level.

of adults who are college grads and the percentage of the labor force holding knowledge-work jobs in the creative class (those spanning science and technology, management, the professions, and arts, media and entertainment).[12] It makes intuitive sense that venture capital would be drawn to the deep talent pools that are found in great cities and around research universities and college towns (**Exhibit 7**).

More interesting is the fact that venture capital investment is associated with specific clusters of creative class occupations. Not surprisingly, it is most closely associated with concentrations of science and technology workers. But venture investment is also closely associated with business and management occupations and also with arts, media and entertainment occupations. This is likely a reflection of the increasingly multifaceted nature of startups. Venture capitalists have pointed out time and time again that having a solid management team in place is as important to a startup's business success, if not more so, than having a cutting-edge technology. Plus, a growing number of high tech fields demand not just great technology but innovative, user-friendly designs. Steve Jobs credited his arts and design background and training as the key to his success in creating market-defining products from the Macintosh to the iPhone and iPad. Apple's continuing success reflects the synergies that come from the integration of scientific and technological, arts and design, and business management and marketing creativity and skill. As the venture capitalist Fred Wilson told me recently,[13] a new generation of tech talent see themselves as creative artists as much as engineers or entrepreneurs; as such,

Venture capital investment correlation: Wages and income per capita — Exhibit 6



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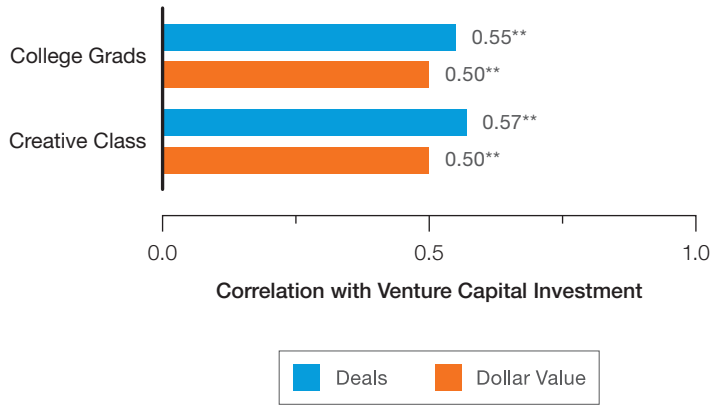
Venture capital investment correlation: College grads and Creative Class — Exhibit 7



Note: * reflects significance at the 95 percent confidence level and ** reflects significance at the 99 percent confidence level.

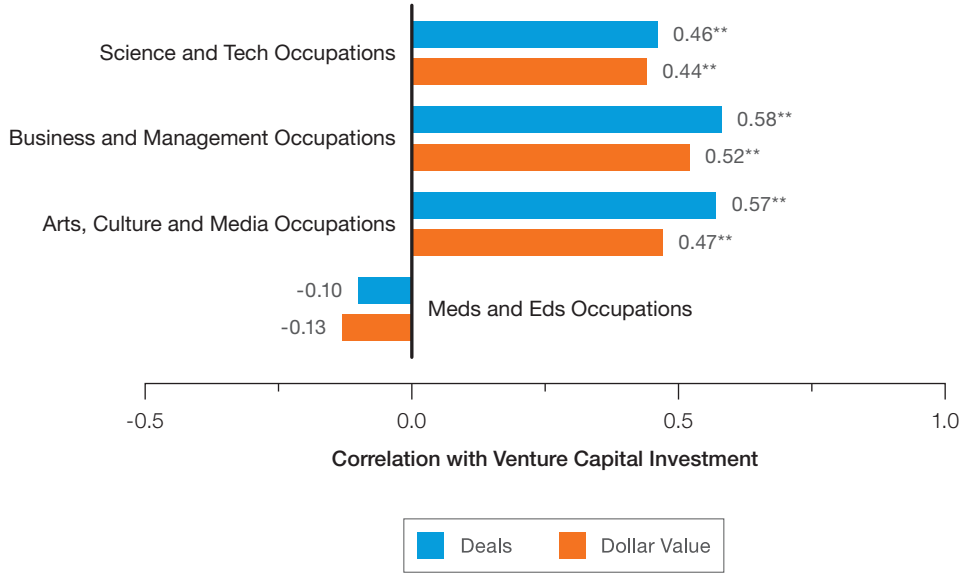
they are drawn to the cultural environment of big cities.

While many economic development experts and mayors, especially in older industrial communities, have pinned their hopes on the role that "eds and meds" (higher education and medical institutions) supposedly play in stimulating high tech development, our analysis finds little to no significant statistical associations between eds and meds employment and venture capital investment (**Exhibit 8**). This is in line with other research, which finds that eds and meds do not play a direct role in urban and regional development.[14]

Venture capital investment and startup activity are also associated with the diversity and openness of metros. Numerous studies have documented the large share of foreign-born engineers in high technology fields; indeed, immigrants make up a considerable share of the founders of high tech startups.[15] We find venture capital to be positively correlated with the share of adults who are foreign-born (**Exhibit 9**).

Venture capital investment correlation: Specific occupations

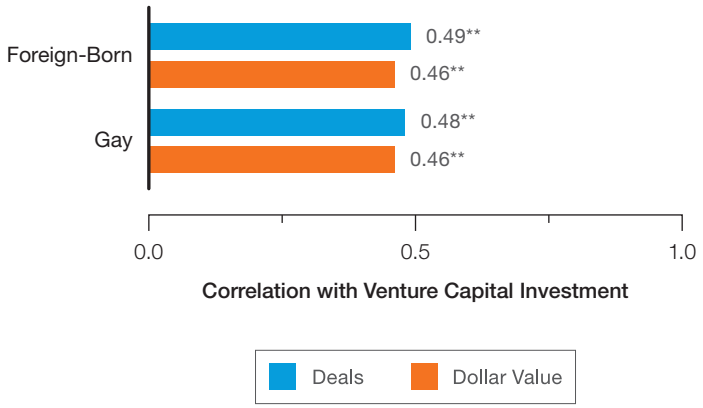
Exhibit 8



Note: * reflects significance at the 95 percent confidence level and ** reflects significance at the 99 percent confidence level.

Venture capital investment correlation: Foreign-born and gay

Exhibit 9



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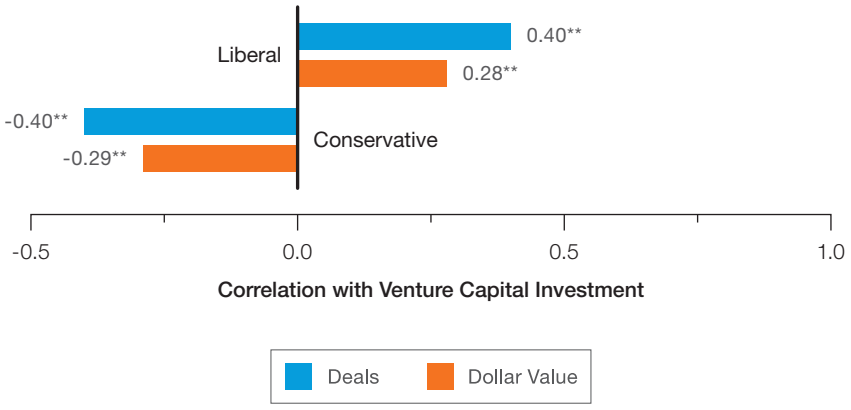
The association between venture capital and the gay and lesbian share of the population is positive as well. The reason for this is not that gays and lesbians launch more high tech enterprises than straight people, but that high tech startups are more likely to be conceived and created in places that are open to new ideas and accepting of different kinds of people. As Gary Gates and I have documented, locations that welcome gays are also likely to have an underlying openness to innovation and risk that is attractive to entrepreneurs.[16]

Perhaps more surprisingly, venture capital reflects the much-documented liberal and conservative or red-blue divide between American states.[17] It is positively associated with a more liberal political orientation, measured as a metro's share of Obama votes, and negatively correlated with a more conservative orientation, measured as its share of Romney votes (**Exhibit 10**).

Ever since Jane Jacobs, urbanists and economists have argued that dense urban areas promote physical proximity and hence the kinds of serendipitous encounters that encourage information sharing, spurring innovation and the formation of new business enterprises.[18] Our analysis suggests that venture capital and startup activity are associated with these characteristics of urban form and structure. We find a positive association between density (measured as people per square mile) and venture capital. We find an even closer association between venture capital and an improved measure of population-weighted density that more accurately reflects density in and around the urban core.[19] (**Exhibit 11**)

Venture capital investment correlation: Liberal versus Conservative

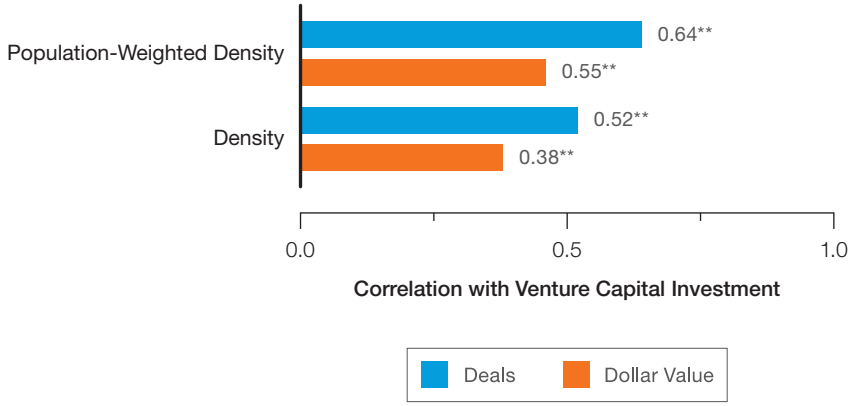
Exhibit 10



Note: * reflects significance at the 95 percent confidence level and ** reflects significance at the 99 percent confidence level.
Liberal is the share of Obama votes in 2010, Conservative is the share of Romney votes in 2010.

Venture capital investment correlation: Density

Exhibit 11



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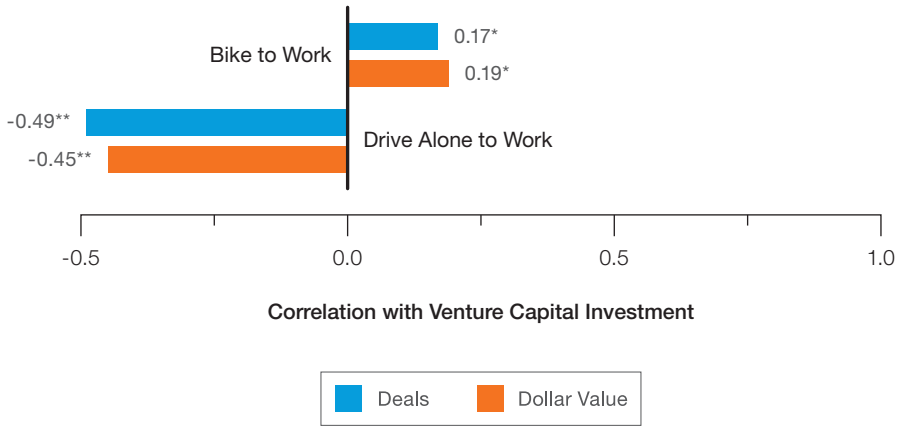
Similarly, venture capital investment is also related to differences in the way people commute to work. It is negatively associated with the share of commuters who drive to work alone, a proxy indicator of suburban sprawl. Conversely, it is positively (though more modestly) associated with the share of commuters who bike to work, another proxy for densities of the sort that are found in big cities, walkable suburbs, and college towns (**Exhibit 12**).

Taken together, these findings suggest that venture investment is drawn to denser, more compact and clustered metros and less likely to occur in more sprawling, car dependent metros. All in all, the results of this correlation analysis point to the spikiness of venture capital and startup activity across the United States, with denser, more talent-driven, and more diverse metros attracting greater levels of venture investment.

Venture capital investment correlation: Commuting

Exhibit 12



Note: * reflects significance at the 95 percent confidence level and ** reflects significance at the 99 percent confidence level.

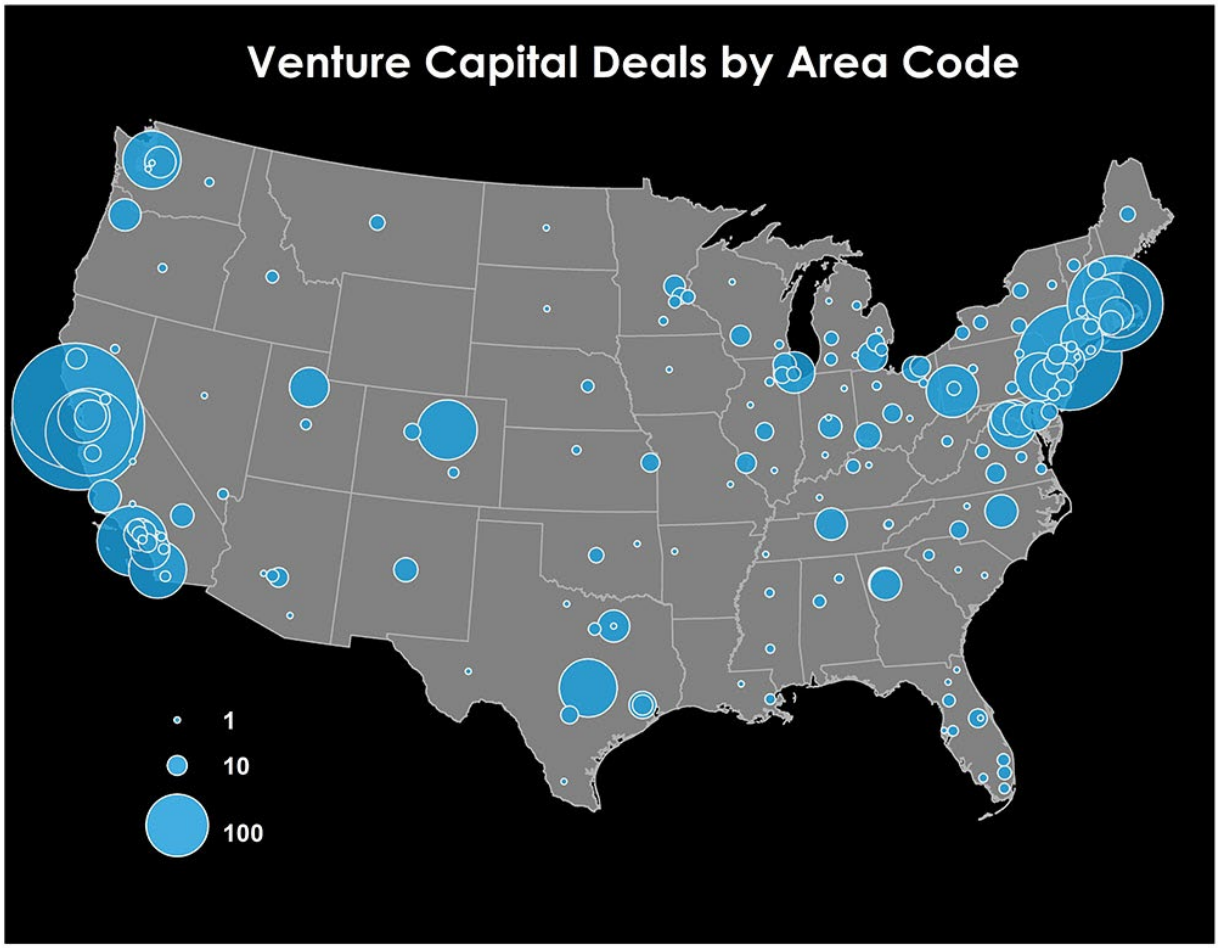
VENTURE CAPITAL AND STARTUP ACTIVITY BY AREA CODE

This section turns to a finer-grained level of geography, examining venture capital and startup activity across telephone area codes. While area codes do not perfectly match up to urban versus suburban geographies, they enable us to isolate certain larger urban centers. The data provided to us by the National Venture Capital Association (based on data from Thomson Reuters) cover the 181 U.S. area codes that had venture capital activity in 2012.

Map 5 charts the number of venture capital deals by area code. The largest dots are on the East and West Coasts, along the BosWash corridor and from the Bay Area through Southern California. There are also significant concentrations in Texas, Seattle, Portland, the North Carolina Research Triangle, Denver and Boulder, Salt Lake City and Provo, Chicago, Pittsburgh, and several other locations. **Exhibit 13** lists the top 25 area codes for venture capital deals (see the Appendix for greater detail).

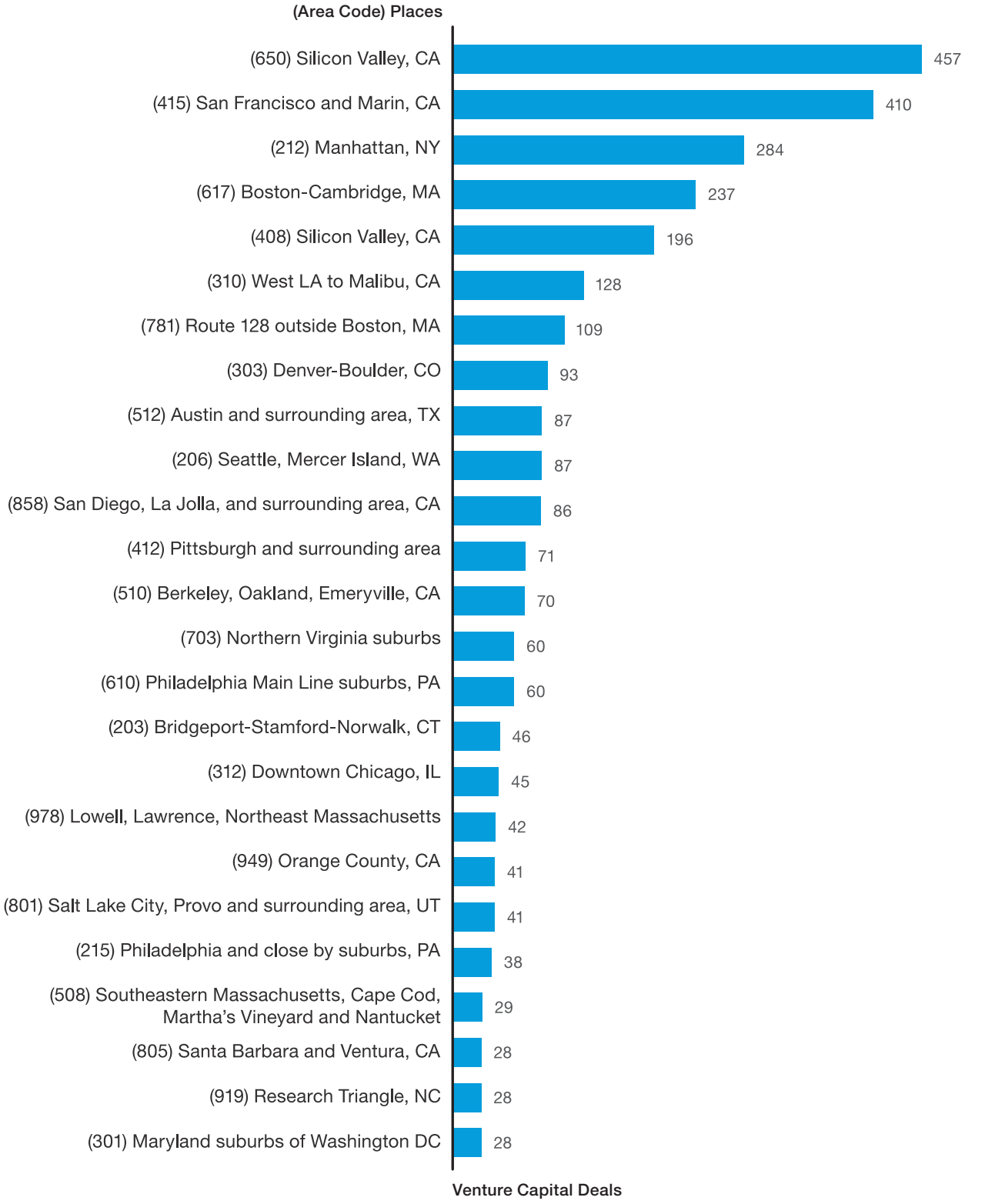
The top ranked area code is Silicon Valley's 650, which includes Palo Alto, Mountain View, Sunny Vale and Los Altos.

Venture capital deals by area code — Map 5



Leading area codes for venture capital deals

Exhibit 13



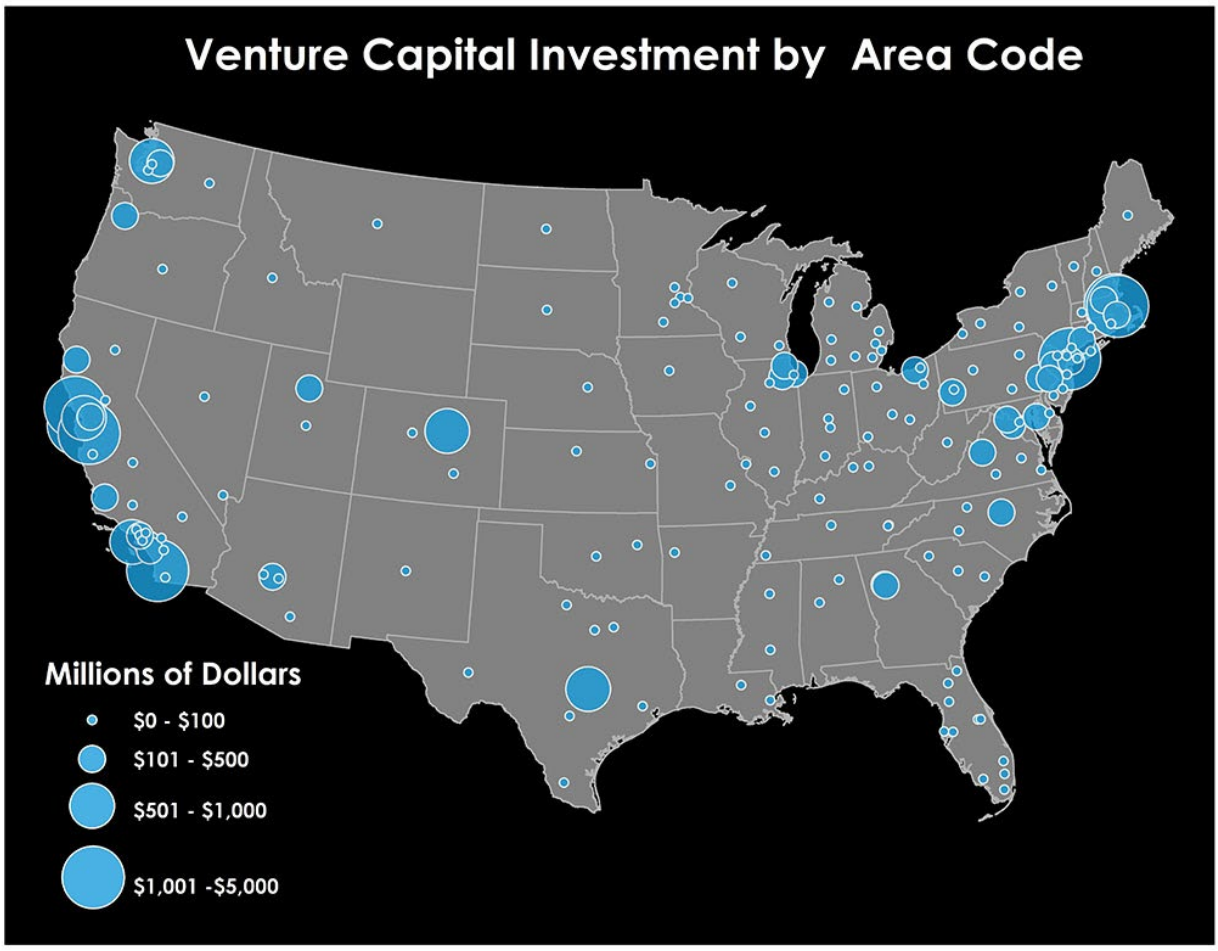
But right behind it is the 415 area code that covers the city of San Francisco. The 212 area code of Manhattan is third and the 617 area code for the Boston-Cambridge area is fourth. Another Silicon Valley area code, 408, is fifth. West LA's 301 area code — including Brentwood, Bel Air, Beverly Hills and especially Venice and Malibu — is in sixth place; Denver-Boulder, Seattle and Austin round out the top 10. The rest of the top 25 include urban areas like Berkeley-Oakland-Emeryville and downtown Chicago and Philadelphia, as well as such classic suburban nerdistans as Northern Virginia, Bellevue-Redmond outside Seattle, and the North Carolina Research Triangle.

Map 6 charts the dollar amounts of venture capital investment by area code, and **Exhibit 14** shows the top 25 area codes for venture investment.

The same general pattern emerges. The top area code is again Silicon Valley's 650, with a little more than $4 billion in venture capital investment. But the 415 area code in San Francisco is a close second with $3.7 billion. Area code 408, also in Silicon Valley, is now third with roughly $2 billion. Manhattan's 212 area code is fourth with $1.7 billion; and the 617 area code for Boston-Cambridge is fifth with $1.6 billion. The rest of the top 25 include a number of urban areas — like Berkeley-Oakland-Emeryville, West LA, downtown Chicago, and Philadelphia — as well as suburban areas in Northern Virginia, the Route 128 suburbs of Boston, the Research Triangle, and others.

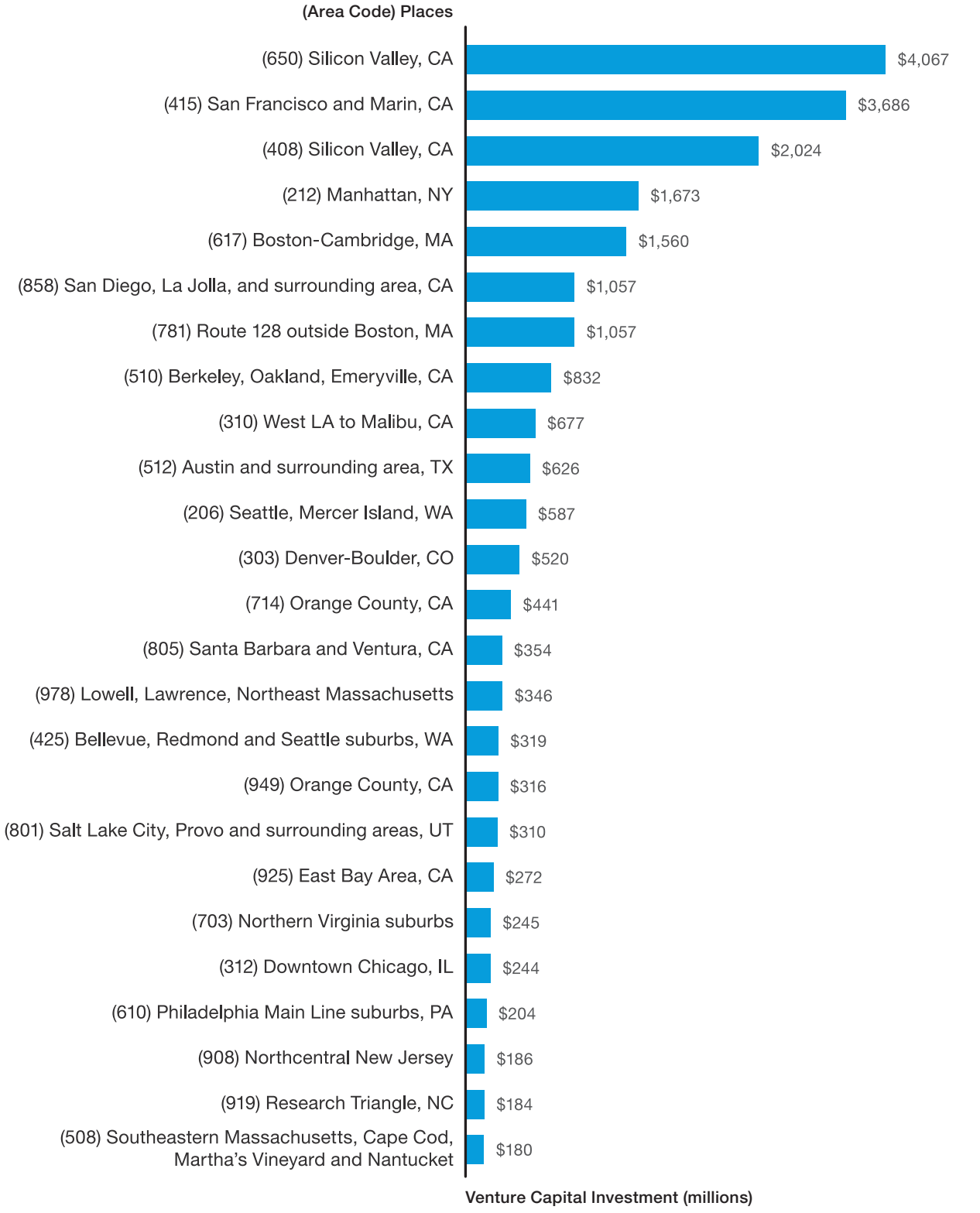
The main takeaway: Our analysis of venture capital investment by area code provides additional evidence of the urban shift in venture capital and startup activity. While Silicon Valley retains the top and third ranked area codes, urban area codes for San Francisco, Manhattan, Boston and Cambridge, Berkeley, and even downtown Chicago also rank among the nation's leading centers of venture investment and startup activity.

Venture capital investment by area code — Map 6



Leading area codes for venture capital investment

Exhibit 14



VENTURE CAPITAL AND STARTUP ACTIVITY BY ZIP CODE

This section examines the micro-geography of venture capital investment and startup activity at the zip code level. It is based on detailed data provided by Dow Jones for eleven leading centers for venture capital activity for 11 metros — San Francisco, Boston-Cambridge, New York, Los Angeles, San Diego, Seattle, Austin, Chicago, Washington, DC, Dallas, and Philadelphia and two combined regions: the San Francisco Bay Area (San Francisco and San Jose) and Washington, DC-Baltimore. Taken together, these metros account for almost three-quarters of U.S. venture capital activity. These data enable us to distinguish venture capital investment and startup activity that takes place in center cities versus suburbs.[20] The data are for 2011 and thus differ from the metro and area code data above that cover 2012.

SAN FRANCISCO BAY AREA

Taken as a whole, the San Francisco Bay Area is the nation's largest center for venture investment, attracting $13.5 billion in venture capital investment based on the zip code data for 2011. What's even more interesting for our purposes is the geographic distribution of venture capital investment within the region. Across the Bay Area as a whole, the San Francisco metro attracted nearly 70 percent more venture capital ($8.5 billion) than Silicon Valley ($5 billion) (**Exhibit 15**).

What's more, the city of San Francisco is far and away the leading jurisdiction for venture investment in the region, taking in $4.4 billion, roughly a third of the Bay Area total for the combined San Francisco and Silicon Valley metros, and a whopping 16 percent of all venture investment nationally. In Silicon Valley, by way of contrast, investment was far more dispersed. The center city of San Jose accounted for slightly less than $700 million in venture investment, roughly 14 percent of the metro total. Denser Palo Alto is the second leading center for venture capital investment in the Bay Area, with $1.3 billion (10 percent of the region's total). Other leading centers for venture capital and startup activity include Redwood City ($1.1 billion), Mountain View ($918 million), Sunnyvale ($800 million), Santa Clara ($733 million), and San Jose ($688 million).

Map 7 shows the clear clusters of venture capital investment in and around downtown San Francisco as well as in Silicon Valley. The biggest dots by far—indicating the greatest volume and concentration of venture capital investment—appear to be in and around the center of San Francisco. And venture investment has spread up and down the Peninsula, filling in the cities that stretch between San Jose and San Francisco proper.

Exhibit 16 shows the 10 leading zip codes for venture capital investment in the Bay Area, including both Greater San Francisco and Silicon Valley.

The two leading zip codes are urban districts that include large swathes of San Francisco's waterfront, running south from the central financial district. San Francisco's urban South of Market district is fifth.

The third leading zip code is in suburban Mountain View and encompasses Google's large corporate campus. Other leading zip codes are located in suburban Redwood City, Mountain View, and Sunnyvale, as well

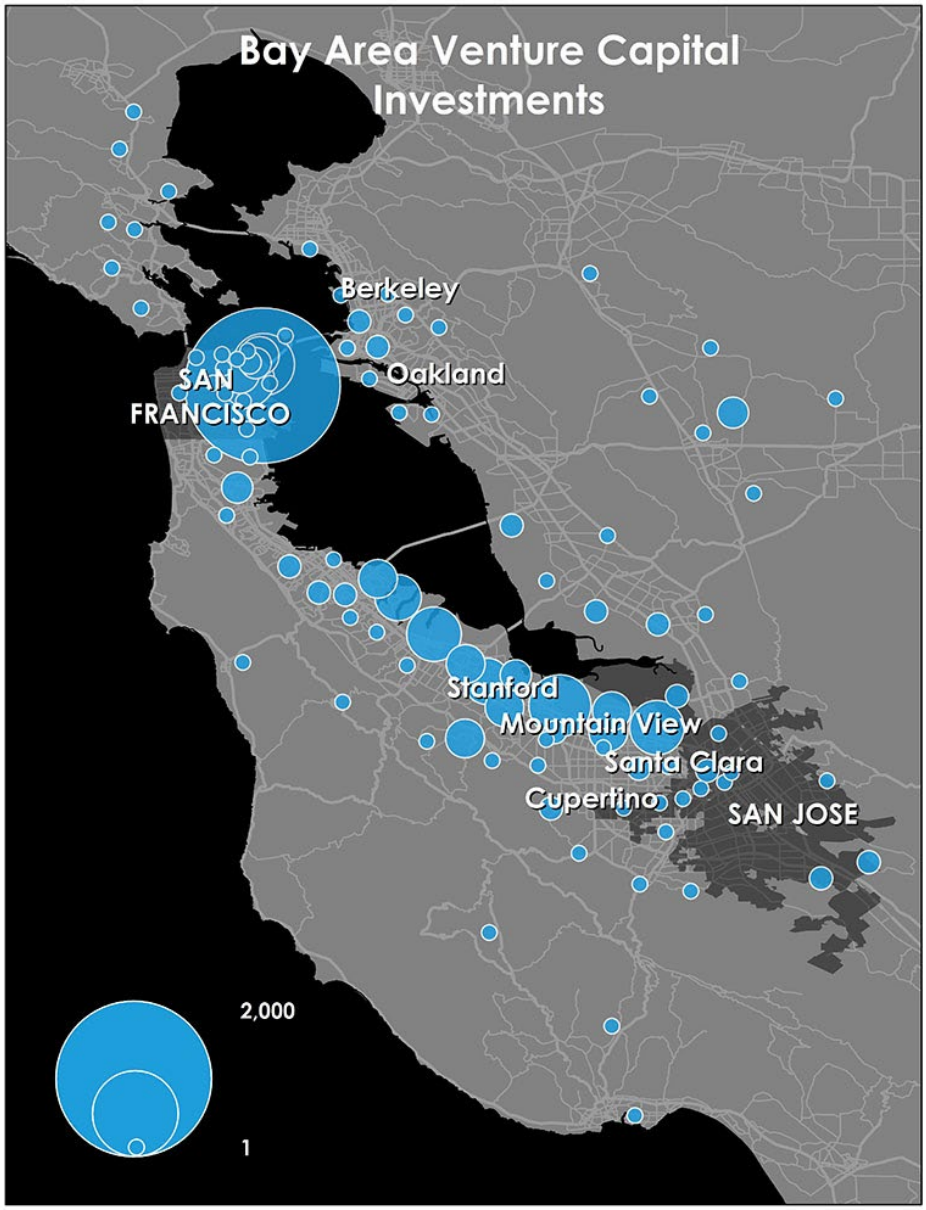
Leading cities for venture capital investment in the Bay Area — Exhibit 15

Rank	City	Investment (millions)	Share of Bay Area Venture Capital Investment
1	San Francisco	$4,390	32.6%
2	Palo Alto	$1,291	9.6%
3	Redwood City	$1,064	7.9%
4	Mountain View	$918	6.8%
5	Sunnyvale	$800	5.9%
6	Santa Clara	$733	5.4%
7	San Jose	$688	5.1%
8	San Mateo	$307	2.3%
9	Fremont	$299	2.2%
10	Pleasanton	$284	2.1%

as Palo Alto, a denser, more walkable city, with a vibrant downtown of restaurants and shops surrounding Stanford University. Overall, the leading zip codes for venture investment include a mix of urban and suburban tech centers.

These locations tend to complement rather than compete with one another. On the one hand, the tech districts of San Francisco and walkable areas of Palo Alto provide the density where new urban startups thrive. On the other, suburban nerdistans provide the larger footprints that established companies like Apple, Facebook, Google and others require. The close connection between urban and suburban tech is reflected in the shuttle buses these companies have long run between their suburban campuses and downtown San Francisco, where many tech workers prefer to live. Overall, the region has shown an ability to adapt to geographic shifts that in some ways mirrors its long-standing ability to adapt to technological shifts. Instead of being challenged by the urban tech shift, the Bay Area as whole has benefitted from it, consolidating its position as the world's leading center for venture capital investment and startup activity.[21]

Bay Area venture capital investments | Map 7



Top 10 zip codes for venture capital investment in the Bay Area

Exhibit 16

Rank	Zip Code	Neighborhood and Features	City	Investment (millions)
1	94107	Portero Hill, South Beach, South Park	San Francisco	$1,886
2	94105	Rincon Hill, Embarcadero South	San Francisco	$693
3	94043	Suburban Mountain View, including Google headquarters	Mountain View	$660
4	94063	Centennial, Stambaugh Heller, Redwood Village, Friendly Acres	Redwood City	$575
5	94103	South of Market	San Francisco	$555
6	95054	Suburban Santa Clara, north	Santa Clara	$548
7	94065	Redwood Shores	Redwood City	$433
8	94301	Crescent Park, University South, Old Palo Alto	Palo Alto	$414
9	94085	North-central Sunnyvale	Sunnyvale	$390
10	94089	North Sunnyvale, including Lakewood, Lockheed Martin headquarters	Sunnyvale	$378

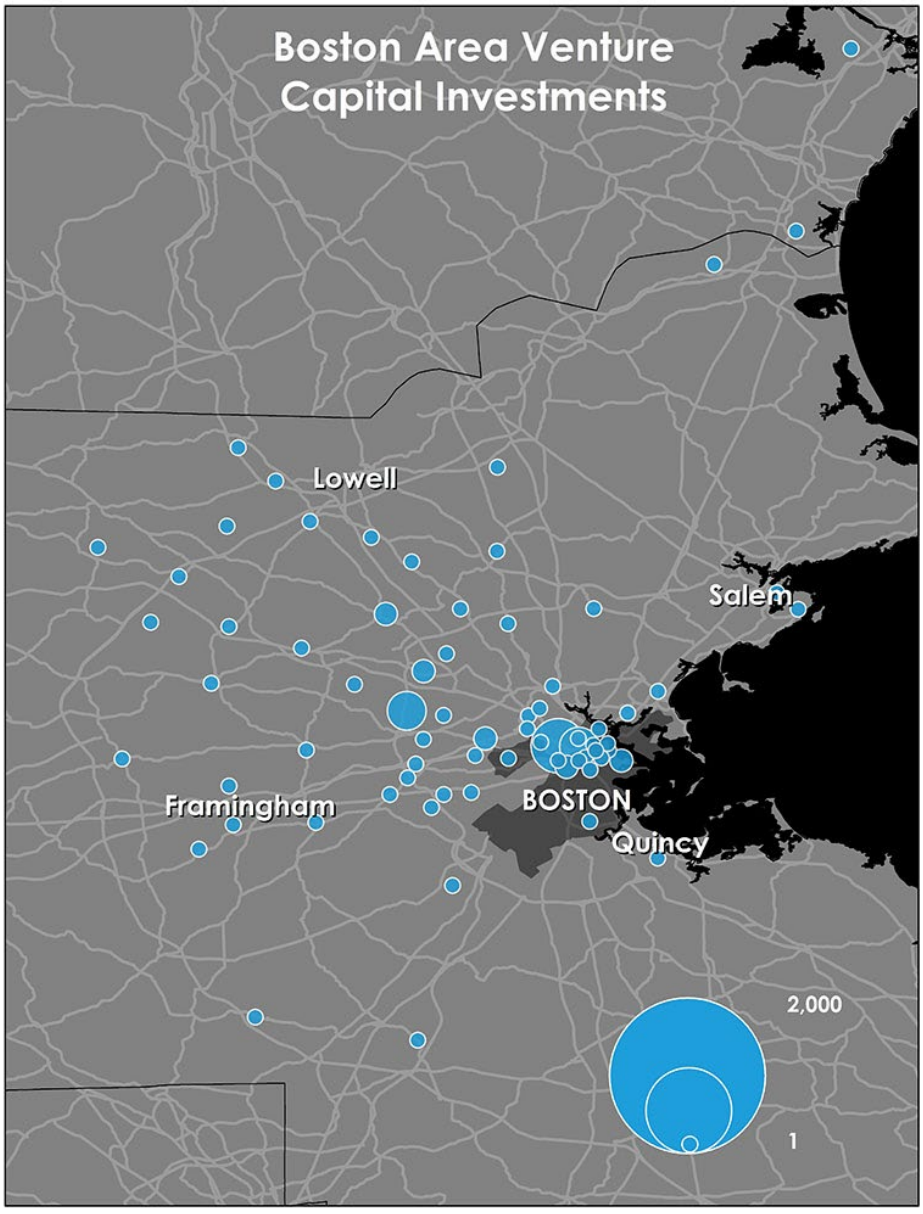
BOSTON AND CAMBRIDGE

Greater Boston is the second leading center for venture capital investment nationwide, attracting $3.3 billion in funding in 2011, trailing only the Bay Area. Home to the nation's first venture capital firm, American Research and Development, high tech in this region developed along the lines of the classic suburban nerdistan, with companies like Digital Equipment Corporation, Data General, Thermo Electron, and many others spread along the Route 128 beltway outside the city.

But that has changed substantially. **Map 8** plots the pattern of venture investment across the greater Boston region. While it still extends far out into the suburbs, there is a substantial concentration in the urban core, especially in and around downtown Boston and in Cambridge near the MIT campus. The startup hubs of Boston follow the major transit routes, especially the MBTA's Red Line, with key clusters emerging in neighborhoods surrounding its stations.

In fact, Cambridge has surged past Boston as the region's number one jurisdiction for venture capital, attracting $1.1 billion in venture investment, roughly a third of the region's total, and 4 percent of the national total. Boston is next with $669 million, 20 percent of the region's total, followed by outlying

Boston area venture capital investments — Map 8



Waltham ($468 million) and Newton ($168 million). Taken together, Boston and Cambridge accounted for $1.7 billion in venture capital investment, more than half (53 percent) of the region's total. **Exhibit 17** lists the top 10 zip codes for venture capital investment in the region.

Two Cambridge zip codes around MIT in Kendall and Central Squares account for roughly $900 million in venture capital investment, almost a third of Greater Boston's total. Downtown Boston accounts for three of the top 10 zips, spanning Back Bay, Copley Square and the Seaport District. Another leading zip code is located in East Watertown, an older industrial community that abuts Cambridge. Just three of the top 10 zip codes are in the traditional Route 128 nerdistans — one in Waltham, one in suburban Bedford, and one in suburban Lexington.

Top 10 zip codes for venture capital investment in Greater Boston — Exhibit 17

Rank	Zip Code	Neighborhood and Features	City	Investment (millions)
1	02139	Central and Kendall Squares, MIT	Cambridge	$530
2	02451	Suburban Waltham	Waltham	$389
3	02142	Kendall Square, MIT north of Mass. Ave.	Cambridge	$384
4	02115	Back Bay	Boston	$166
5	02210	Waterfront: Seaport District, Fort Point Channel	Boston	$152
6	01730	Suburban Bedford	Bedford	$133
7	02421	Suburban Lexington	Lexington	$127
8	02472	Watertown, East Watertown	Watertown	$114
9	02116	Back Bay, Copley Square	Boston	$81
10	02141	Lechmere Square, East Cambridge	Cambridge	$76.7

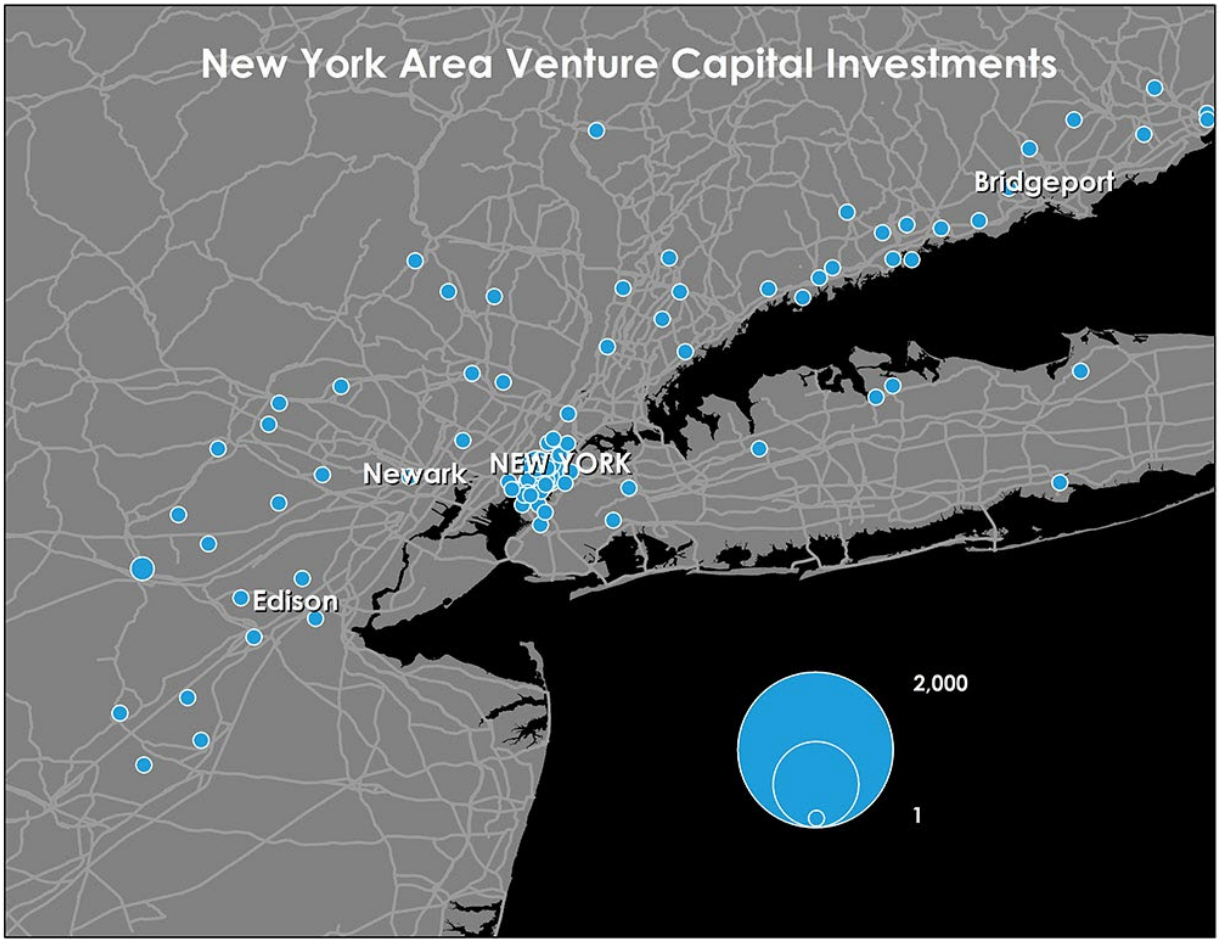
NEW YORK

The rise of New York as a venture capital center has been nothing short of astounding. When Kenney and I did our initial venture capital studies in the 1980s we found virtually no venture capital investment in New York City. The city housed a large number of major funds, of course, but most of the investment flowed to the suburban tech clusters of Silicon Valley and Route 128. Today, New York is the nation's third largest center for venture capital financed startups, attracting $3 billion in venture investment in 2011. And nearly 80 percent of this, $2.4 billion, was invested in the city itself. According to one recent report, nearly 500 new startups received funding in New York City between 2007 and 2011.[22]

Map 9 charts the pattern of venture capital investments across Greater New York. While investment crosses the whole tri-state area, there is significant clustering in and around lower Manhattan, from Midtown south through Chelsea (where Google is located in the old Port Authority Building), down through the Village, Soho and Tribeca, and across into nearby sections of Brooklyn.

This urban shift in venture capital can be seen in **Exhibit 18**, which lists the region's top 10 zip codes for venture capital. All but one of the top 10 are located in midtown or lower Manhattan, spanning Murray Hill, Gramercy Park, Bryant Park, Chelsea, SoHo, Nolita, and the West Village.

New York area venture capital investments — Map 9



Top 10 zip codes for venture capital investment in Greater New York | Exhibit 18

Rank	Zip Code	Neighborhood and Features	City	Investment (millions)
1	10016	Murray Hill, NYU School of Medicine	New York	$357
2	10010	Gramercy Park	New York	$275
3	10012	SoHo, Nolita, NYU	New York	$251
4	10003	Gramercy Park, Union Square, NYU, NoHo	New York	$217
5	10018	Bryant Park, Garment District, Hell's Kitchen	New York	$210
6	10011	Chelsea, West Village	New York	$161
7	10013	Tribeca, Chinatown	New York	$145
8	10001	Chelsea, Koreatown, Penn Station	New York	$136
9	08807	Suburban Bridgewater	Bridgewater, NJ	$121
10	10014	West Village	New York	$80

LOS ANGELES AND ORANGE COUNTY

Los Angeles is much more associated with Hollywood and celebrity culture than startups, venture capital, and high tech industry. But that seems to be changing. Together with nearby Orange County, it is the nation's fourth largest center for venture capital, attracting $2.4 billion in 2011. (Greater LA accounted for almost $1.5 billion of this, and Orange County the other $1 billion.) **Map 10** charts the pattern of venture capital investment for the Greater Los Angeles region and Orange County.

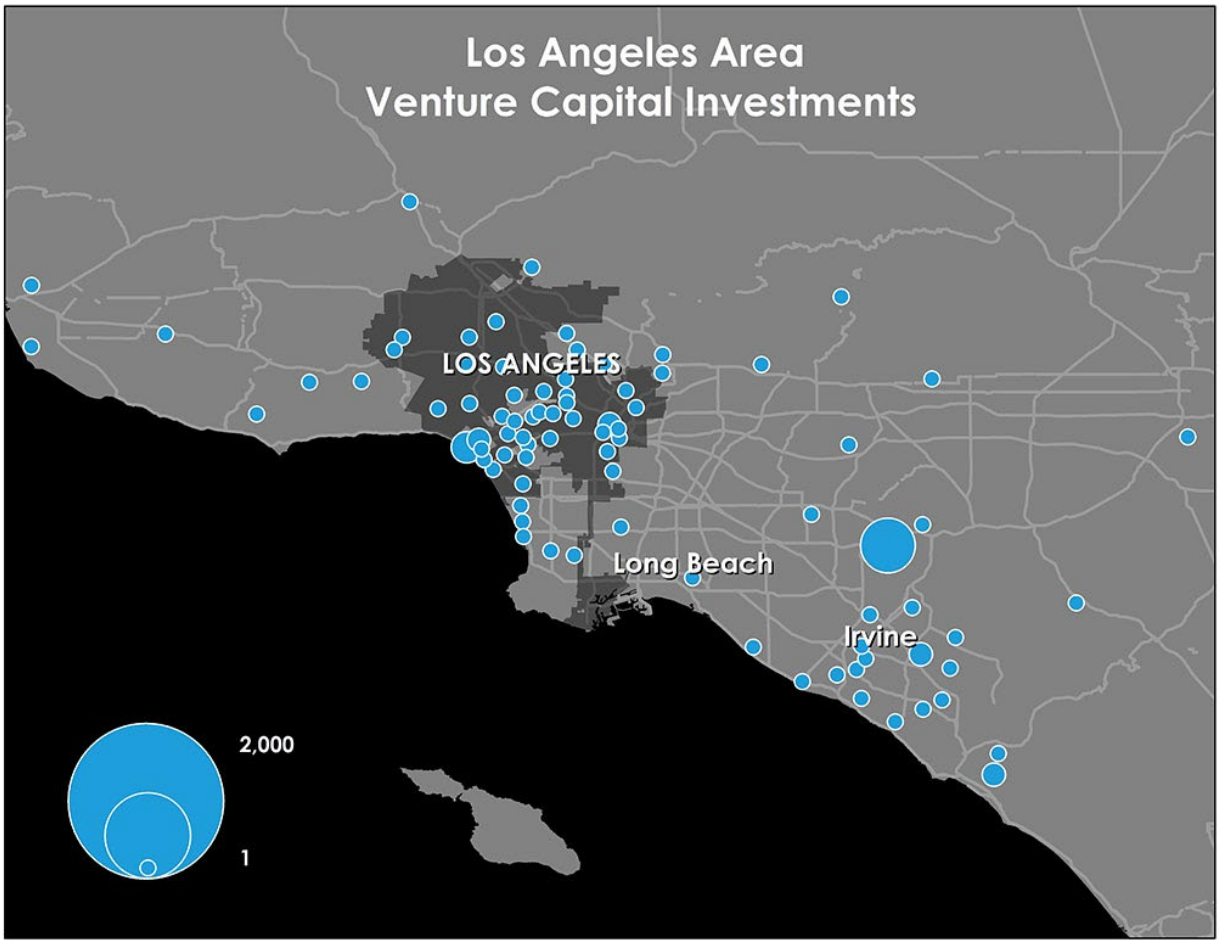
A decade ago, a Brookings report on the state of sprawl in Southern California noted that well-paying jobs in the high tech sector had concentrated in "mature, high-amenity" suburbs like Irvine. But that has clearly begun to change. The city of LA itself attracted $472 million in venture capital investment, roughly 20 percent of the region's total. Relatively dense Santa Monica, particularly its mixed-use, walkable urban core, was close behind, with over $400 million in venture investment, or 16.9 percent of the regional total. Together, these two places accounted for nearly $900 million in venture investment, 36.7 percent of the region's total.

Exhibit 19 shows the top 10 zip codes for venture capital investment in Greater LA including Orange County. The top-ranked zip code is East Anaheim in northern Orange County. An office-park heavy area of Irvine is third on the list. But several far more urban zips also rank highly. Two downtown Santa Monica zip codes, which include the iconic Santa Monica Pier and the Pico District, rank second and sixth, attracting $400 million in combined venture investment. Downtown LA and Bunker Hill rank fifth, drawing in $125 million in venture capital. Zip codes in the Westwood area around UCLA and Hollywood are eighth and ninth, taking in a combined $147 million in venture capital.

Venture capitalist Mark Suster explains the urban shift in startup activity and venture capital in the region this way. "In LA, companies used to be concentrated near Pasadena or in the San Fernando Valley," he wrote on his blog. "These days it's Santa Monica and Venice. Not exactly 'urban' in the way you think of SF or NY but certainly relative to the suburban communities of LA and at a minimum it's where young people want to live/hang out."[23]

Los Angeles area venture capital investments

Map 10



Top 10 zip codes for venture capital investment in Los Angeles and Orange County

Exhibit 19

Rank	Zip Code	Neighborhood and Features	City	Investment (millions)
1	92807	East Anaheim/Anaheim Hills	Anaheim (OC)	$531
2	90401	Downtown Santa Monica, including the pier	Santa Monica	$286
3	92618	Irvine Spectrum Center, Irvine Tech and Research Centers	Irvine (OC)	$154
4	91522	Warner Bros. Studios	Burbank	$128
5	90071	Downtown, Bunker Hill	Los Angeles	$125
6	90404	Midtown Santa Monica, Pico District	Santa Monica	$114
7	92673	Northern San Clemente	San Clemente (OC)	$113
8	90024	Westwood, UCLA	Los Angeles	$76
9	90028	Hollywood	Los Angeles	$71
10	92656	Suburban Aliso Viejo	Aliso Viejo (OC)	$70

WASHINGTON, DC AND BALTIMORE

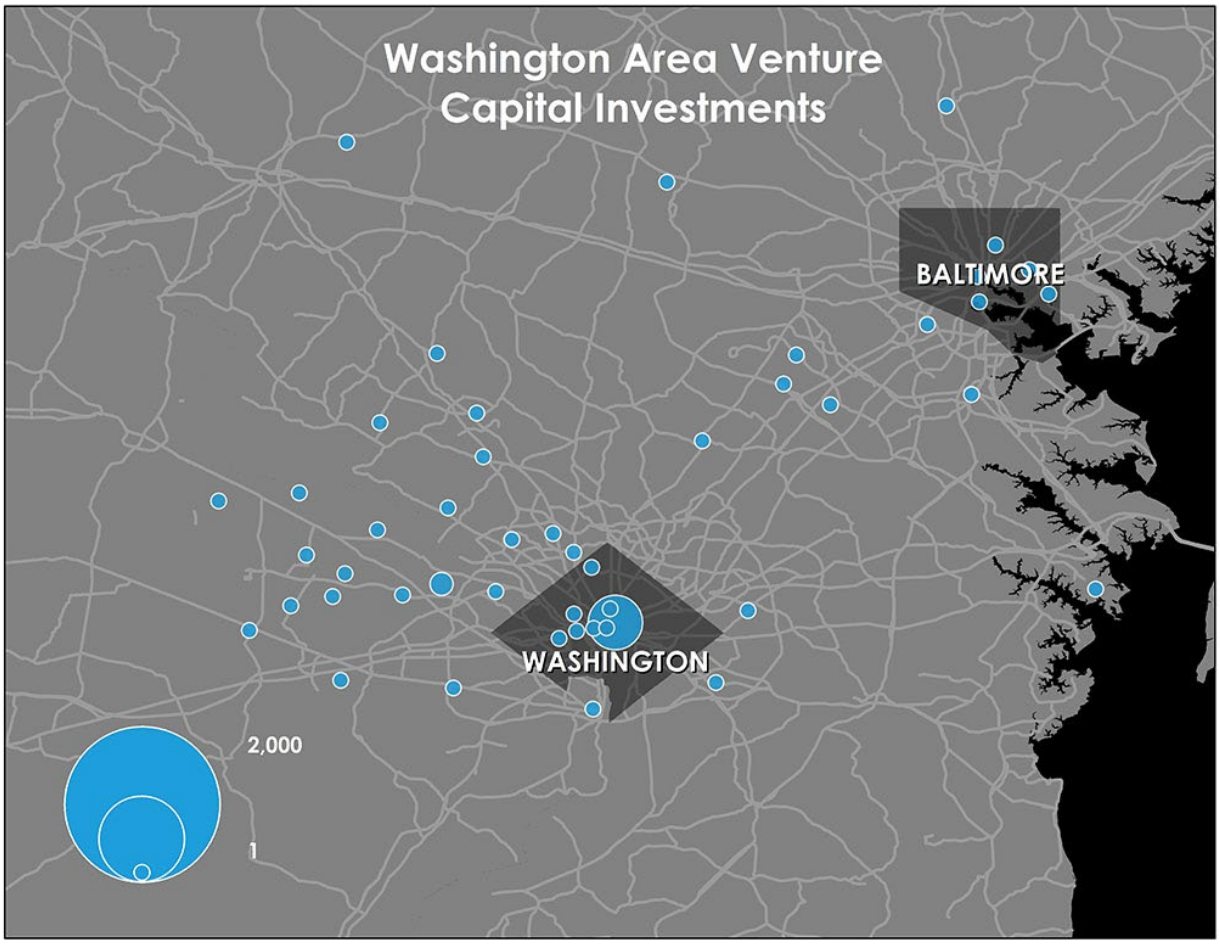
When most people think about Washington, DC, they think of government. But the region accounted for $1.1 billion in venture capital investment—a figure that rises to $1.3 billion when combined with neighboring Baltimore (**Map 11**).

The Greater Washington, DC region has long been seen as the paradigmatic example of what Joel Garreau dubbed the "Edge City" model of development, in which suburban office parks and shopping malls replicate and replace many of the functions of the center city.[24] High tech development in the region followed the nerdistan model, with major centers clustered around AOL in northern Virginia and surrounding the National Institute of Health in suburban Maryland.

But venture capital investment and startup activity in the region now reflects the urban shift. Nearly half of the region's total (47.5 percent), or $600 million, went to the District of Columbia proper, the bulk of it flowing to a single zip code that spans McPherson Square, Thomas Circle, and Logan Circle (note the large dot near the center of the city).

The urban shift is also reflected in significant venture capital investments in mixed-used, transit-oriented, walkable suburbs like Alexandria, Virginia, which attracted nearly $75 million in venture investment and Bethesda, Maryland, which pulled in $33 million (**Exhibit 20**). The city of Baltimore attracted $80 million in venture investment, 6.3 percent of the region's total. Added together, DC, Baltimore, and the close in, denser suburbs of Arlington, Alexandria, and Bethesda account for more than 60 percent of venture investment in the region.

Washington, DC area venture capital investments — Map 11



Top 10 zip codes for venture capital investment in Greater Washington, DC

Exhibit 20

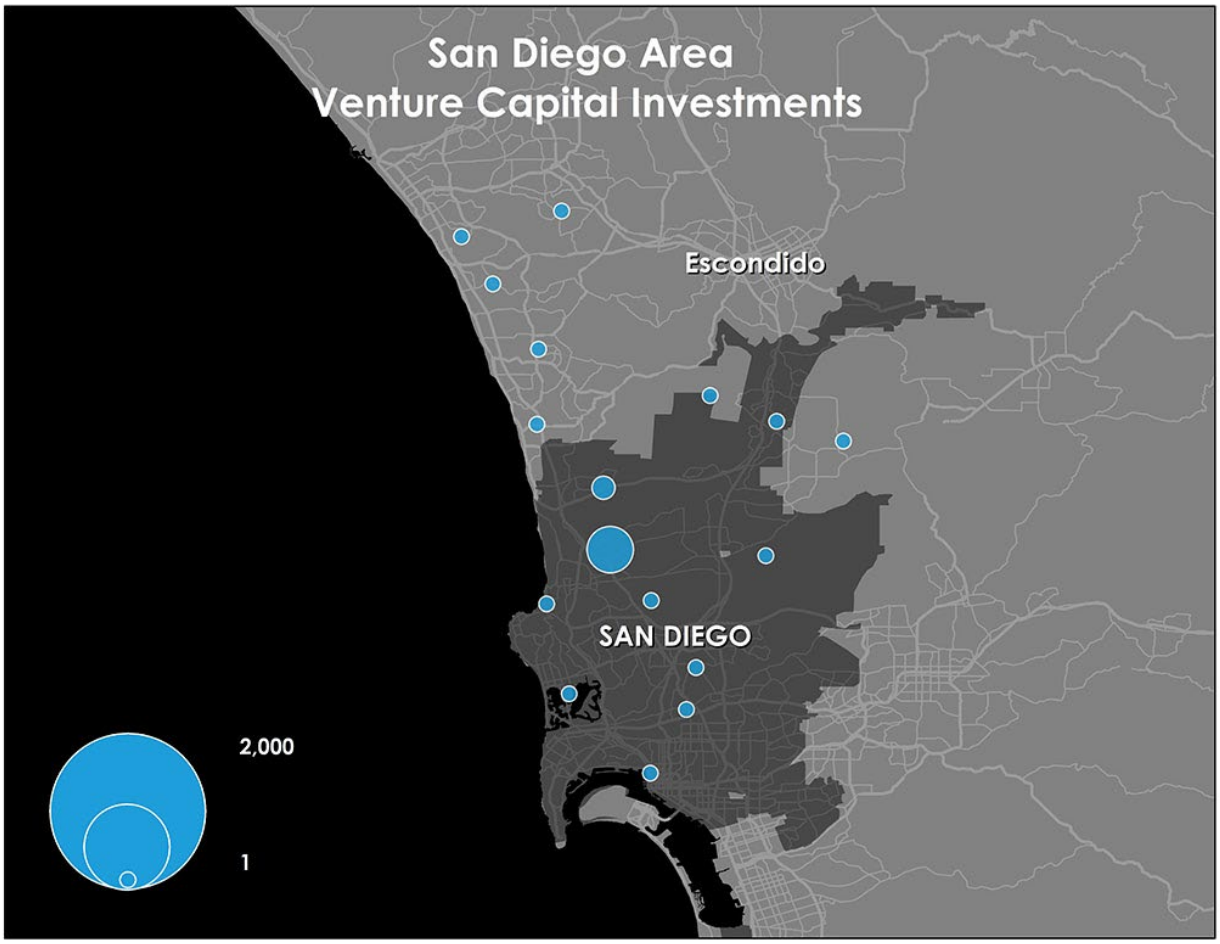
Rank	Zip Code	Neighborhood and Features	City	Investment (millions)
1	20005	Downtown, Logan Circle	Washington, DC	$548
2	22314	Downtown Alexandria	Alexandria	$74
3	21224	Easton of Downtown, Patterson Park, Canton	Baltimore	$37
4	21218	Johns Hopkins University, Coldstream-Homestead-Montebello	Baltimore	$35
5	20814	Downtown Bethesda	Bethesda	$33
6	20037	Downtown, George Washington University	Washington, DC	$26
7	20850	Rockville	Rockville	$26
8	20007	Georgetown, Burleith-Hillandale, Foxhall Village	Washington, DC	$21
9	20190	Downtown Reston	Reston	$18
10	20191	Suburban Reston	Reston	$12

SAN DIEGO

Like Greater LA to its north, the San Diego metro is heavily car oriented and sprawling. But **Map 12** shows the considerable concentration of venture capital investment in and around La Jolla, near the University of California, San Diego, the Scripps Research Institute and the Salk Center, as well as out in Torrey Pines and Sorrento Mesa. With its strengths in biotech and info tech, Greater San Diego attracted just under a billion dollars ($942 million) in venture investment. Sprawl or not, the city of San Diego itself attracted more than $800 million, more than 85 percent of the region's total.

Much of the venture capital investment in San Diego is centered in the northern part of the city. The areas around Torrey Pines, the Carmel Valley, and Serra Mesa topped the list of zip codes for venture investment (**Exhibit 21**). One zip code, 92121, which includes Torrey Pines and Sorrento Mesa and abuts the campus of the University of California, San Diego, attracted four times as much investment as the second most productive zip code. That said, more quintessentially urban districts have begun to see considerable venture investment. A major downtown zip code, which includes the Gaslamp Quarter, Harborview, and parts of Balboa Park, was the fifth leading zip code for venture investment.

San Diego area venture capital investments — Map 12



Top 10 zip codes for venture capital investment in San Diego

Exhibit 21

Rank	Zip Code	Neighborhood and Features	City	Investment (millions)
1	92121	Torrey Pines, Sorrento Mesa	San Diego	$440
2	92130	Carmel Valley	San Diego	$108
3	92123	Serra Mesa	San Diego	$85
4	92011	Southern Carlsbad	Carlsbad	$50
5	92101	Downtown — Gaslamp Quarter, Harborview, Airport	San Diego	$49
6	92128	Rancho Bernardo	San Diego	$45
7	92037	La Jolla — Salk Institute, Scripps Research Institute	La Jolla	$40
8	92075	Suburban Solana Beach	Solana Beach	$30
9	92127	Rancho Bernardo	San Diego	$23
10	92131	Scripps Ranch, Rancho Encantada	San Diego	$17

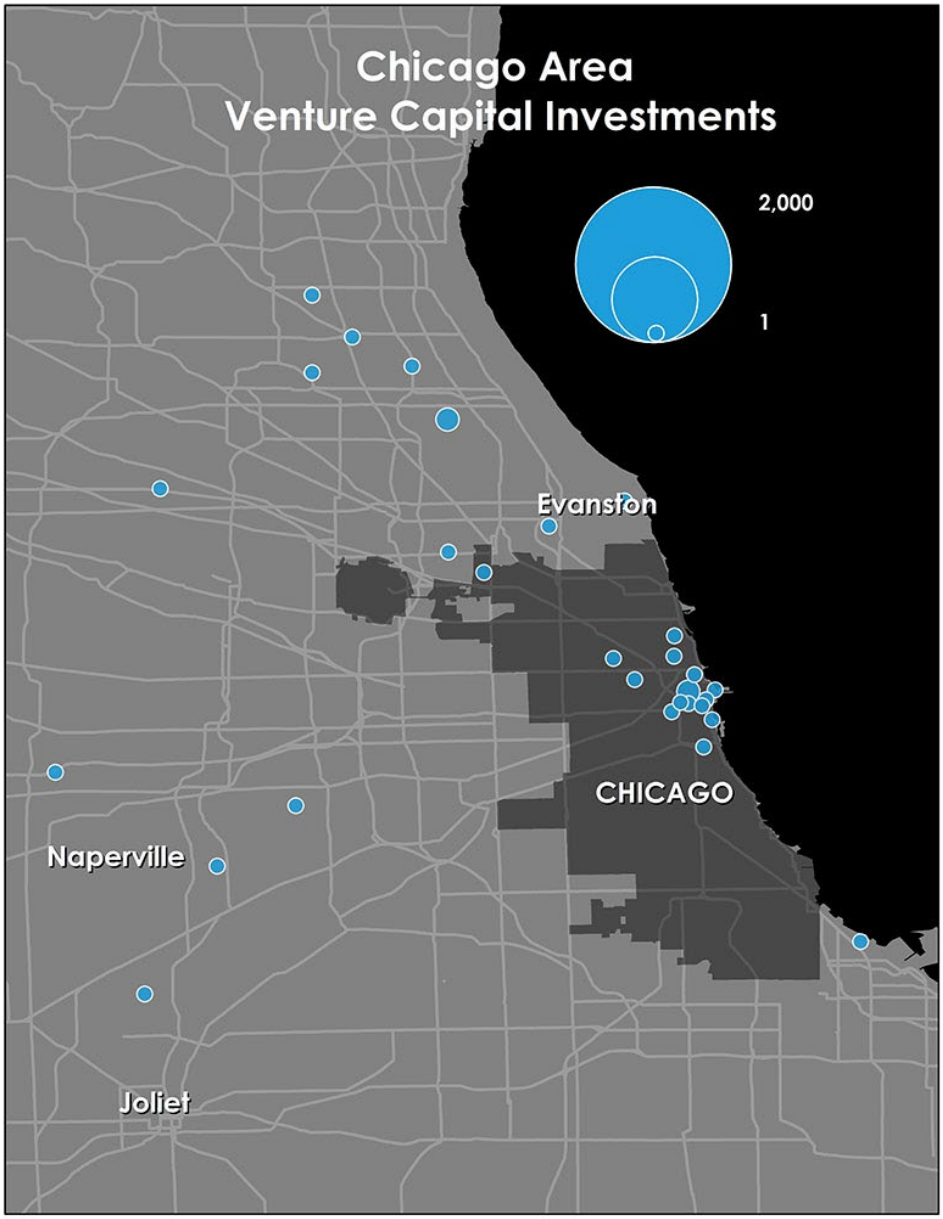
CHICAGO

Chicago is a great city with a bustling, revived downtown. But high tech industry has traditionally preferred its suburbs, where Motorola and other companies have long had their headquarters. Even so, venture capital investment in Chicago has also begun to reflect the urban shift. The metro attracted $668 million in venture capital in 2011. Just under half of this total, $313 million, was invested in the city itself.

Map 13 shows the major locations of venture capital investment in region. Note the cluster of dots in and around the urban core.

Exhibit 22 lists the top 10 zip codes for venture investment in Greater Chicago. Four are in the city itself—in River North, Lincoln Park, the Near West Side including Little Italy, and the downtown core. Together these four zip codes accounted for $229 million in venture capital investment, more than a third of the total for the region.

Chicago area venture capital investments | Map 13



Top 10 zip codes for venture capital investment in Chicago

Exhibit 22

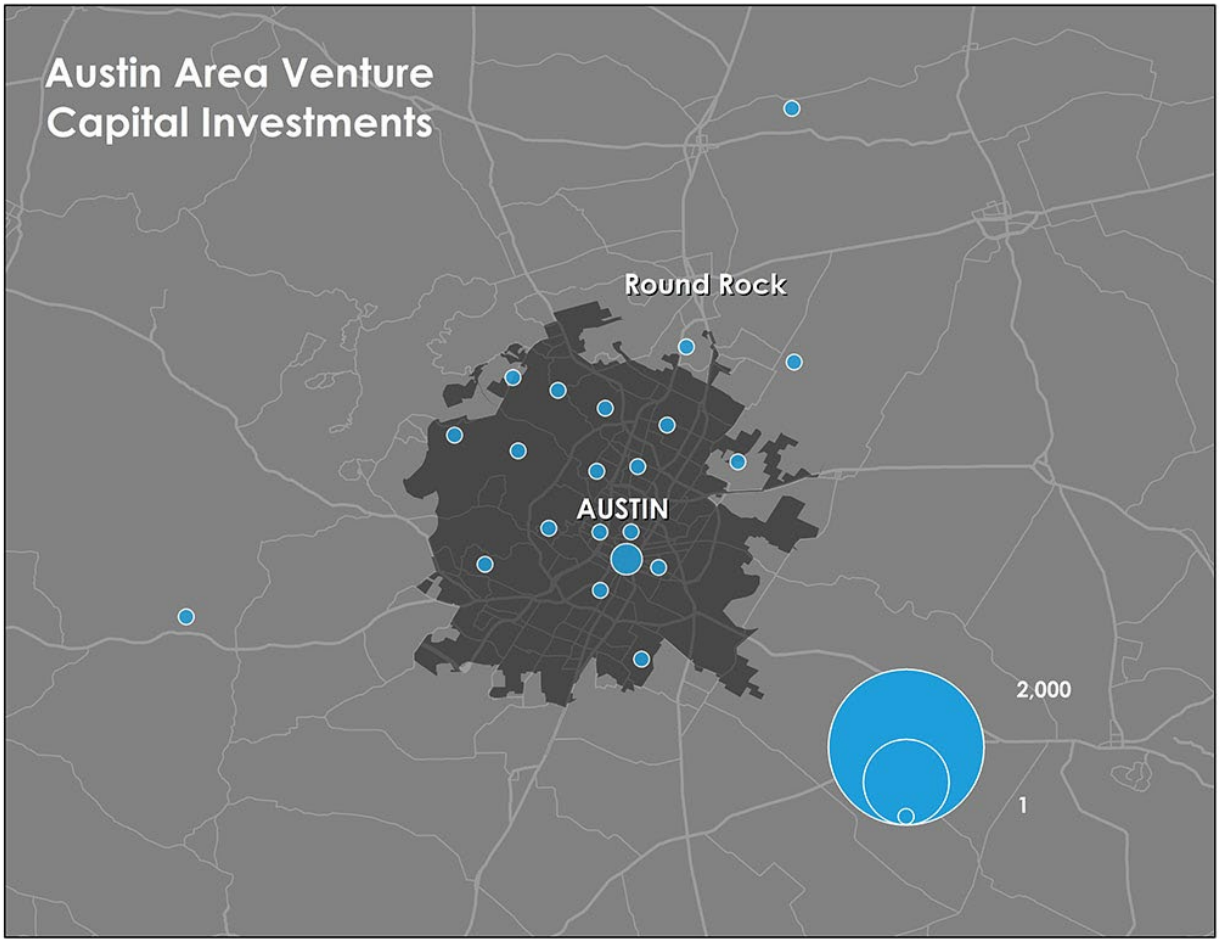
Rank	Zip Code	Neighborhood and Features	City	Investment (millions)
1	60062	Suburban Northbrook	Northbrook	$134
2	60654	River North	Chicago	$105
3	60614	Lincoln Park, Sheffield, DePaul University	Chicago	$71
4	46394	Downtown Whiting, Robertsdale	Whiting, IN	$54
5	60517	Suburban Woodridge	Woodridge	$50
6	60607	Near West Side, United Center, University Village/Little Italy	Chicago	$37
7	60201	Evanston	Evanston	$25
8	60068	Park Ridge	Park Ridge	$25
9	60555	Warrenville	Warrenville	$20
10	60606	Downtown Chicago, Loop	Chicago	$16

AUSTIN

Austin has long been seen as a leading exemplar of the nerdistan, with tech companies like Dell out in the suburbs. But as **Map 14** shows, while venture investments are spread out across the region, there is a substantial urban tilt, with concentrated investments in and around the city's core. The city of Austin itself attracted $555 million, roughly 90 percent of the region's total.

Exhibit 23 lists the top 10 zip codes for venture capital investment in the region. The top-performing zip code by far, which attracted more than $230 million, roughly a third of the region's total, is located downtown.

Austin area venture capital investments — Map 14



Top 10 zip codes for venture capital investment in Austin

Exhibit 23

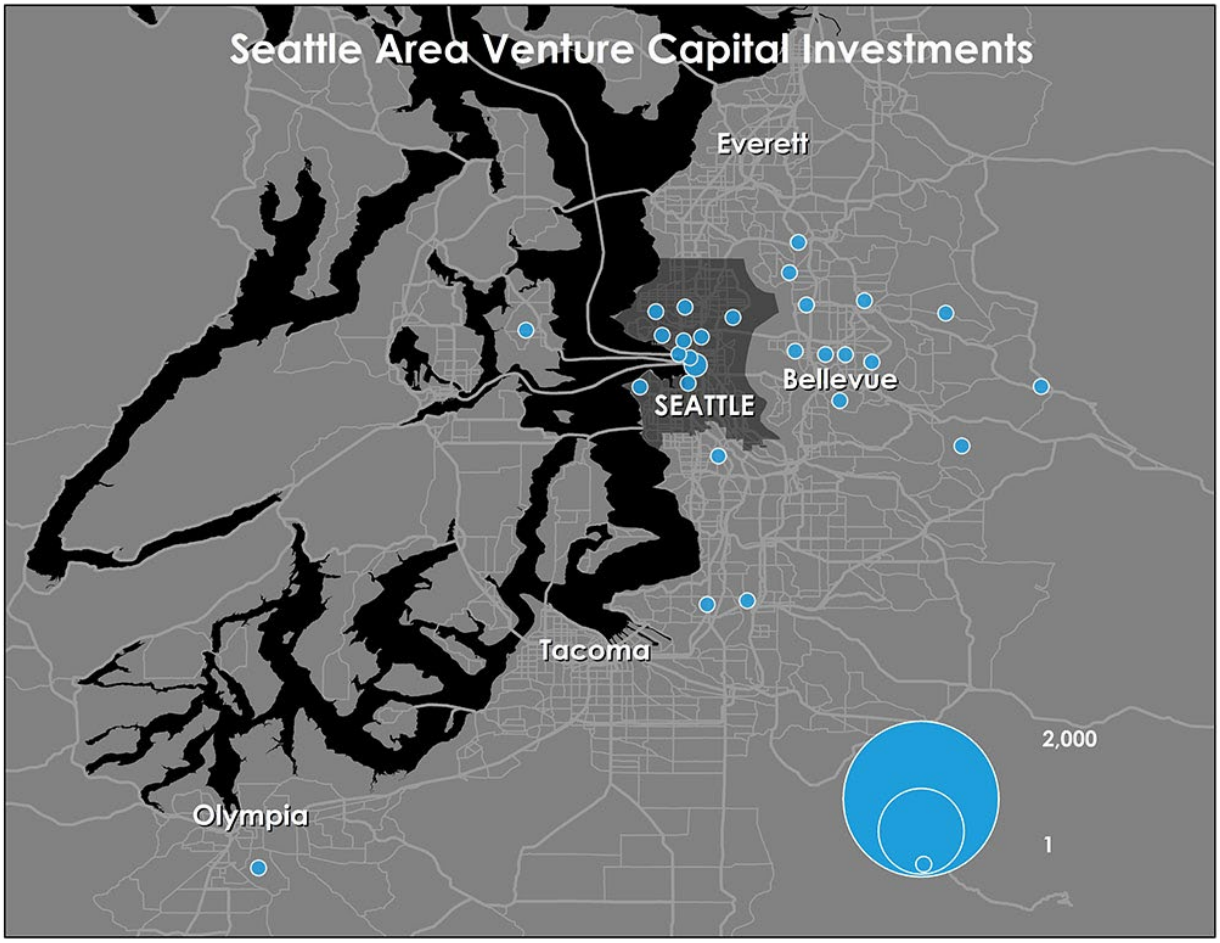
Rank	Zip Code	Neighborhood and Features	City	Investment (millions)
1	78701	Downtown, University Medical Center, State Capitol	Austin	$231
2	78744	Southeast Austin	Austin	$75
3	78759	Northwest Austin	Austin	$72
4	78730	Northwest Hills	Austin	$51
5	78731	Northwest Austin — River Place, Lake Austin	Austin	$41
6	78735	Barton Creek, East Oak Hill	Austin	$33
7	78746	Lost Creek, West Lake Hills, Rollingwood	Austin	$25
8	78754	Pioneer Hill, Jordan Crossing	Austin	$19
9	78758	The Centrum, Walnut Creek	Austin	$16
10	78703	Westfield, Tarrytown	Austin	$14

SEATTLE

With Microsoft's massive headquarters in Redmond, Greater Seattle has long been thought of as a center for suburban tech. But in contrast to many of the other regions I've covered so far, the shift to urban tech is not a completely new development in Seattle, with Amazon's downtown headquarters a prominent example (**Map 15**). As far back 2000, a Brookings Institution report found that Seattle proper was home to nearly half (47 percent) of all area firms that had an initial public offering (IPO) between 1994 and 1999. Nearly 30 percent of these firms were located in the city's downtown central business district, while 53 percent were headquartered in traditional suburban locations.[25]

Exhibit 24 shows the top 10 zip codes for venture capital investment in Greater Seattle. The city is home to the leading zip code, three of the top 5 and five of the top 10. The top ranked zip code, which includes Pioneer Square, attracted nearly $140 million in venture investment, 24 percent of the region's total. The adjacent downtown neighborhood brought in another $67 million in venture investment with substantial clusters in the old industrial districts near Harbor Island and in Belltown as well. All told, the city of Seattle itself attracted $377 million in investment, more than 60 percent of the total of $570 million for the metro as a whole. Nearby Bellevue, a dense, mixed-use, walkable suburb, attracted an additional $118 million in venture capital investment, far outpacing outlying suburban areas.

Seattle area venture capital investments — Map 15



Top 10 zip codes for venture capital investment in Seattle

Exhibit 24

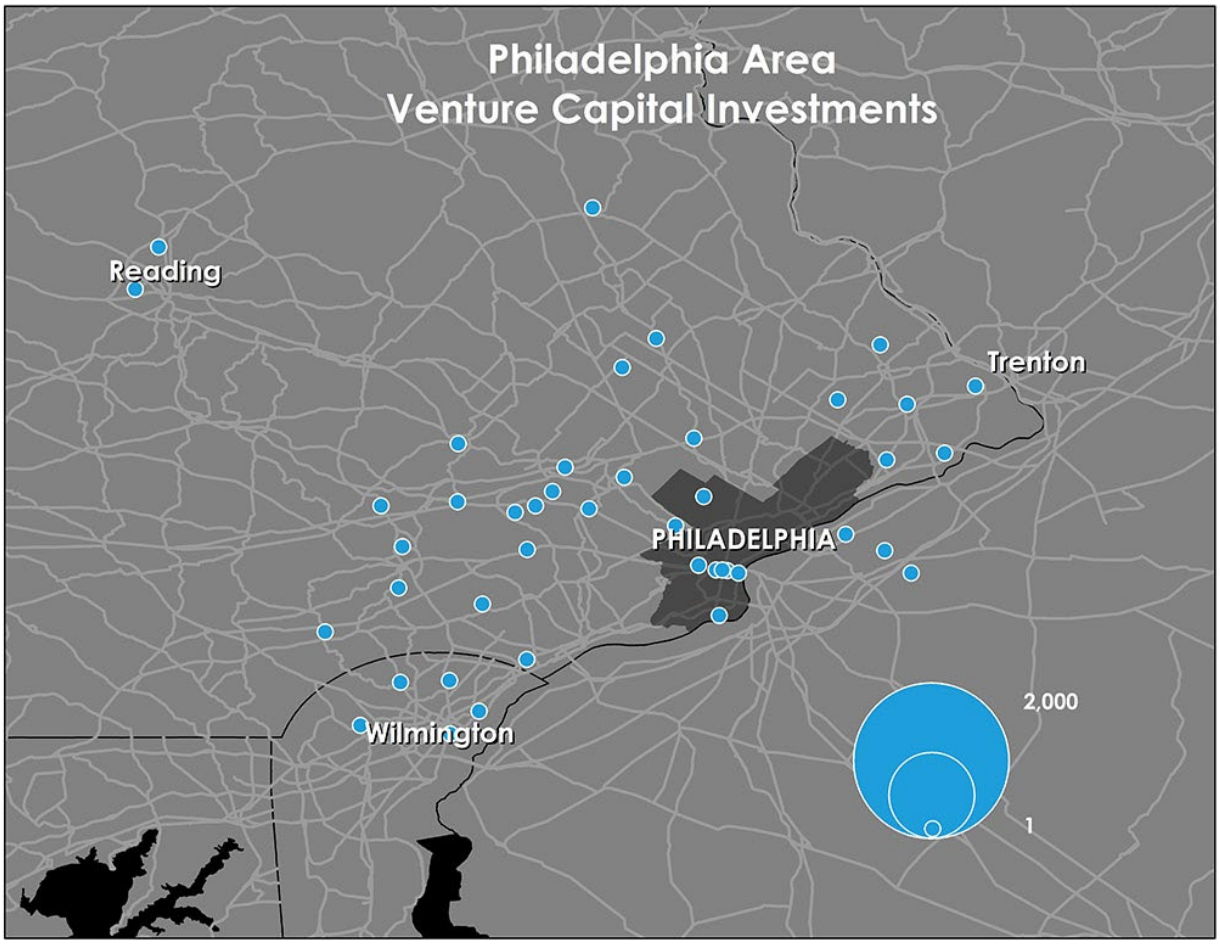
Rank	Zip Code	Neighborhood and Features	City	Investment (millions)
1	98104	Pioneer Square, First Hill	Seattle	$139
2	98101	Central Business District, Pike Place Market	Seattle	$67
3	98004	West Bellevue, Northwest Bellevue	Bellevue	$46
4	98134	Industrial District, Harbor Island	Seattle	$45
5	98033	Suburban Kirkland	Kirkland	$41
6	98121	Belltown	Seattle	$35
7	98109	Westlake, Queen Anne, Space Needle	Seattle	$34
8	98007	Bellevue, West Lake Hills	Bellevue	$27
9	98110	Bainbridge Island	Bainbridge Island	$21
10	98005	Bellevue, Kelsey Creek Park, Wilburton Hill Park	Bellevue	$20

PHILADELPHIA

Not surprisingly, given its concentration of excellent universities and its long legacy as a location for pharmaceutical companies, Greater Philadelphia attracted $340 million in venture capital in 2011. While downtown's Rittenhouse Square and Society Hill are filled with destination restaurants and luxury shopping, the city itself attracted just $53 million in venture capital, only 15.7 percent of the metro's total.

Map 16 shows the spread out geography of venture capital investment across the region. In contrast to many of the other cities and metros we have examined, Greater Philadelphia's tech scene remains predominantly suburban. In fact, the suburbs account for more than 80 percent of venture capital investment in the region.

Philadelphia area venture capital investments — Map 16



Top 5 zip codes for venture capital investment in Philadelphia — Exhibit 25

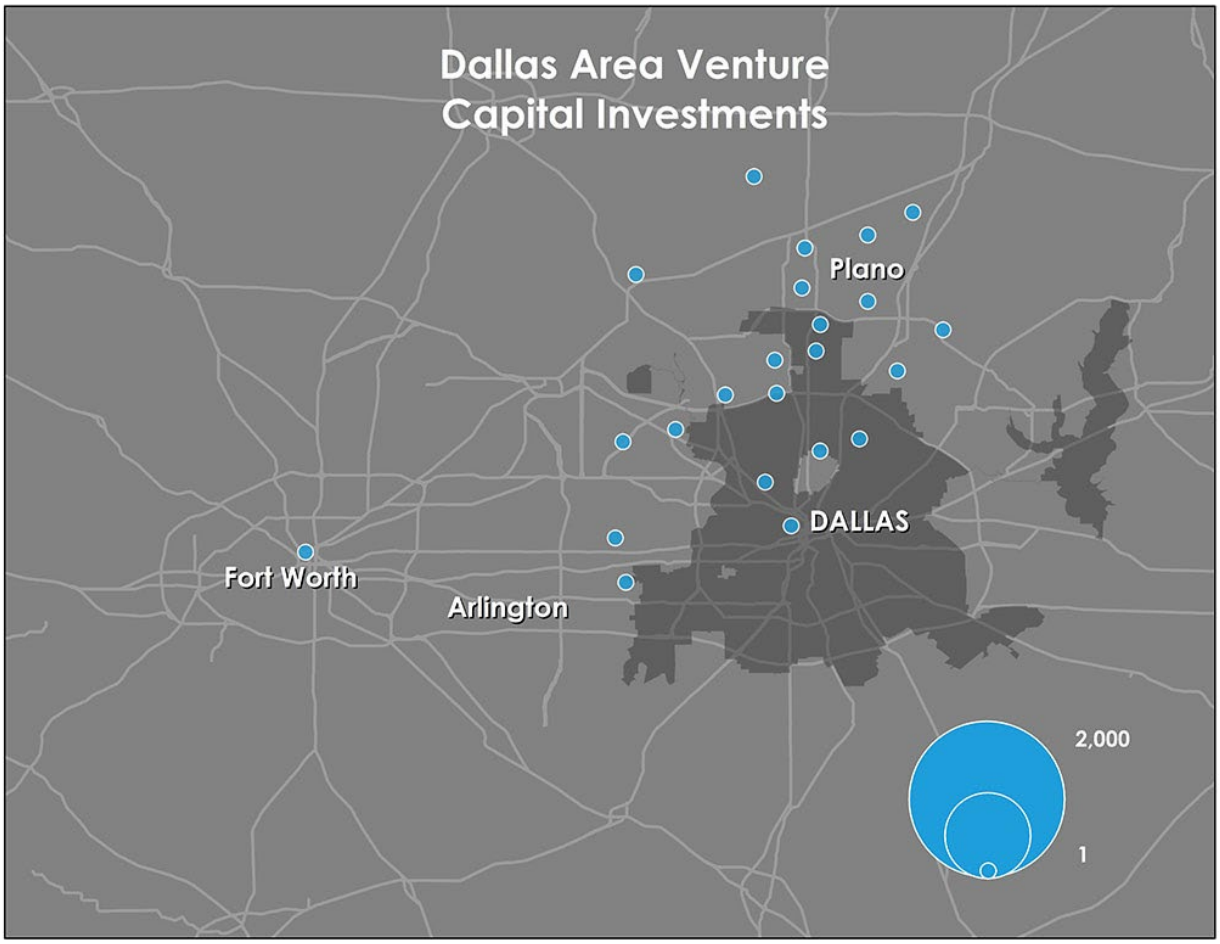
Rank	Zip Code	Neighborhood and Features	City	Investment (millions)
1	19406	King of Prussia	King of Prussia	$90
2	19355	Malvern	Malvern	$44
3	19103	Downtown Philadelphia, Logan Square	Philadelphia	$38
4	19047	Langhorne, Cairn University	Langhorne	$26
5	19428	Conshohocken	Conshohocken	$22

DALLAS

Dallas is a sprawling metro and its high tech companies like Texas Instruments and EDS have long been located in the suburbs. Venture investment in the region remains spread out and suburban today as **Map 17** shows.

As **Exhibit 26** shows, the top three zip codes for venture investment in the region are all in the suburbs. The city of Dallas proper attracted $41 million in venture investment in 2011, just 16.4 percent of the metro's total of $250 million, less than Richardson ($58 million), and only a little more than Irving's $35 million.

Dallas area venture capital investments — Map 17



Top 5 zip codes for venture capital investment in Dallas — Exhibit 26

Rank	Zip Code	Neighborhood and Features	City	Investment (millions)
1	75081	Richardson	Richardson	$47
2	75038	Irving, Airport	Irving	$35
3	75013	Allen	Allen	$30
4	75235	Dallas Love Field, University of Texas	Dallas	$23
5	75244	Brookhaven College	Dallas	$19

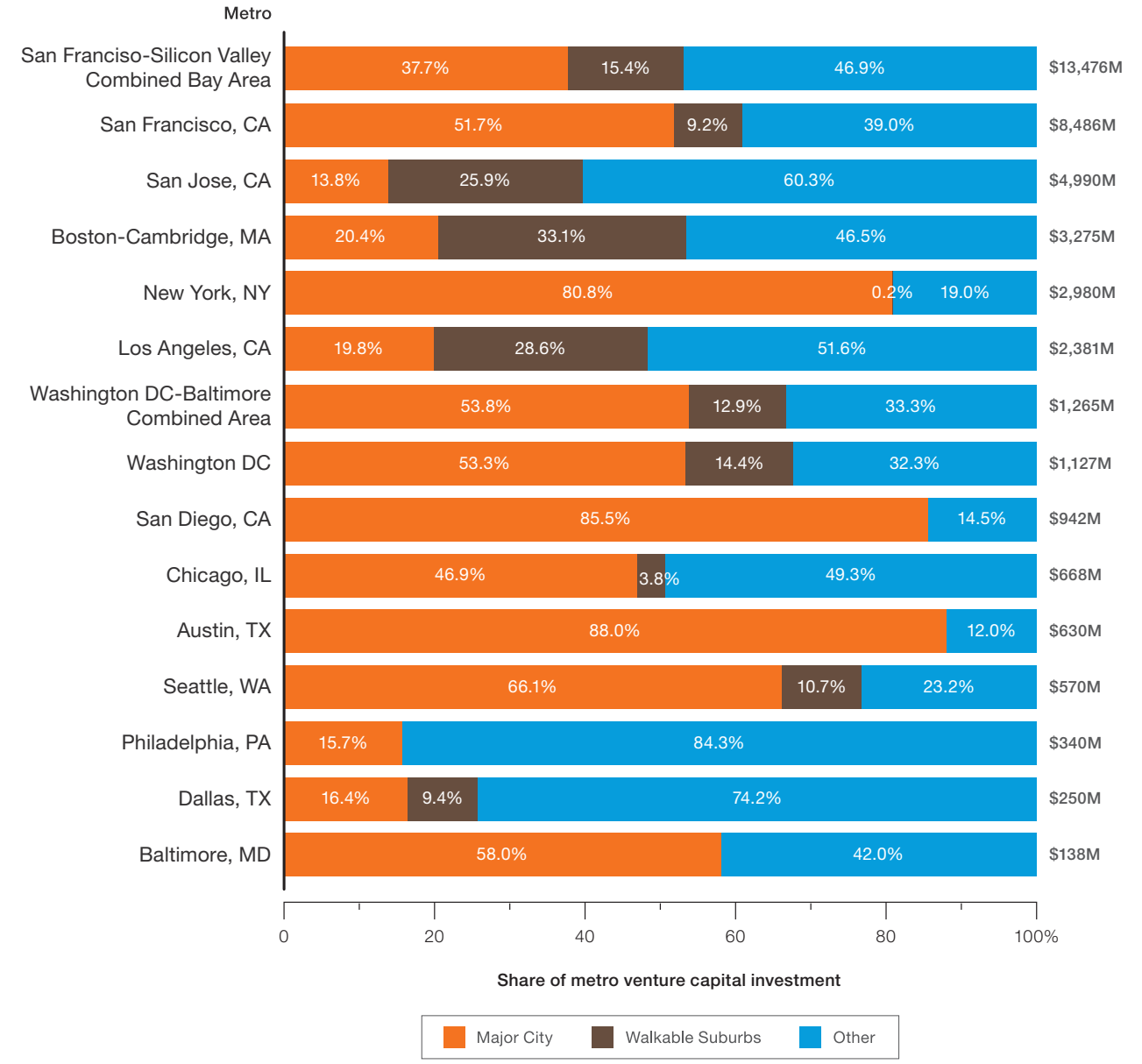
CONCLUSION

This research has examined the geography of venture capital investment and startup activity across the United States. It provides substantial evidence of the rise of urban neighborhoods as locations for venture capital and startup activity.

Exhibit 27 provides additional insight into this urban shift, showing the shares of venture capital investment that go to the major center cities, the walkable suburbs, and other areas.

Share of venture capital investment going to center cities, walkable suburbs and other places

Exhibit 27



We define walkable suburbs based on Christopher Leinberger's detailed research on the subject.[27]

The center or main city accounts for more than half of all venture investment in seven of the 13 regions (11 metros and 2 combined regions). The center city accounts for more than 80 percent of venture investment in three, New York, Austin and San Diego. It accounts for two-thirds in Seattle. It makes up roughly half in Greater Washington, DC, and Baltimore. It accounts for nearly half (46.5 percent) in Chicago. Conversely, the center city accounts for 20 percent or less of venture capital investment in five regions — Greater Boston (20.4 percent), Greater LA (19.8 percent), Dallas (16.4 percent), Philadelphia (15.7 percent) and San Jose (13.8 percent).

Adding walkable suburbs changes the picture considerably. When Cambridge is added to Boston, the two cities account for more than half (53.5 percent) of venture investment in the region. Adding the walkable, mixed-use suburbs of Arlington, Alexandria, and Bethesda to the combined region of greater Washington, DC and Baltimore brings the total to more than 60 percent of all venture capital investment. Palo Alto and San Jose combine for nearly 40 percent of all venture capital investment in Silicon Valley. And Santa Monica and LA combined account for 37 percent of the region's total venture investment.

Still, not all regions of the country have witnessed the urban shift in venture capital and startup activity. Suburban venture capital continues to predominate in two metros: Philadelphia and Dallas.

It's important to point out several caveats to our data, analysis, and findings. The data are for a single point in time. Data that cover a longer time series would help us better understand the full extent of the urban shift in venture capital and startup activity. The zip code level data cover just 13 leading venture capital regions (11 metros and 2 combined regions). Although these are the largest and most significant locations for venture capital investments, data on a larger number of zip codes covering more metros and over a significant time series would shed additional light on the trends and patterns identified here. Future research will address these issues in greater detail, using even more fine-grained data for more cities and metro areas over long time periods.

That said, the rise of urban areas as centers for startup activity and venture capital investment appears to be the result of several broad trends.

Access to Talent: First and foremost is access to talent. More and more venture capitalists, entrepreneurs, and high tech workers are choosing to live in denser, livelier, and less car-dependent urban locations. As venture capitalist Mark Suster notes,[26] "Young people want to live where the action is. They want to live amongst other young people. They want nightly restaurants, bars, dance clubs, karaoke, or whatever other late night activities are available to those with fewer encumbrances." He suspects that this "shift from the burbs to urban environments" is a trend that won't go away any time soon. They are doing so even if it requires them to make a reverse commute. Large numbers of Silicon Valley tech workers commute from their residences in the urban districts of San Francisco on private buses.

Density and Efficiency: Denser cities are more efficient, especially for startups. Older buildings in urban locations are much more affordable for small startups. Many of the most promising young tech companies coming out of the Bay Area — like Pinterest, Zynga, Yelp, Square, and Salesforce — have chosen to locate in San Francisco, in some cases moving from the Valley to the city. "I love the idea of an urban corporate campus with all the energy and variety that provides," Twitter co-founder Jack Dorsey tweeted last February, after opening his company's new headquarters in a newly renovated Art Deco building in San Francisco's downtown.

As Silicon Valley entrepreneur and investor Paul Graham has noted: "For all its power, Silicon Valley has a great weakness: the paradise Shockley found in 1956 is now one giant parking lot. San Francisco and Berkeley are great, but they're forty miles away. Silicon Valley proper is soul-crushing suburban sprawl. It has fabulous weather, which makes it significantly better than the soul-crushing sprawl of most other American cities. But a competitor that managed to avoid sprawl would have real leverage."[28]

The Changing Nature of Technology: The changing nature of technology has a bearing on this as well. High tech industry has become less focused on hardware, which requires factory-sized settings; cloud computing allows companies to shrink their footprints even more. Many tech startups are developing marketing or social media applications or work with multi-media (games, music, and so on). Talent pools in cities have more designers, composers, scenarists, marketers, copywriters, and the like, who are just as important to those newer enterprises as engineers. "Technology innovation doesn't occur in a vacuum. It happens in a dialog with society," the venture capitalist Fred Wilson wrote in the summer of 2012. "[T]hat's one of the reasons that many of the most interesting Bay Area startups are choosing to locate themselves in the city. And it is one of the reasons that NYC is developing a vibrant technology community. Society is at its most dense in rich urban environments where society and technology can inspire each other on a daily basis."[29]

Inequality and Backlash: It's also important to point out that the urban shift in venture capital and startup activity has become so pronounced that it is generating political tensions in several regions. This is perhaps most noticeable in San Francisco, where the influx of startups, high tech companies and tech workers has provoked a substantial backlash over rising rents and the growing economic gap between tech workers and everyone else. The private bus services that Google and other companies use to shuttle tech workers from their residences in San Francisco to their offices in Silicon Valley have become lightning rods for protests.[30] In New York, Scott Stringer, the current city-wide Comptroller and former Manhattan Borough President, has proposed a series of initiatives to spread the benefits of urban tech clustering and concentration to a broader range of communities and economic groups.[31] Our ongoing research and future reports will also focus on this crucial set of issues.

Of course the shift to urban tech does not mean the end of suburban high tech and of the nerdistan per se. What appears to be emerging is a new spatial division of labor for high tech industry, in which smaller startups, especially those which draw on talent pools that are thickest in urban centers, are incubated in cities while established companies that require bigger floor plates and larger campuses remain in the suburbs, where land is cheaper and more available. Google perhaps exemplifies this, retaining its principle campus in Silicon Valley, but opening significant urban outposts in New York, London, and other cities. Many of these suburban campuses artificially emulate the features of density, proximity, and amenities that occur naturally in cities.

A new, more urban geography of venture capital and high tech startups is clearly emerging. It may well turn out that the widespread movement of industry and people to the suburbs in the middle of the last century and the rise of the high tech nerdistans that went along with them were historical aberrations and not the permanent new paradigm that many took them to be. Today, the locus of innovation and entrepreneurship is shifting back to the great urban centers that have been their true catalysts all along.

APPENDIX

Top 20 metros for venture capital investment — Appendix 1

Rank	Metro	Investment (Millions)	Share of all Investments	No. of Deals	Share of all Deals
1	San Francisco-Oakland-Fremont, CA	$6,896	25.6%	744	19.7%
2	San Jose-Sunnyvale-Santa Clara, CA	$3,985	14.8%	415	11.0%
3	Boston-Cambridge-Quincy, MA-NH	$3,101	11.5%	408	10.8%
4	New York-Northern New Jersey-Long Island, NY-NJ-PA	$2,269	8.4%	379	10.0%
5	Los Angeles-Long Beach-Santa Ana, CA	$1,677	6.2%	232	6.1%
6	San Diego-Carlsbad-San Marcos, CA	$1,134	4.2%	103	2.7%
7	Seattle-Tacoma-Bellevue, WA	$886	3.3%	112	3.0%
8	Austin-Round Rock, TX	$626	2.3%	87	2.3%
9	Chicago-Naperville-Joliet, IL-IN-WI	$547	2.0%	71	1.9%
10	Washington-Arlington-Alexandria, DC-VA-MD-WV	$484	1.8%	117	3.1%
11	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	$347	1.3%	105	2.8%
12	Denver-Aurora-Broomfield, CO	$264	1.0%	53	1.4%
13	Atlanta-Sandy Springs-Marietta, GA	$262	1.0%	53	1.4%
14	Boulder, CO	$256	1.0%	40	1.1%
15	Minneapolis-St. Paul-Bloomington, MN-WI	$256	0.9%	29	0.8%
16	Santa Barbara-Santa Maria-Goleta, CA	$251	0.9%	14	0.4%
17	Phoenix-Mesa-Scottsdale, AZ	$214	0.8%	15	0.4%
18	Raleigh-Cary, NC	$184	0.7%	28	0.7%
19	Pittsburgh, PA	$167	0.6%	76	2.0%
20	Provo-Orem, UT	$162	0.6%	14	0.4%

Top 20 metros for venture capital investment per 100,000 people

Appendix 2

Rank	Metro	Investment	Deals
1	San Jose-Sunnyvale-Santa Clara, CA	$216.9	22.6
2	San Francisco-Oakland-Fremont, CA	$159.1	17.2
3	Boulder, CO	$86.9	13.6
4	Boston-Cambridge-Quincy, MA-NH	$68.1	9.0
5	Santa Barbara-Santa Maria-Goleta, CA	$59.1	3.3
6	Lawrence, KS	$40.8	5.4
7	San Diego-Carlsbad-San Marcos, CA	$36.6	3.3
8	Austin-Round Rock, TX	$36.5	5.1
9	Provo-Orem, UT	$30.7	2.7
10	Seattle-Tacoma-Bellevue, WA	$25.8	3.3
11	Ann Arbor, MI	$24.1	6.4
12	Santa Rosa-Petaluma, CA	$20.8	1.7
13	Raleigh-Cary, NC	$16.3	2.5
14	Fort Collins-Loveland, CO	$15.9	1.7
15	Salt Lake City, UT	$13.2	2.4
16	Los Angeles-Long Beach-Santa Ana, CA	$13.1	1.8
17	San Luis Obispo-Paso Robles, CA	$13.0	0.4
18	New York-Northern New Jersey-Long Island, NY-NJ-PA	$12.0	2.0
19	Trenton-Ewing, NJ	$12.0	1.9
20	Madison, WI	$11.5	1.9

	Venture Capital Investment	
	Number of Deals	Dollar Value
Innovation	0.51**	0.43**
High Tech	0.77**	0.70**
Wages	0.69**	0.60**
Income per capita	0.56**	0.50**
College Grads	0.55**	0.50**
Creative Class	0.57**	0.50**
Science and Tech Occupations	0.46**	0.44**
Business and Management Occupations	0.58**	0.52**
Arts, Culture and Media Occupations	0.57**	0.47**
Meds and Eds Occupations	-0.10	-0.13
Foreign-Born	0.49**	0.46**
Gay	0.48**	0.46**
Liberal	0.40**	0.28**
Conservative	-0.40**	-0.29**
Population-Weighted density	0.64**	0.55**
Density	0.52**	0.38**
Bike to Work	0.17*	0.19*
Drive Alone to Work	-0.49**	-0.45**

Note: * reflects significance at the 95 percent confidence level and ** reflects significance at the 99 percent confidence level.

Leading area codes for venture capital deals

Appendix 4

Rank	Area Code	Places	Venture Capital Deals
1	650	Silicon Valley: Palo Alto, Mountain View, Sunnyvale and Los Altos, CA	457
2	415	San Francisco and Marin, CA	410
3	212	Manhattan, NY	284
4	617	Boston-Cambridge-Quincy, MA-NH	237
5	408	Silicon Valley: San Jose, Sunnyvale, Santa Clara, CA	196
6	310	West LA: Brentwood, Bel Air, Beverly Hills, Santa Monica, Manhattan Beach, Venice, Malibu, CA	128
7	781	Route 128 suburban Boston, MA	109
8	303	Denver-Boulder, CO	93
9	512	Austin and surrounding area, TX	87
9	206	Seattle, Mercer Island, Bainbridge Island, and Vashon Island, WA	87
11	858	San Diego, La Jolla, Del Mar and surrounding area, CA	86
12	412	Pittsburgh and surrounding area, PA	71
13	510	Berkeley, Oakland, Emeryville and surrounding area, CA	70
14	703	Northern Virginia suburbs of Washington, DC	60
14	610	Philadelphia Main Line suburbs, Allentown, Bethlehem, Reading, PA	60
16	203	Bridgeport-Stamford-Norwalk, CT	46
17	312	Downtown Chicago, IL	45
18	978	Northeast/Northcentral Massachusetts	42
19	949	Orange County: Irvine, Newport Beach, Laguna Beach, CA	41
19	801	Salt Lake City, Provo and surrounding areas, UT	41
21	215	Philadelphia and close by suburbs, PA	38
22	508	Southeastern, Southcentral Massachusetts, Cape Cod, Martha's Vineyard and Nantucket	29
23	805	Santa Barbara and Ventura, CA	28
23	919	Research Triangle, NC: Raleigh, Durham, Cary, Chapel Hill	28
23	301	Maryland suburbs of Washington, DC	28

Leading area codes for venture capital investment

Appendix 5

Rank	Area Code	Cities	Venture Investment (millions)
1	650	Silicon Valley: Palo Alto, Mountain View, Sunnyvale and Los Altos, CA	$4,067
2	415	San Francisco and Marin, CA	$3,686
3	408	San Jose, Sunnyvale, Santa Clara, CA	$2,024
4	212	Manhattan, NY	$1,673
5	617	Boston, Cambridge and inner suburbs, MA	$1,560
6	858	San Diego, La Jolla, Del Mar and surrounding area, CA	$1,057
7	781	Route 128, suburban Boston, MA	$1,057
8	510	Berkeley, Oakland, Emeryville and surrounding area, CA	$832
9	310	West LA: Brentwood, Bel Air, Beverly Hills, Santa Monica, Manhattan Beach, Venice, Malibu, CA	$677
10	512	Austin and suburbs, TX	$626
11	206	Seattle and Mercer Island, Bainbridge Island, Vashon Island, WA	$587
12	303	Denver-Boulder, CO	$520
13	714	Orange County: Irvine, CA	$441
14	805	Santa Barbara and Ventura, CA	$354
15	978	Northeast/Northcentral Massachusetts	$346
16	425	Bellevue, Redmond and Seattle suburbs, WA	$319
17	949	Orange County: Irvine, Newport Beach, Laguna Beach, CA	$316
18	801	Salt Lake City, Provo and surrounding areas, UT	$310
19	925	East Bay Area, CA	$272
20	703	Northern Virginia suburbs of Washington, DC	$245
21	312	Downtown Chicago, IL	$244
22	610	Philadelphia Main Line suburbs, Allentown, Bethlehem, Reading, PA	$204
23	908	Northcentral New Jersey	$186
24	919	Research Triangle, NC: Raleigh, Durham, Cary, Chapel Hill	$184
25	508	Southeastern, Southcentral Massachusetts including Cape Cod, Martha's Vineyard and Nantucket	$180

Venture capital investment by primary city and suburb

Appendix 6

	Venture Capital Investment		
	Millions of Dollars	Share of All Metros	Share of Regional Total
San Francisco Bay Area	**$13,476**	**50.3%**	
San Francisco-Oakland-Fremont, CA	**$8,486**	31.7%	63.0%
San Francisco	$4,390	16.4%	32.6%
Redwood City	$1,064	4.0%	7.9%
San Mateo	$307	1.1%	2.3%
Fremont	$299	1.1%	2.2%
Pleasanton	$284	1.1%	2.1%
South San Francisco	$222	0.8%	1.6%
Oakland	$197	0.7%	1.5%
Hayward	$118	0.4%	0.9%
San Rafael	$32	0.1%	0.2%
Berkeley	$16	0.1%	0.1%
Walnut Creek	$7	0.0%	0.1%
Major City (San Francisco)	**$4,390**	16.4%	32.6%
Primary City Total (Including Major City)	**$6,935**	25.9%	51.5%
Suburbs/Other	**$1,551**	5.8%	11.5%
Suburbs/Other and Primary Cities (Excluding Major City)	**$4,096**	15.3%	30.4%
San Jose-Sunnyvale-Santa Clara, CA Metro Area	**$4,990**	18.6%	37.0%
Palo Alto	$1,291	4.8%	9.6%
Mountain View	$918	3.4%	6.8%
Sunnyvale	$800	3.0%	5.9%
Santa Clara	$733	2.7%	5.4%
San Jose	$688	2.6%	5.1%
Cupertino	$163	0.6%	1.2%
Milpitas	$76	0.3%	0.6%
Major City (San Jose)	**$688**	2.6%	5.1%
Primary City Total (Including Major City)	**$4,668**	17.4%	34.6%
Suburbs/Other	**$322**	1.2%	2.4%
Suburbs/Other and Primary Cities (Excluding Major City)	**$4,302**	16.1%	31.9%

	Venture Capital Investment		
	Millions of Dollars	Share of All Metros	Share of Regional Total
Boston-Cambridge-Quincy, MA-NH Metro Area	**$3,275**	**12.2%**	
Cambridge	$1,076	4.0%	32.9%
Boston	$669	2.5%	20.4%
Waltham	$468	1.7%	14.3%
Newton	$168	0.6%	5.1%
Framingham	$8	0.0%	0.3%
Quincy	$2	0.0%	0.1%
Major City (Boston)	**$669**	2.5%	20.4%
Primary City Total (Including Major City)	**$2,391**	8.9%	73.0%
Suburbs/Other	**$884**	3.3%	27.0%
Suburbs/Other and Primary Cities (Excluding Major City)	**$2,606**	9.7%	79.6%
New York-Northern New Jersey-Long Island, NY-NJ-PA Metro Area	**$2,980**	**11.1%**	
New York	$2,407	9.0%	80.8%
White Plains	$7	0.0%	0.2%
New Brunswick	$1	0.0%	0.0%
Newark	$1	0.0%	0.0%
Major City (New York)	**$2,407**	9.0%	80.8%
Primary City Total (Including Major City)	**$2,414**	9.0%	81.0%
Suburbs/Other	**$566**	2.1%	19.0%
Suburbs/Other and Primary Cities (Excluding Major City)	**$574**	2.1%	19.2%
Los Angeles-Long Beach-Santa Ana, CA Metro Area	**$2,381**	**8.9%**	
Anaheim	$531	2.0%	22.3%
Los Angeles	$472	1.8%	19.8%
Santa Monica	$402	1.5%	16.9%
Irvine	$203	0.8%	8.5%
Burbank	$153	0.6%	6.4%
Pasadena	$43	0.2%	1.8%
Torrance	$32	0.1%	1.3%
Long Beach	$10	0.0%	0.4%
Compton	$9	0.0%	0.4%
Newport Beach	$6	0.0%	0.3%
Fullerton	$1	0.0%	0.0%
Major City (Los Angeles)	**$472**	1.8%	19.8%
Primary City Total (Including Major City)	**$1,861**	7.0%	78.2%
Suburbs/Other	**$520**	1.9%	21.8%
Suburbs/Other and Primary Cities (Excluding Major City)	**$1,909**	7.1%	80.2%

	Venture Capital Investment		
	Millions of Dollars	Share of All Metros	Share of Regional Total
Washington, DC Metro Area	**$1,265**	**4.7%**	
Washington-Arlington-Alexandria, DC-VA-MD-WV Metro Area	**$1,127**	4.2%	89.1%
Washington, DC	$600	2.2%	47.5%
Alexandria	$74	0.3%	5.8%
Bethesda	$34	0.1%	2.7%
Reston	$30	0.1%	2.3%
Rockville	$26	0.1%	2.0%
Frederick	$5	0.0%	0.4%
Arlington	$4	0.0%	0.3%
Gaithersburg	$1	0.0%	0.1%
Major City (Washington, DC)	**$600**	2.2%	47.5%
Primary City Total (Including Major City)	**$772**	2.9%	61.0%
Suburbs/Other	**$354**	1.3%	28.0%
Suburbs/Other and Primary Cities (Excluding Major City)	**$526**	2.0%	41.6%
Baltimore-Towson, MD Metro Area	**$138**	0.5%	10.9%
Baltimore	$80	0.3%	6.3%
Major City (Baltimore)	**$80**	0.3%	6.3%
Primary City Total (Including Major City)	**$80**	0.3%	6.3%
Suburbs/Other	**$58**	0.2%	4.6%
Suburbs/Other and Primary Cities (Excluding Major City)	**$58**	0.2%	4.6%
San Diego-Carlsbad-San Marcos, CA Metro Area	**$942**	**3.5%**	
San Diego	$806	3.0%	85.5%
Carlsbad	$59	0.2%	6.3%
Major City (San Diego)	**$806**	3.0%	85.5%
Primary City Total (Including Major City)	**$865**	3.2%	91.8%
Suburbs/Other	**$78**	0.3%	8.2%
Suburbs/Other and Primary Cities (Excluding Major City)	**$137**	0.5%	14.5%
Chicago-Joliet-Naperville, IL-IN-WI Metro Area	**$668**	**2.5%**	
Chicago	$313	1.2%	46.9%
Evanston	$25	0.1%	3.8%
Skokie	$15	0.1%	2.2%
Schaumburg	$7	0.0%	1.0%
Major City (Chicago)	**$313**	1.2%	46.9%
Primary City Total (Including Major City)	**$360**	1.3%	54.0%
Suburbs/Other	**$307**	1.1%	46.0%
Suburbs/Other and Primary Cities (Excluding Major City)	**$355**	1.3%	53.1%

	Venture Capital Investment		
	Millions of Dollars	Share of All Metros	Share of Regional Total
Austin-Round Rock-San Marcos, TX Metro Area	**$630**	**2.4%**	
Austin-Round Rock-San Marcos, TX	**$630**	2.3%	100%
Austin	$555	2.1%	88.0%
Major City (Austin)	**$555**	2.1%	88.0%
Primary City Total (Including Major City)	**$555**	2.1%	88.0%
Suburbs/Other	**$75**	0.3%	12.0%
Suburbs/Other and Primary Cities (Excluding Major City)	**$75**	0.3%	12.0%
Seattle-Tacoma-Bellevue, WA Metro Area	**$570**	**2.1%**	
Seattle	$377	1.4%	66.1%
Bellevue	$118	0.4%	20.7%
Major City (Seattle)	**$377**	1.4%	66.1%
Primary City Total (Including Major City)	**$495**	1.8%	86.8%
Suburbs/Other	**$75**	0.3%	13.2%
Suburbs/Other and Primary Cities (Excluding Major City)	**$193**	0.7%	33.9%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metro Area	**$340**	**1.3%**	
Philadelphia	$53	0.2%	15.7%
Wilmington	$3	0.0%	0.8%
Major City (Philadelphia)	**$53**	0.2%	15.7%
Primary City Total (Including Major City)	**$56**	0.2%	16.4%
Suburbs/Other	**$284**	1.1%	83.6%
Suburbs/Other and Primary Cities (Excluding Major City)	**$286**	1.1%	84.3%
Dallas-Fort Worth-Arlington, TX Metro Area	**$250**	**0.9%**	
Dallas-Fort Worth-Arlington, TX	**$250**	0.9%	100%
Richardson	$58	0.2%	23.2%
Dallas	$41	0.2%	16.4%
Irving	$35	0.1%	14.0%
Plano	$21	0.1%	8.4%
Fort Worth	$2	0.0%	0.9%
Major City (Dallas)	**$41**	0.2%	16.4%
Primary City Total (Including Major City)	**$157**	0.6%	62.8%
Suburbs/Other	**$93**	0.3%	37.2%
Suburbs/Other and Primary Cities (Excluding Major City)	**$209**	0.8%	83.6%
Metro Total	**$26,777**		

Share of venture capital investment going to center cities, walkable suburbs and other places

Appendix 7

Metro	Total Investment (Millions of Dollars)	Major City Venture Investment		Walkable Suburbs		Other		Major City plus Walkable Suburbs	
		Millions of Dollars	Share	Millions of Dollars	Share	Millions of Dollars	Share	Millions of Dollars	Share
Austin-Round Rock-San Marcos, TX	$630	$555	88.0%	—	0.0%	$75	12.0%	$555	88.0%
San Diego-Carlsbad-San Marcos, CA	$942	$806	85.5%	—	0.0%	$137	14.5%	$806	85.5%
New York-Northern New Jersey-Long Island, NY-NJ-PA	$2,980	$2,407	80.8%	$7	0.2%	$566	19.0%	$2,414	81.0%
Seattle-Tacoma-Bellevue, WA	$570	$377	66.1%	$61	10.7%	$132	23.2%	$438	76.8%
Washington-Baltimore Combined Area	$1,265	$681	53.8%	$163	12.9%	$422	33.3%	$843	66.7%
Washington-Arlington-Alexandria, DC-VA-MD-WV	$1,127	$600	53.3%	$163	14.4%	$364	32.3%	$763	67.7%
Baltimore-Towson, MD	$138	$80	58.0%	—	0.0%	$58	42.0%	$80	58.0%
Chicago-Joliet-Naperville, IL-IN-WI	$668	$313	46.9%	$25	3.8%	$329	49.3%	$338	50.7%
San Francisco-Silicon Valley Combined Bay Area	$13,476	$5,078	37.7%	$2,074	15.4%	$6,324	46.9%	$7,152	53.1%
San Francisco-Oakland-Fremont, CA	$8,486	$4,390	51.7%	$783	9.2%	$3,313	39.0%	$5,173	61.0%
San Jose-Sunnyvale-Santa Clara, CA	$4,990	$688	13.8%	$1,291	25.9%	$3,011	60.3%	$1,979	39.7%
Boston-Cambridge-Quincy, MA-NH Metro Area	$3,275	$669	20.4%	$1,083	33.1%	$1,523	46.5%	$1,751	53.5%
Los Angeles-Long Beach-Santa Ana, CA	$2,381	$472	19.8%	$680	28.6%	$1,229	51.6%	$1,152	48.4%
Dallas-Fort Worth-Arlington, TX	$250	$41	16.4%	$24	9.4%	$185	74.2%	$64	25.8%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	$340	$53	15.7%	—	0.0%	$286	84.3%	$53	15.7%

METHODOLOGY APPENDIX — VARIABLE DEFINITIONS

Innovation: Measured as patents per capita based on data from the US Patent and Trademark Office for the years 2005-2009.

High tech: Based on the Techpole Index from the Milken Institute. A measure of high tech concentration based on data from 2009 County Business Patterns.

Wages: 2010 wages from the Bureau of Labor Statistics

Income per Capita: 2010 average income per capita from 2010 American Community Survey

College Grads: Bachelor's share of the labor force from 2010 American Community Survey

Creative Class: Based on 2010 Bureau of Labor Statistics data

Science and Tech Occupations: Based on 2010 Bureau of Labor Statistics data

Business and Management Occupations: Based on 2010 Bureau of Labor Statistics data

Arts, Culture and Media Occupations: Based on 2010 Bureau of Labor Statistics data

Meds and Eds Occupations: Based on 2010 Bureau of Labor Statistics data

Foreign-Born: Share of the population born in another country from 2010 American Community Survey

Gay: Based on Census 2005-2009 data and measures the concentration of gay and lesbian households (a location quotient).

Obama Votes: County-level results provided by *The Guardian* aggregated to metros. The county level data is available here: http://www.theguardian.com/news/datablog/2012/nov/07/us-2012-election-county-results-download

Romney Votes: County-level results provided by *The Guardian* aggregated to metros. The county level data is available here: http://www.theguardian.com/news/datablog/2012/nov/07/us-2012-election-county-results-download

Population-Weighted Density: 2010 population density weighted by the distance from City Hall from Census. For methodology: http://www.census.gov/prod/cen2010/reports/c2010sr-01.pdf

Density: 2010 population from Census divided by land area.

Bike to Work: Share of the population that commute to work by bike from 2010 American Community Survey

Drive Alone to Work: Share of the population that drive alone to work from 2010 American Community Survey

ENDNOTES

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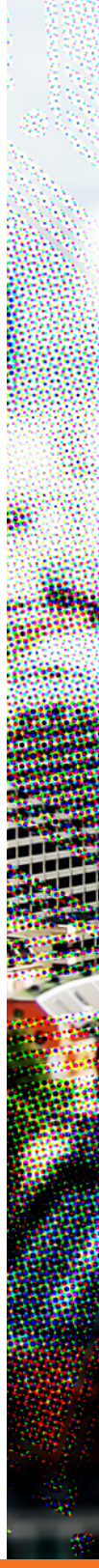

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