Deals in Sun and Fog:
Venture Capital Investment and Innovation in Southern and Northern California

Abstract

Private investment in Northern and Southern California has drawn significant attention due to the state's unique status as home to two global VC hubs. Our study analyzes venture capital deal patterns using PitchBook data and the TechPulse Index to assess tech market disruptions, examining peer effects, firm characteristics, sector, deal size, and time trends. We find that financial services and B2C firms raise larger deals in Northern California, while energy firms raise smaller ones; in Southern California, industry sector appears unrelated to deal size, suggesting greater sectoral openness. Across both regions, a firm's financial health, measured by total equity and prior funding, is the strongest predictor of deal size. Although older firms initially show a tendency to raise smaller deals, this fades when market disruptions are considered. Deal stage generally does not affect deal size, but earlier-stage and second-round VC deals correlate with larger sizes. Overall, while both regions share similar determinants of deal size, they differ in industry focus, with key implications for investors, entrepreneurs, and policymakers.

Deals in Sun and Fog:
Northern and Southern California Venture Capital Investment

1. Introduction

California is a major global economic force. As of April 2025, data from the International Monetary Fund and the U.S. Bureau of Economic Analysis show that California became the world's fourth-largest economy, with a state GDP of $4.1 trillion—surpassing Japan's $4.02 trillion—and trailing only the U.S., China, and Germany (Office of Governor Gavin Newsom, 2025). Northern California, particularly Silicon Valley, has long been recognized as the epicenter of venture capital (VC) and innovation. Classic studies such as Hambrecht (1984) document the region's early VC growth, while Ferrary and Granovetter (2009) highlight the complex social networks through which VC firms support startups—not only by financing, but also by selecting firms, embedding them in networks, and signaling legitimacy. Much of the literature attributes the Bay Area's innovation success to its dense concentration of venture activity and entrepreneurial culture (Kerr et al., 2014). Lee and Shaver (2008) note that the Northern

The California VC market is more mature than that of Southern California. Southern California, centered around Los Angeles, has emerged as a significant VC hub in its own right. Despite pandemic-related disruptions, Los Angeles remained among the top five U.S. metro areas for VC investment in 2021 (Florida, 2021), and PitchBook ranked it as one of the world's leading startup ecosystems in 2024. According to Florida (2023), the top VC metros included San Francisco, New York, Boston, San Jose, and Los Angeles.

Previous comparative studies have analyzed regional VC patterns within California (e.g., Gans & Stern, 2003; Roberts & Bell, 2002), often emphasizing the localized factors behind high-tech growth (Feldman, 2001). De Prijcker et al. (2019) underscore California's national prominence, finding that startups from states with limited VC access often relocate to California or Massachusetts to improve funding prospects. Bengtsson and Ravid (2015) describe a "California effect," where entrepreneurs in the state receive more favorable contract terms than those elsewhere. However, much of this research predates major shifts in the VC landscape, including the COVID-19 pandemic, the rise of cryptocurrencies, SPACs, big data, algorithmic trading, and advancements in artificial intelligence. Our study addresses this gap by analyzing how VC activity in Northern and Southern California has evolved over time, especially in response to recent disruptions.

Venture capital is a proven driver of innovation and economic growth. Foundational work by Amit et al. (1990), Gorman and Sahlman (1989), and Sapienza (1992) show that VCs provide strategic support in addition to capital. More recent studies by Samila and Sorenson (2011) and Rossi et al. (2022) demonstrate that VC activity boosts regional innovation. Paglia and Harjoto (2014) also find positive effects of VC and private equity on firm-level sales and employment growth.

Our research contributes to this literature by focusing on private venture investment in Northern and Southern California—two of the world's most active startup ecosystems. We examine how

firm-level characteristics, industry affiliation, and market conditions influence VC deal size and whether these effects vary by region.

Geographic context remains essential in understanding VC behavior. Florida and Kenney (1988) classify major VC hubs by their industrial composition, which helps explain regional specialization. Chemmanur et al. (2011) find that VC involvement improves operational efficiency and exit outcomes. Ando (2024) estimates that investor guidance accounts for roughly 22% of growth in VC-backed firms. Physical proximity between VCs and portfolio companies has also been linked to better innovation performance.

Network effects further reinforce the importance of geography. Berntsen et al. (2016) and Chen et al. (2010) show that firms in VC hubs like San Francisco and Boston consistently outperform others. Bubna et al. (2020) highlight how syndication creates "VC communities" that amplify local advantages. Zacharakis et al. (2003) find regional differences in tech specialization—for example, Northern California leads in hardware and infrastructure, while other areas emphasize e-commerce and media.

Investor decision-making reflects a mix of strategic and geographic factors. Gompers et al. (2016) report that investors prioritize management quality over product features and consider deal selection their most critical function. Cummings and Dai (2010) find that while reputable VCs invest more broadly, lead investors prefer local deals. Tian (2011) shows that distant VCs tend to make smaller, more frequent investments—an approach that can positively affect IPO outcomes. The spatial distribution of VC funding is also changing. Florida and Mellander (2016) note a shift from suburban to dense urban neighborhoods as centers of innovation. Bhatia and Dushnitsky (2023) find that data-driven VCs are more likely to back underrepresented founders. Gupta and Sapienza (1992) argue that smaller or early-stage VCs tend to specialize by sector or geography, while larger firms pursue more diversified strategies.

In this study, we analyze VC investment patterns in Northern and Southern California with a focus on the determinants of deal size. We assess how regional dynamics, firm characteristics, and broader market conditions shape investment outcomes across these two ecosystems. Our key findings challenge some conventional assumptions. We find no evidence that peer effects—such as operating in the same zip code or sector—significantly influence deal size. This suggests that startups raise capital largely based on their own characteristics rather than benefiting from geographic or sector spillovers. Instead, firm-level attributes, particularly financial strength (measured by total equity and prior funding), are the most consistent predictors of deal size across both regions. Younger firms tend to raise larger rounds, although this effect diminishes when broader market conditions are considered. Macroeconomic indicators, such as the Tech Pulse Index, have limited impact once firm fundamentals are controlled for.

Regional differences offer further insight. In Northern California, sector effects are more pronounced—B2C and financial services firms raise larger deals, while energy companies receive smaller ones. Southern California appears less sensitive to industry, indicating a potentially more diversified or agnostic investment environment. Temporal analysis reveals a declining trend in deal size from 2014 to 2024, especially after 2018. Even during the 2021 funding surge, average deal sizes fell when accounting for firm and sector characteristics,

suggesting a shift toward a higher volume of smaller deals. Innovation outcomes, proxied by patent activity, also vary by region. In both areas, larger firms are more patent-active, but this effect is stronger in Southern California. In the North, innovation is more closely tied to observable firm traits such as age, acquisition history, and funding stage. In the South, innovation may be influenced by less quantifiable factors or a broader mix of startup types.

Overall, while Northern and Southern California share many features as leading VC regions, they diverge in meaningful ways. Northern California shows a tighter link between firm characteristics and investment outcomes, whereas Southern California appears more flexible and sector-neutral. These findings have important implications for investors, founders, and policymakers seeking to navigate or shape regional innovation ecosystems.

2. Data and Methodology

We use the private investment and firm data from Pitchbook and utilize the Tech Pulse Index from the Federal Reserve of San Francisco to measure tech market downturns. The units are measured as percentage change at an annual rate, which is seasonally adjusted, with a monthly frequency. The Federal Reserve of San Francisco states that the "The Tech Pulse Index is a coincidence index of activity in the U.S. information technology sector. The index interpreted as the health of the tech sector. The indicators used to compute the index include investment in IT goods, consumption of personal computers and software, employment in the IT sector, industrial production of the technology sector, and shipments by the technology sector." The Tech Pulse Index provided data from May 1, 1971 until March 1, 2020.

2.1 Data analysis

This study is based on 17,376 observations of venture capital (VC) deals that took place between 2014-2024 for firms headquartered in California (after dropping observations without zip code information and other missing data). Geographically the firms are located in 620 unique zip codes across California. The sample includes deals from 2014–2024, with the highest number of deals around 2021 (14%) as shown on Table 1. Our objective is to understand what factors are correlated with higher versus lower deal size.

Table 1: Sample used in this study and year of deal.

Deal Year	Freq.	Percent	Cum.
2014	1,483	8.53	8.53
2015	1,510	8.69	17.22
2016	1,436	8.26	25.49
2017	1,514	8.71	34.2
2018	1,738	10	44.2
2019	1,744	10.04	54.24
2020	1,818	10.46	64.7

2021	2,473	14.23	78.94
2022	1,683	9.69	88.62
2023	1,059	6.09	94.72
2024	918	5.28	100
Total	17,376	100	

Table 1 presents the annual distribution of 17,376 venture capital (VC) deal observations for firms headquartered in California from 2014 to 2024. The dataset excludes records with missing ZIP code or key variable information. The firms span 620 unique ZIP codes across the state. The year 2021 accounts for the highest share of deals (14%) in the sample.

Figure 1 presents the sector distribution of our sample and shows that 53% of observations are in the IT sector, 20% are in healthcare. Thus, the sample is heavily tech- and health-oriented. Figure 2 shows the distribution of observations by their age since starting operations and this is likely skewed toward younger firms. An example is firm age of 15 years or less (common for VC-backed samples).
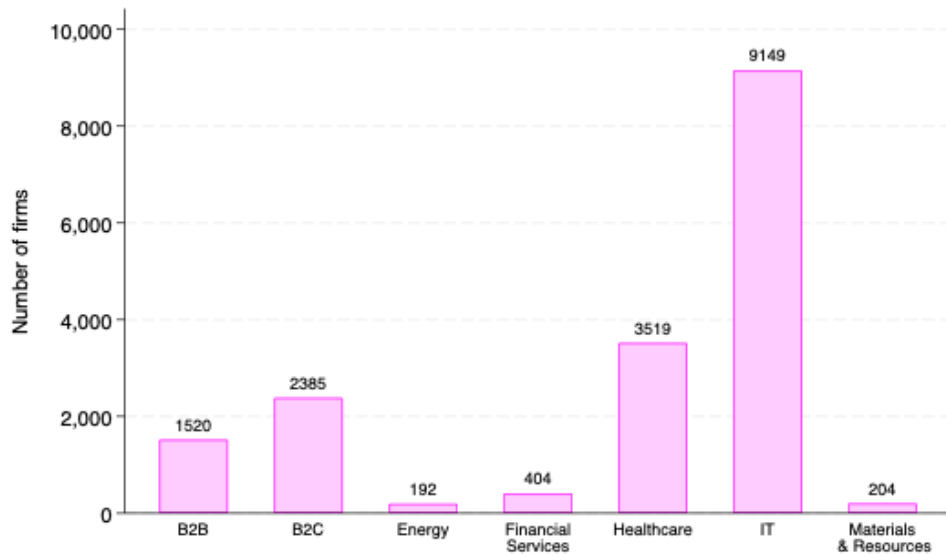

Figure 1: Distribution of sample by sector, 53% in IT sector, 20% Healthcare
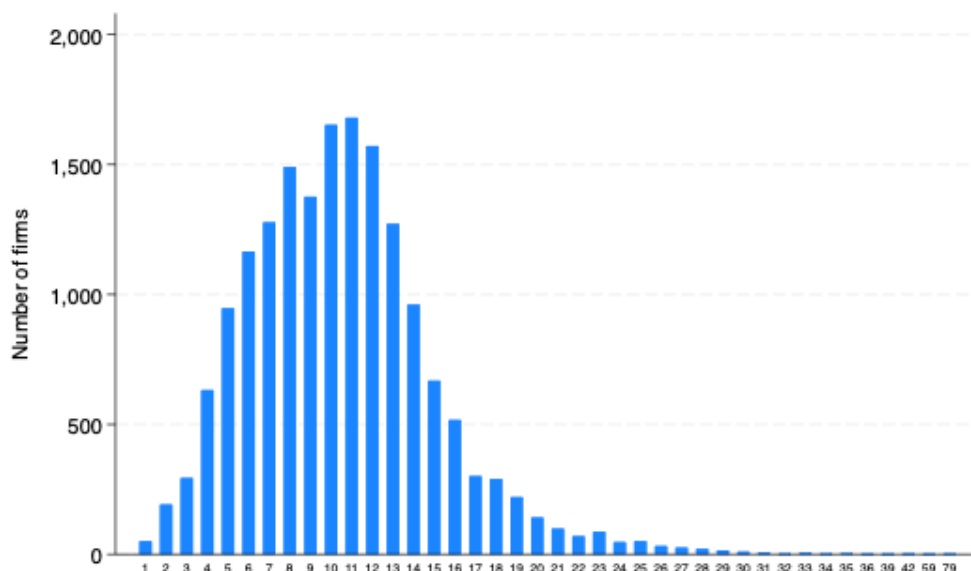
Figure 2: Distribution of sample by age of firm (since starting operation or since year of operation started).

Figure 3 illustrates the total deal size over time. We observe a large spike in January 2019, which suggests an unusually large or concentrated number of high-value deals during that month. Figure 4 shows the total deal size (sum of all deals per year) by sector. Consistent with Table 1, we see that 2021 had the largest total deal value. The energy sector had relatively low deal value compared to others.

Figure 3: Total deal size (adjusted for inflation 2024 value) by deal date. The y-axis measures the sum of all the deals that took place in a given period.
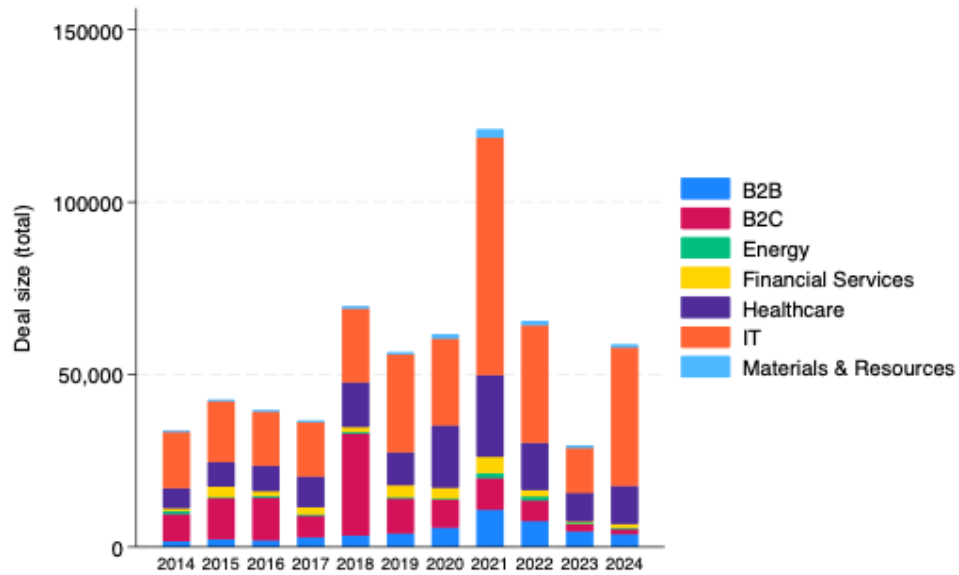
Figure 4: Total sum of deal size per year by sector. The y-axis measures the sum of the deal size in a given year. Most larges deals were in 2021. Energy sector deals have the lowest role.

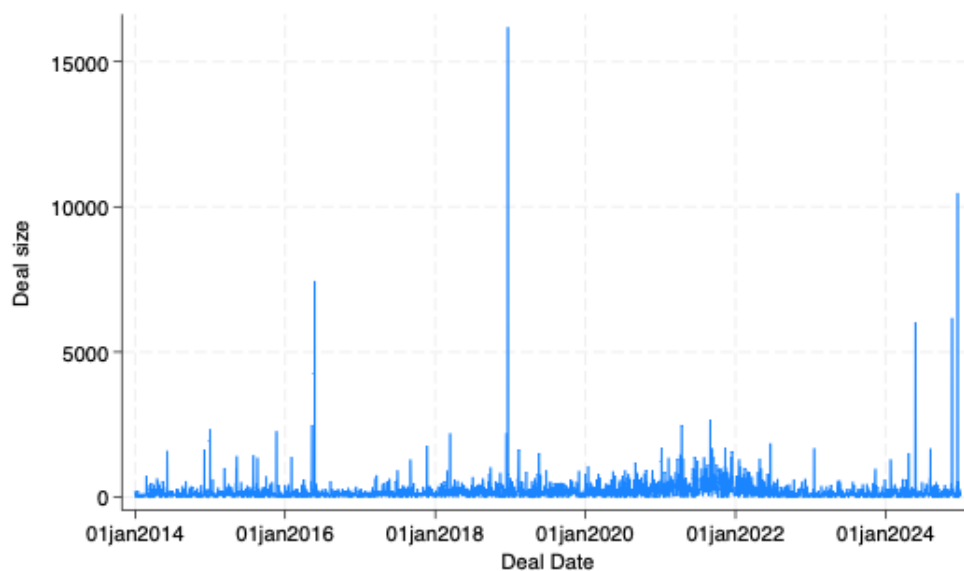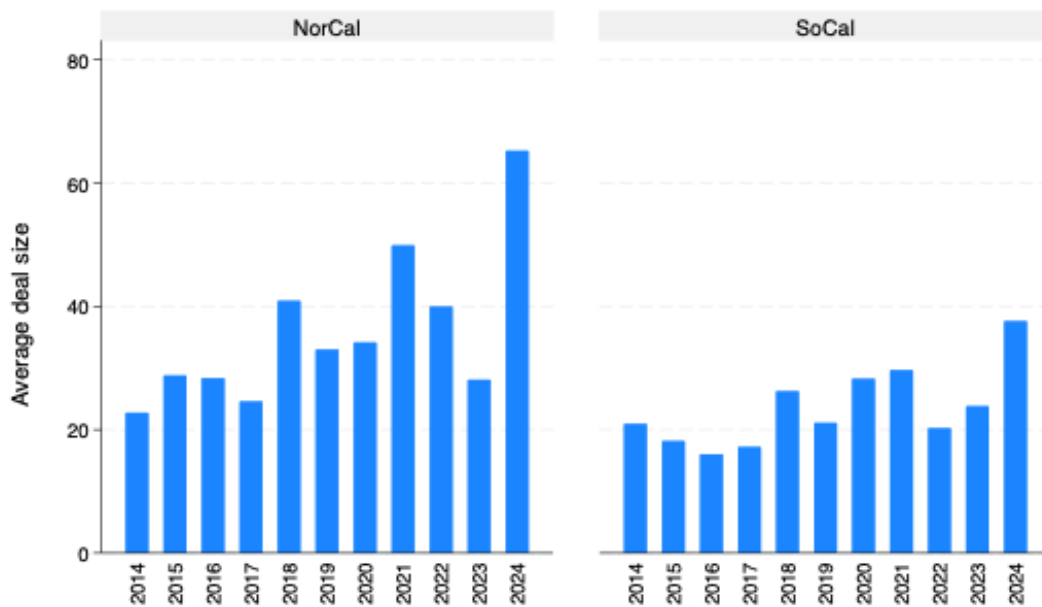*Figure 5: The y axis measures average deal size*
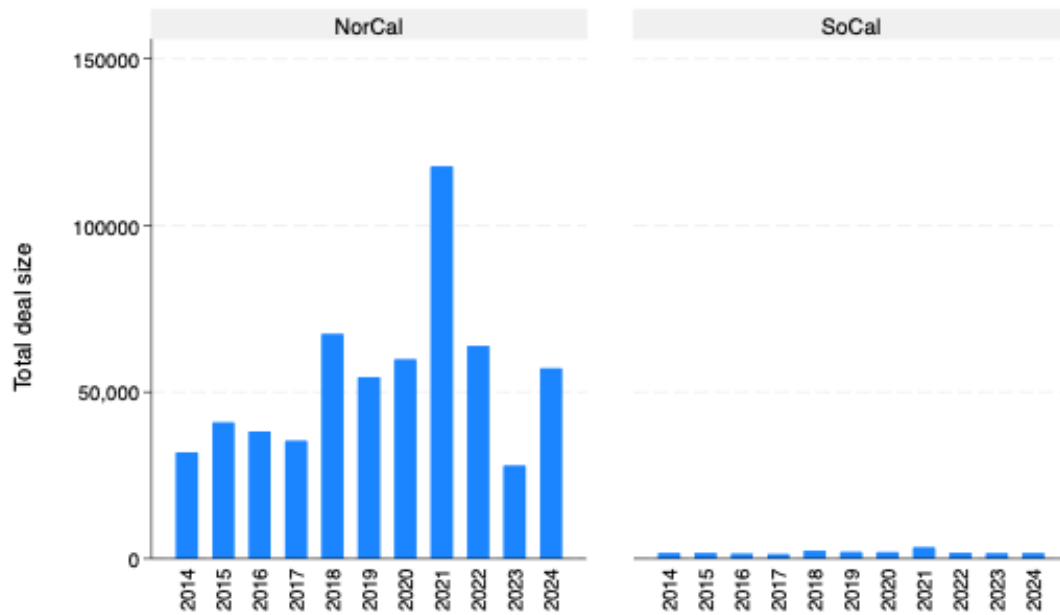
Figure 6: Y axis measures total or sum of all deals.

Figure 5 presents the average deal size per year for Northern and Southern CA. This shows the deal size per deal and suggests that the average deal in Northern California has higher deal size than deals involving firms in Southern California. In Figure 6, we present the sum (rather than average) –capturing the total capital flow in the market in each year in each region, illustrating significantly more volumes of deals in the North compared to the South.
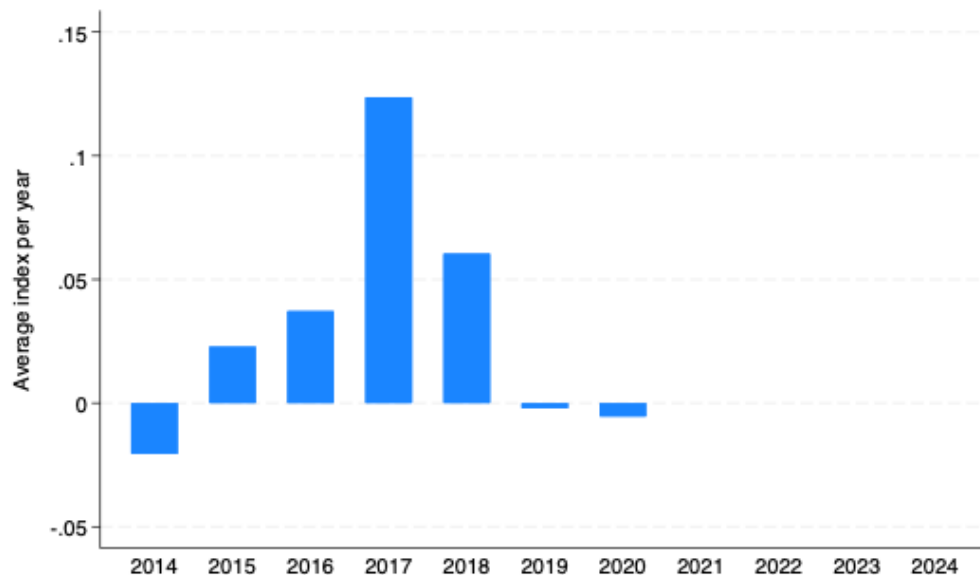
Figure 7: This index is available only for 2014 to 2022 where the index starts as negative in 2014 then contains improvement, until it declines during Covid years of 2019 and 2020.

Figure 7 presents the Tech Pulse Index. The index started as negative in 2014, improved toward 2018, but declined again during COVID (2019–2020), which indicates the macro-technology investment climate.

2.2 Regression Analysis

The main objective of the regression is to analyze what determines the deal size of California-based firms involved in venture capital (VC) deals, with a specific focus on peer effects, firm characteristics, market conditions, regional differences, and time trends. For our regression analysis, the dependent variable is the inflation adjusted deal size. We consider five groups of explanatory variables. Our first group is peer effects, where we examine the effect from peers, where peers are defined as other firms in the same location (zip code), the same sector or both. The second group is market characteristics, measured by the Tech Pulse Index as an explanatory variable. The third group is firm characteristics, which is measured by (1) the sector the firm belongs to using dummy variable, (2) whether the business is generating revenue, (3) age, and (4) number of employees to capture operational size, (5) total raised, (6) total invested equity. The fourth group is deal characteristics, which is (1) Measured by the year the deal took place using dummy variables, (2) Dummy variables indicating whether the VC round was 1st, 2nd, 3rd or other, (3) whether the deal involved cumulative or non-cumulative dividends, (4) whether it is a Series A deal or not, (5) an indicator of whether the deal was early or late VC, (6) percent acquired, (7) pre- and post- money valuation. And the fifth group is location, where we look at deals in North versus South CA and also for firms in North, we consider a dummy variable for Bay Area.

When examining peer effects, we explore whether the success (deal size) of local peers (same zip code) or sector peers (same industry) affect a firm's own deal size and whether there is positive peer influence (bigger peer deals lead to bigger own deals) or negative competition/crowding effects (peer success reduces own deal size). To examine peer effects, we define the peer as a local peer (in the same zip code), or sector peer (in the same sector), or both. We create three variables, which are the mean of deal value in a zip code: Measure the average deal size of all other firms in the same *location.*, the Mean of deal value in a sector: Measures the average deal size of all other firms in the same sector, and the Mean of deal value in a zip code and sector: Measures the average deal size of all other firms in the firm's location and sector. If negative, it means there is crowding or competitive pressure (if peers are having a good deal size, the firm will not because capital is limited). If positive it means the peer effect is present (a firm earns a higher deal size if its peers are also doing well). Table 3 reflects our results, which indicate that there is no evidence of a peer effect.

Table 2: Descriptive Statistics

Panel A: Continuous Variables

Variable	Obs	Mean	Std. dev.	Min	Max
Total Patent Families	9,612	17.106	64.741	1.000	2234.000
Deal size	17,373	35.378	187.273	0.012	15991.000
Current employees	16,835	237.136	1015.525	2.000	31100.000
Age	17,187	10.489	4.588	1.000	79.000
Acquired %	17,373	24.789	13.328	0.100	94.340
Raised to Date	17,373	62.750	306.404	0.020	15688.060
Total Invested Equity	17,350	29.084	161.551	0.010	12800.000
Pre money Valuation	17,373	229.706	1890.270	0.100	125275.000
Post Valuation	17,373	258.748	1983.495	0.130	127000.000

Panel B: Dummy Variables

Variable	Obs	Mean	Std. dev.	Min	Max
Business Status: Generating Revenue	17,373	0.786	0.410	0	1
Deal Type: Early VC	17,373	0.356	0.479	0	1
Deal Type: Late VC	17,373	0.369	0.483	0	1
Series As	17,373	0.339	0.473	0	1
Cumulative Dividend	17,373	0.043	0.203	0	1
Non-Cumulative Dividend	17,373	0.599	0.490	0	1
VC: Round1	17,366	0.300	0.458	0	1
VC: Round2	17,366	0.269	0.444	0	1
VC: Round3	17,366	0.183	0.386	0	1

Table 2 presents the descriptive statistics. Panel A shows the continuous variables and Panel B shows the dummy variables included in the data analysis.

Table 3: Linear regressions with robust standard errors

	MODEL 1: N/S comparison *without* Tech Pulse (2014-2024)		Model 2: N/S comparison with Tech Pulse (2014-2020)	
	North Without TechPulse	South Without TechPulse	North With TechPulse	South With TechPulse
'Peer effect' metrics				
ln_mean_dealvalue_zip	0.00774***	0.00341	0.00463	-0.00264
	(0.00273)	(0.0138)	(0.00367)	(0.0124)
ln_mean_dealvalue_sector	-1.042	-13.11	-1.042	-42.61

	(0.575)	(12.24)	(0.928)	(29.81)
ln_mean_dealvalue_zip_sector	-0.00124	-0.00482	0.000353	0.000364
	(0.00220)	(0.00951)	(0.00291)	(0.00909)
Firm specific characteristics				
ln_CurrentEmployees	0.0131***	0.0138**	0.00505***	0.0116**
	(0.00100)	(0.00545)	(0.00114)	(0.00547)
ln_Age	0.144***	0.130***	0.0757***	0.00488
	(0.00326)	(0.0160)	(0.00698)	(0.0273)
ln_Acquired	0.0133	0.125	0.0371	-0.0137
	(0.0153)	(0.118)	(0.0270)	(0.0160)
ln_RaisedtoDate	0.0865***	0.0773***	0.0799***	0.0457**
	(0.0107)	(0.0261)	(0.0100)	(0.0212)
ln_TotalInvestedEquity	0.936***	0.830***	0.910***	0.996***
	(0.0205)	(0.134)	(0.0352)	(0.0287)
ln_PremoneyValuation	0.0466	0.0760	0.0280	0.0805**
	(0.0240)	(0.0426)	(0.0350)	(0.0349)
ln_PostValuation	-0.0763	0.00767	-0.0181	-0.126**
	(0.0410)	(0.122)	(0.0655)	(0.0495)
Bus_Status: Gen Rev.	-0.0161***	-0.0204	-0.0104***	-0.00416
	(0.00276)	(0.0124)	(0.00324)	(0.00748)
Deal specific characters				
Deal_type: Early VC	0.0227***	0.0230	0.00588	0.0199
	(0.00535)	(0.0144)	(0.00629)	(0.0129)
Deal_type: Later VC	-0.0417***	-0.0265	-0.0203***	0.0279
	(0.00582)	(0.0180)	(0.00681)	(0.0207)
Series_As	-0.0132***	-0.0128	-0.00769	-0.00387
	(0.00417)	(0.0112)	(0.00520)	(0.00964)
Cumulative Div	-0.00164	0.0666	0.00292	0.0200
	(0.00627)	(0.0445)	(0.00738)	(0.0172)
Non Cumulative Div	0.0145***	0.0123	0.00549	0.0135
	(0.00268)	(0.0100)	(0.00351)	(0.0101)
VC_Round1	0.113***	0.134***	0.0851***	0.0642**
	(0.00987)	(0.0290)	(0.0103)	(0.0259)
VC_Round2	0.0618***	0.0789***	0.0500***	0.0521**
	(0.00710)	(0.0235)	(0.00796)	(0.0247)
VC_Round3	0.0352***	0.0275	0.0335***	0.0135
	(0.00567)	(0.0153)	(0.00739)	(0.0149)
Bay Area	0.0183		-0.0197**	
	(0.0175)		(0.00858)	
Industry controls				
Sector: B2B	-0.242	-0.496	-0.253	-10.45
	(0.139)	(0.516)	(0.226)	(7.326)
Sector: B2C	0.122**	3.913	0.101	3.816
	(0.0545)	(3.594)	(0.0860)	(2.673)
Sector: Energy	-0.229**		-0.237	-8.661
	(0.116)		(0.190)	(6.039)
Sector: Financial Services	0.444**	7.519	0.436	15.37
	(0.213)	(6.892)	(0.342)	(10.72)
Sector: Healthcare	-0.119	1.203	-0.126	-5.019
	(0.0665)	(1.051)	(0.108)	(3.535)
Sector: IT	-0.202	-0.145	-0.218	-9.365
	(0.124)	(0.196)	(0.202)	(6.558)
Sector: Mater. & Res.		2.687		
		(2.491)		
Market downtown metrics				

ln_TechPulseIndex			-0.0121	0.0734
			(0.0221)	(0.0619)
Constant	3.597	45.07	3.699	157.9
	(2.121)	(42.61)	(3.431)	(110.3)
Observations	15,424	825	8,704	498
R-squared	0.990	0.988	0.991	0.993

Table 3 defines the variables used to examine peer effects on venture capital (VC) deal size, distinguishing between local (same ZIP code), sectoral (same industry), and combined local-sector peers. Each variable measures the average deal size of other firms in the respective peer group, excluding the focal firm. A positive association suggests the presence of peer influence—where successful peers contribute to larger own deals—while a negative association indicates potential competition or crowding effects, where peer success may limit a firm's own deal size due to constrained capital availability. Dependent variable is the deal size adjusted for inflation (2024 values). Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$

We begin by examining firm-level characteristics. Specifically, we explore how factors such as firm size, age, prior funding, valuation, and acquisition status influence deal size. Our analysis shows that financial health—measured by total equity and past funding—is the most consistent and significant predictor of deal size across all models and both regions.

Next, we analyze the impact of market conditions by incorporating the Tech Pulse Index, a proxy for the broader technology investment climate. We find that once firm-level controls are added, the Tech Pulse Index becomes statistically insignificant. This suggests that market-level conditions do not meaningfully explain variation in deal size beyond firm fundamentals. We then assess regional differences, comparing Northern and Southern California. While there are some differences in patterns, we find that the overall drivers of deal size are broadly similar across both regions.

To understand temporal dynamics, we analyze deal sizes over a ten-year period from 2014 to 2024. We observe a clear downward trend in deal size relative to 2014, with coefficients becoming increasingly negative over time. This trend is particularly pronounced after 2018. Notably, during the funding surge of 2021, average deal sizes actually declined after controlling for firm and sector characteristics, indicating a shift toward smaller but more frequent investments.

Sectoral analysis reveals important regional distinctions. In Northern California, financial services and business-to-consumer (B2C) firms tend to raise larger deals, while energy firms raise smaller ones. However, sector affiliation has no significant effect on deal size in Southern California, suggesting a more diversified or sector-agnostic investment approach in that region. We also examine the role of funding rounds. Round 1 and Round 2 VC investments are associated with significantly larger deal sizes in both Northern and Southern California. While younger firms appear to raise larger deals, this effect diminishes once market-level indicators (such as the Tech Pulse Index) are included in the model.

Importantly, we find no evidence of peer effects—either geographic (same ZIP code) or sectoral (same industry)—on deal size. Furthermore, deal stage (early vs. late) does not systematically affect deal size once controls are applied. However, the specific round of venture investment remains a key determinant, with earlier rounds more strongly associated with larger investments.

Our empirical strategy relies on OLS regressions with robust standard errors. All continuous variables are log-transformed, and models include sector and year fixed effects to control for unobserved heterogeneity. We also compare results across regions to ensure robustness.

Table 4: Linear Regression for Northern and Southern California Deals with and without Tech Market Disruption Measure

Linear regression	North CA Without TechPulse	South CA Without TechPulse	North CA With TechPulse	South CA With TechPulse
ln_mean_value_zip	0.00323	0.00154	0.00278	-0.00576
	(0.00256)	(0.0116)	(0.00362)	(0.0124)
ln_mean_value_sector	-1.154	-17.13	-1.087	-50.33
	(0.607)	(11.83)	(0.905)	(30.74)
ln_mean_value_zip_sector	-0.00316	-0.00961	-0.000649	-0.00340
	(0.00207)	(0.00832)	(0.00289)	(0.00868)
ln_CurrentEmployees	**0.00501***	0.00702	**0.00380***	**0.0114**
	(0.000962)	(0.00475)	(0.00113)	(0.00511)
ln_Age	**-0.0101**	**-0.0740***	-0.0120	**-0.102**
	(0.00450)	(0.0286)	(0.00952)	(0.0473)
ln_Acquired	**0.0325**	0.139	0.0517	0.00543
	(0.0157)	(0.116)	(0.0281)	(0.0142)
ln_RaisedtoDate	**0.104***	**0.0942***	**0.0875***	**0.0641***
	(0.0109)	(0.0256)	(0.0101)	(0.0239)
ln_TotalInvestedEquity	**0.911***	**0.808***	**0.891***	**0.968***
	(0.0210)	(0.132)	(0.0360)	(0.0289)
ln_PremoneyValuation	**0.0557**	**0.0751**	0.0260	**0.0866***
	(0.0238)	(0.0359)	(0.0345)	(0.0333)
ln_PostValuation	-0.0645	0.0318	-0.000915	**-0.115**
	(0.0410)	(0.120)	(0.0652)	(0.0464)
Bus_Status: Generating Rev.	0.00204	0.00109	0.00230	0.0121
	(0.00274)	(0.0109)	(0.00346)	(0.00920)
deal_type3: Early VC	-0.00576	-0.0225	-0.00597	-0.00119
	(0.00513)	(0.0124)	(0.00618)	(0.0113)
deal_type5: late VC	-0.00673	0.0141	-0.00397	0.0340
	(0.00526)	(0.0175)	(0.00678)	(0.0214)
Serie_As	0.00308	0.0146	-0.00260	0.00960
	(0.00398)	(0.00942)	(0.00508)	(0.00916)
Cumulative Div	0.000834	0.0632	0.00109	0.00616
	(0.00560)	(0.0437)	(0.00723)	(0.0208)
Non_Cumulative Div	0.00202	-0.00457	2.19e-05	-0.00365
	(0.00253)	(0.00854)	(0.00345)	(0.00902)
VC_Round1	**0.0845***	**0.0794***	**0.0784***	**0.0491**
	(0.00950)	(0.0230)	(0.0102)	(0.0240)
VC_Round2	**0.0507***	**0.0576***	**0.0490***	**0.0470**
	(0.00677)	(0.0192)	(0.00790)	(0.0232)
VC_Round3	**0.0320***	0.0215	**0.0324***	0.00351
	(0.00541)	(0.0129)	(0.00735)	(0.0148)
Bay Area	-0.00523		**-0.0210***	
	(0.0112)		(0.00794)	
sector1: B2B	-0.273	-4.195	-0.267	-12.37
	(0.147)	(2.908)	(0.220)	(7.556)
sector2: B2C	**0.119**	1.560	0.0994	4.495
	(0.0575)	(1.064)	(0.0838)	(2.754)
sector3: Energy	**-0.251**	-3.492	-0.248	-10.22
	(0.122)	(2.407)	(0.185)	(6.223)
sector4: Fin Serv	**0.462**	6.248	0.442	18.15

	North CA Without TechPulse	South CA Without TechPulse	North CA With TechPulse	South CA With TechPulse
	(0.224)	(4.253)	(0.334)	(11.06)
sector5: Health	-0.130	-1.962	-0.130	-5.934
	(0.0697)	(1.394)	(0.106)	(3.646)
sector6: IT	-0.235	-3.738	-0.233	-11.08
	(0.131)	(2.598)	(0.197)	(6.765)

Table 4 presents linear regression estimates examining the determinants of VC deal size separately for Northern and Southern California. The models are estimated both with and without the inclusion of a control variable for tech market disruption. The disruption measure captures macro-level fluctuations in the tech market that may influence deal size. Comparing models with and without this control helps assess the robustness of regional effects and other covariates.

Robust standard errors in parentheses, *** $p<0.01$, ** $p<0.05$

Table 4 continued: Linear Regression for Northern and Southern California Deals with and without Tech Market Disruption Measure

Linear regression	North CA Without TechPulse	South CA Without TechPulse	North CA With TechPulse	South CA With TechPulse
2015.DealYear	0.00245	-0.0203	0.00256	-0.0196
	(0.00542)	(0.0124)	(0.00547)	(0.0123)
2016.DealYear	**-0.0147***	-0.0117	**-0.0140**	-0.0106
	(0.00528)	(0.0210)	(0.00585)	(0.0146)
2017.DealYear	**-0.0329***	**-0.0539***	**-0.0312***	**-0.0619**
	(0.00531)	(0.0177)	(0.00687)	(0.0241)
2018.DealYear	**-0.0572***	**-0.0743***	**-0.0569***	**-0.0848***
	(0.00537)	(0.0174)	(0.00654)	(0.0217)
2019.DealYear	**-0.0745***	**-0.117***	**-0.0758***	**-0.118***
	(0.00587)	(0.0213)	(0.00710)	(0.0247)
2020.DealYear	**-0.0873***	**-0.0844***	**-0.0926***	**-0.0964**
	(0.00579)	(0.0255)	(0.00890)	(0.0377)
2021.DealYear	**-0.122***	**-0.183***		
	(0.00587)	(0.0257)		
2022.DealYear	**-0.204***	**-0.226***		
	(0.00632)	(0.0242)		
2023.DealYear	**-0.273***	**-0.345***		
	(0.00731)	(0.0332)		
2024.DealYear	**-0.298***	**-0.362***		
	(0.00849)	(0.0332)		
BayArea		-		-
ln_TechPulseIndex			-0.0203	0.0981
			(0.0279)	(0.0767)
Constant	4.386	63.17	4.048	186.7
	(2.241)	(43.61)	(3.344)	(113.8)
Observations	15,424	825	8,704	498
R-squared	0.991	0.990	0.991	0.993

Table 4 continued presents linear regression estimates examining the determinants of VC deal size separately for Northern and Southern California. The models are estimated both with and without the inclusion of a control variable for tech market disruption. The disruption measure captures macro-level fluctuations in the tech market that may influence deal size. Comparing models with and without this control helps assess the robustness of regional effects and other covariates.

Robust standard errors in parentheses, *** $p<0.01$, ** $p<0.05$

Next, we examine innovation in Northern and Southern California, measured by patent activity. In both regions, larger firms—measured by employee count—are associated with higher levels of patenting, with this effect being more pronounced in Southern California. In Northern California, firm age and total capital raised are also significant drivers of patent production,

while these factors do not appear to influence patenting in the South.

Interestingly, a higher percentage of acquisition ownership is associated with reduced innovation in the North; however, this effect disappears once we control for broader market activity using the Tech Pulse Index. Additionally, in Northern California, firms that are generating revenue tend to file fewer patents, whereas revenue status has no significant impact on patenting in the South.

We also find that VC investment rounds—particularly Rounds 1 and 2—are positively associated with innovation in the North, but not in the South. Overall, innovation in Northern California shows stronger and more consistent relationships with firm-level variables, especially funding and early-stage VC involvement. In contrast, Southern California firms exhibit fewer statistically significant associations, with firm size (employee count) being the most consistent predictor. These findings suggest that innovation in Northern California is more closely tied to internal firm attributes, while innovation in Southern California may be influenced by a more heterogeneous set of factors, possibly including unobserved variables not captured in our models.

Table 5: Northern and Southern California Innovation measured by Patent Activities

VARIABLES	North ln_TotalPatentFamilies	South ln_TotalPatentFamilies	North ln_TotalPatentFamilies	South ln_TotalPatentFamilies
ln_CurrentEmployees	0.117***	0.183***	0.138***	0.214***
	(0.0116)	(0.0552)	(0.0132)	(0.0662)
ln_Age	0.431***	0.360	0.219**	-0.000693
	(0.0563)	(0.223)	(0.0972)	(0.367)
ln_Acquired	-0.178**	-0.00628	-0.0817	-0.426
	(0.0703)	(0.239)	(0.138)	(0.563)
ln_RaisedtoDate	0.325***	0.215	0.306***	0.119
	(0.0322)	(0.138)	(0.0416)	(0.188)
ln_TotalInvestedEquity	0.0904	-0.109	-0.0288	0.430
	(0.0734)	(0.241)	(0.147)	(0.590)
ln_PremoneyValuation	0.0551	-1.09e-05	0.0313	0.157
	(0.0956)	(0.476)	(0.125)	(0.558)
ln_PostValuation	-0.124	0.248	0.0955	-0.434
	(0.139)	(0.649)	(0.221)	(0.934)
Bus_Status: Generating Rev	-0.127***	-0.225	-0.126***	-0.235
	(0.0324)	(0.138)	(0.0399)	(0.173)
deal_type3 (Early VC)	-0.0300	-0.0706	0.00942	0.0420
	(0.0507)	(0.189)	(0.0667)	(0.234)
deal_type5 (Late VC)	-0.0592	0.172	-0.0386	0.331
	(0.0570)	(0.219)	(0.0775)	(0.276)
Serie_As	0.0236	-0.0868	0.0287	-0.124
	(0.0361)	(0.135)	(0.0481)	(0.185)
Cumulative Dividend	0.00396	0.400*	-0.0334	0.228
	(0.0589)	(0.204)	(0.0739)	(0.298)
Non_Cumulative	0.0299	-0.215*	-0.0221	-0.298**
	(0.0274)	(0.111)	(0.0383)	(0.147)
VC_Round1	0.554***	0.308	0.616***	-0.0806
	(0.0603)	(0.236)	(0.0798)	(0.317)
VC_Round2	0.258***	0.0667	0.280***	-0.286
	(0.0477)	(0.183)	(0.0638)	(0.247)

VC_Round3	0.0911**	-0.0141	0.0756	-0.214
	(0.0410)	(0.163)	(0.0557)	(0.225)
BayArea	-0.911***		-1.030***	
	(0.0937)		(0.0856)	
sector1	-0.520***	-1.063**	-0.684***	-1.043***
	(0.0952)	(0.503)	(0.145)	(0.368)
sector2	-0.728***	-1.079**	-0.937***	-1.003**
	(0.0924)	(0.517)	(0.140)	(0.438)
sector3	-0.0425	0.105	-0.121	0.705
	(0.122)	(0.638)	(0.180)	(0.811)
sector4	-1.563***	-2.194***	-1.654***	-1.930***
	(0.117)	(0.538)	(0.170)	(0.463)
sector5	-0.250***	-0.620	-0.264*	-0.390
	(0.0866)	(0.472)	(0.135)	(0.273)
sector6	-0.700***	-0.793*	-0.852***	-0.588*
	(0.0852)	(0.472)	(0.133)	(0.317)
2015.DealYear	-0.00544	0.178	-0.0371	0.182
	(0.0634)	(0.284)	(0.0648)	(0.293)
2016.DealYear	0.0236	0.236	-0.0172	0.262
	(0.0639)	(0.264)	(0.0675)	(0.278)
2017.DealYear	0.0703	0.229	-0.0152	0.237
	(0.0628)	(0.264)	(0.0783)	(0.338)
2018.DealYear	-0.0293	0.199	-0.136*	0.165
	(0.0631)	(0.242)	(0.0735)	(0.293)
2019.DealYear	-0.118*	-0.0158	-0.230***	-0.150
	(0.0644)	(0.259)	(0.0732)	(0.304)
2020.DealYear	-0.197***	-0.0570	-0.304***	-0.0705
	(0.0671)	(0.285)	(0.0996)	(0.389)
2021.DealYear	-0.351***	-0.178		
	(0.0691)	(0.275)		
2022.DealYear	-0.445***	-0.0947		
	(0.0759)	(0.306)		
2023.DealYear	-0.406***	-0.171		
	(0.0838)	(0.334)		
2024.DealYear	-0.387***	-0.309		
	(0.0925)	(0.353)		
ln_TechPulseIndex			0.282	-0.533
			(0.309)	(1.276)
Constant	0.333	-0.0299	0.215	3.226
	(0.369)	(1.522)	(0.711)	(3.045)
Observations	8,773	515	5,421	325
R-squared	0.263	0.376	0.268	0.365

Table 5 presents regression results analyzing the relationship between firm-level characteristics and innovation, measured by patent activity, separately for Northern and Southern California firms. We find that employee size is positively associated with patenting in both regions, with a stronger effect in Southern California. In Northern California, firm age and total capital raised are also positively associated with patenting, while these factors are not significant in the South. Acquisition percentage negatively affects patenting in the North, but this effect becomes insignificant once we control for tech market activity using the Tech Pulse index. Additionally, revenue-generating firms in the North show lower patent counts, an effect not observed in the South. VC funding rounds (especially rounds 1 and 2) are significant drivers of innovation in Northern California but not in the South. Overall, innovation in Northern California appears more closely linked to firm-level metrics, while Southern California shows fewer significant predictors, suggesting regional differences in innovation dynamics.
Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

For robustness check, we conduct a Tobit model with Mixed Effects. Table 6 presents the results of a robustness check using a Tobit model with mixed effects to account for the censored nature of the dependent variable and potential unobserved heterogeneity across firms or regions. The Tobit model allows for a more accurate estimation when the outcome variable is bounded or limited in range. Mixed effects are included to control for group-level variation, such as differences across zip codes or sectors. The results confirm the main findings from the linear regression, providing additional support for the robustness of our conclusions.

Table 6: Tobit Model with Mixed Effects

Mixed Effect Tobit Model	North ln_DealSize_Adj	South ln_DealSize_Adj	North ln_DealSize_Adj	South ln_DealSize_Adj
ln_mean_value_zip	0.00308	0.00154	0.00298	-0.00578
	(0.00236)	(0.0101)	(0.00332)	(0.0144)
ln_mean_value_sector	-1.812	-17.25	-2.829	-50.38
	(0.928)	(12.48)	(2.031)	(30.29)
ln_mean_value_zip_sector	-0.00332**	-0.00963	-0.00108	-0.00340
	(0.00158)	(0.00772)	(0.00320)	(0.00936)
ln_CurrentEmployees	0.00494***	0.00703	0.00376***	0.0114***
	(0.000999)	(0.00494)	(0.00125)	(0.00350)
ln_Age	-0.0100	-0.0740***	-0.0121	-0.102**
	(0.00513)	(0.0213)	(0.00963)	(0.0446)
ln_Acquired	0.0326**	0.139	0.0520*	0.00525
	(0.0163)	(0.115)	(0.0292)	(0.0160)
ln_RaisedtoDate	0.104***	0.0942***	0.0875***	0.0641***
	(0.0126)	(0.0262)	(0.0117)	(0.0201)
ln_TotalInvestedEquity	0.911***	0.808***	0.891***	0.968***
	(0.0221)	(0.129)	(0.0367)	(0.0220)
ln_PremoneyValuation	0.0558**	0.0752***	0.0264	0.0866***
	(0.0244)	(0.0254)	(0.0354)	(0.0223)
ln_PostValuation	-0.0648	0.0316	-0.00160	-0.115***
	(0.0406)	(0.111)	(0.0651)	(0.0309)
Bus_Status: Generating Rev	0.00191	0.00109	0.00239	0.0121**
	(0.00268)	(0.00859)	(0.00342)	(0.00578)
deal_type3: Early VC	-0.00542	-0.0226	-0.00532	-0.00117
	(0.00458)	(0.0135)	(0.00535)	(0.0133)
deal_type5: Late VC	-0.00634	0.0140	-0.00335	0.0339
	(0.00500)	(0.0177)	(0.00620)	(0.0233)
Serie_As	0.00295	0.0146	-0.00275	0.00956
	(0.00377)	(0.00977)	(0.00497)	(0.00856)
Cumulative	0.00100	0.0638	0.00111	0.00595
	(0.00525)	(0.0407)	(0.00638)	(0.0156)
Non_Cumulative	0.00201	-0.00456	1.30e-06	-0.00365
	(0.00271)	(0.00599)	(0.00365)	(0.00866)
VC_Round1	0.0847***	0.0795***	0.0784***	0.0491**
	(0.0101)	(0.0203)	(0.0114)	(0.0234)
VC_Round2	0.0509***	0.0576***	0.0492***	0.0470**
	(0.00758)	(0.0173)	(0.00904)	(0.0226)
VC_Round3	0.0322***	0.0215	0.0328***	0.00353
	(0.00561)	(0.0147)	(0.00799)	(0.0177)
BayArea	-0.00541		-0.0215***	
	(0.00610)		(0.00825)	
sector1	-0.432	-4.225	-0.691	-12.38

	(0.224)	(3.070)	(0.494)	(7.453)
sector2	0.180**	1.571	0.260	4.500
	(0.0878)	(1.118)	(0.188)	(2.708)
sector3	-0.384**	-3.516	-0.601	-10.24
	(0.189)	(2.538)	(0.413)	(6.135)
sector4	0.699**	6.291	1.070	18.17
	(0.340)	(4.504)	(0.742)	(10.90)
sector5	-0.205	-1.976	-0.333	-5.940
	(0.107)	(1.481)	(0.236)	(3.604)
sector6	-0.377	-3.764	-0.612	-11.09
	(0.200)	(2.743)	(0.441)	(6.672)
2015.DealYear	0.00246	-0.0203**	0.00244	-0.0195**
	(0.00505)	(0.00996)	(0.00530)	(0.00968)
2016.DealYear	-0.0147***	-0.0117	-0.0141***	-0.0105
	(0.00463)	(0.0220)	(0.00498)	(0.0123)
2017.DealYear	-0.0330***	-0.0539***	-0.0313***	-0.0618***
	(0.00506)	(0.0135)	(0.00623)	(0.0186)
2018.DealYear	-0.0570***	-0.0743***	-0.0568***	-0.0847***
	(0.00508)	(0.0177)	(0.00574)	(0.0179)
2019.DealYear	-0.0745***	-0.117***	-0.0758***	-0.118***
	(0.00650)	(0.0164)	(0.00678)	(0.0143)
2020.DealYear	-0.0874***	-0.0844***	-0.0928***	-0.0964**
	(0.00555)	(0.0285)	(0.00844)	(0.0409)
2021.DealYear	-0.123***	-0.183***		
	(0.00674)	(0.0204)		
2022.DealYear	-0.204***	-0.226***		
	(0.00582)	(0.0227)		
2023.DealYear	-0.273***	-0.345***		
	(0.00832)	(0.0292)		
2024.DealYear	-0.298***	-0.362***		
	(0.00819)	(0.0302)		
var(_cons[zip])	1.48e-05	0	0	5.51e-06
	(1.59e-05)	(0)	(0)	(5.38e-05)
var(e.ln_DealSize_Adj)	0.0187***	0.0160***	0.0179***	0.0109**
	(0.00153)	(0.00429)	(0.00165)	(0.00492)
BayArea		-		-
ln_TechPulseIndex			-0.0206	0.0978
			(0.0269)	(0.0970)
2021o.DealYear			-	-
2022o.DealYear			-	-
2023o.DealYear			-	-
2024o.DealYear			-	-
Constant	6.816**	63.61	10.49	186.9*
	(3.407)	(46.09)	(7.503)	(112.1)
Observations	15,424	825	8,704	498
Number of zip codes	530	42	460	37

Table 6 presents the results of a robustness check using a Tobit model with mixed effects to account for the censored nature of the dependent variable and potential unobserved heterogeneity across firms or regions. The Tobit model allows for a more accurate estimation when the outcome variable is bounded or limited in range. Mixed effects are included to control for group-level variation, such as differences across zip codes or sectors. The results confirm the main findings from the linear regression, providing additional support for the robustness of our conclusions.

Robust standard errors in parentheses

*** $p<0.01$, ** $p<0.05$

Conclusion

In this study, we examined venture capital investment patterns in Northern and Southern California, focusing on the determinants of deal size. Our analysis provides insights into how peer effects, firm characteristics, market conditions, regional variation, and time trends shape venture capital dynamics across the state.

Contrary to expectations, we find no evidence of peer effects, whether measured by proximity (same zip code) or sector (same industry). This suggests that a firm's deal size is largely independent of the success of its local or sector peers, challenging theories that emphasize positive spillovers or competitive crowding in VC ecosystems. Firm-level characteristics emerged as more robust predictors of deal size. Specifically, firm financial health, measured by total equity invested and prior funding, consistently explained larger deal sizes in both regions. Firm age showed a negative association with deal size, although this effect diminished when accounting for market conditions. These results underscore the importance of internal firm attributes over external market dynamics. Market conditions, as captured by the Tech Pulse Index, did not significantly impact deal size once firm-level variables were included. This finding suggests that while macro-level tech investment trends are influential, they may be less critical than firm fundamentals in determining the actual size of VC investments.

Regional differences were present but nuanced. Northern California showed stronger industry-sector effects, with financial services and B2C firms raising larger deals, and energy firms raising smaller ones. In contrast, industry sector had no significant impact on deal size in Southern California. This may indicate that Southern California VC investment is more agnostic to industry and potentially more open to diversification. Temporal analysis revealed a steady decline in deal size over the 2014–2024 period, particularly after 2018. Even in 2021, a year marked by record overall deal counts, average deal sizes declined significantly after adjusting for firm and sector characteristics. This suggests a shift in investment strategy, possibly favoring a larger number of smaller bets rather than fewer large-scale investments.

Innovation outcomes, measured by patent activity, also displayed regional divergence. In both regions, larger firms (by employee count) generated more patents, with a stronger effect in Southern California. However, other predictors of innovation, such as firm age, prior funding, acquisition status, and VC round, were more significant in Northern California. These patterns suggest that innovation in the North is more closely tied to observable firm-level factors, whereas in the South, it may be influenced by more heterogeneous or unobserved drivers.

Taken together, our findings suggest that while venture capital investment patterns in Northern and Southern California are broadly similar, key differences exist. Northern California displays stronger alignment between firm attributes and both deal size and innovation outcomes. Southern California, by contrast, appears more flexible and potentially more inclusive across industries, though with weaker observable links to innovation drivers. These insights carry implications for investors seeking to optimize regional strategies, entrepreneurs aiming to raise capital, and policymakers interested in fostering innovation ecosystems. In particular, the openness to industry diversification in Southern California may represent an opportunity for emerging

sectors, while the more structured, performance-driven investment patterns in the North offer lessons on how firm fundamentals drive both capital and innovation outcomes.

References

Amit, R., Glosten, L., & Muller, E. (1990). Does venture capital foster the most promising entrepreneurial firms?. *California Management Review*, *32*(3), 102-111.

Ando, Y. (2024). *Dynamics of High-Growth Young Firms and the Role of Venture Capitalists*. Penn Institute for Economic Research, Department of Economics, University of Pennsylvania.

Bengtsson, O., & Ravid, S. A. (2015). Location specific styles and us venture capital contracting. *Quarterly Journal of Finance*, *5*(03), 1550012.

Bernstein, S., Giroud, X., & Townsend, R. R. (2016). The impact of venture capital monitoring. *The Journal of Finance*, *71*(4), 1591-1622.

Bhatia, A., & Dushnitsky, G. (2023). The Future of Venture Capital? Insights Into Data-Driven VCs. *California Management Review*.

Bruton, G. D., Ahlstrom, D., & Puky, T. (2009). Institutional differences and the development of entrepreneurial ventures: A comparison of the venture capital industries in Latin America and Asia. *Journal of International Business Studies*, *40*, 762-778.

Bubna, A., Das, S. R., & Prabhala, N. (2020). Venture capital communities. *Journal of Financial and Quantitative Analysis*, *55*(2), 621-651.

Bygrave, W. D. (1988). The structure of the investment networks of venture capital firms. *Journal of Business Venturing*, *3*(2), 137-157.

Chen, H., Gompers, P., Kovner, A., & Lerner, J. (2010). Buy local? The geography of venture capital. *Journal of Urban Economics*, *67*(1), 90-102.

Chemmanur, T. J., Krishnan, K., & Nandy, D. K. (2011). How does venture capital financing improve efficiency in private firms? A look beneath the surface. *The Review of Financial Studies*, *24*(12), 4037-4090.

Cumming, D., & Dai, N. (2010). Local bias in venture capital investments. *Journal of empirical finance*, *17*(3), 362-380.

Cutchin, J. (2019, December 6). *Fintech flashpoint: L.A. has what it takes to become a financial technology hub*. Los Angeles Business Journal. https://labusinessjournal.com/finance/la-become-financial-tech-hub/

De Prijcker, S., Manigart, S., Collewaert, V., & Vanacker, T. (2019). Relocation to get venture capital: A resource dependence perspective. *Entrepreneurship Theory and Practice*, *43*(4), 697-724.

Elango, B., Fried, V. H., Hisrich, R. D., & Polonchek, A. (1995). How venture capital firms differ. *Journal of business venturing*, *10*(2), 157-179.

Federal Reserve Bank of San Francisco, San Francisco Tech Pulse (DISCONTINUED) [SFTPAGRM158SFRBSF], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/SFTPAGRM158SFRBSF, April 19, 2025.

Feldman, M. P. (2001). *The Role of Local Venture Capital in High-Tech Industry Growth*. Regional Studies, 35(5), 467-484.

Ferrary, M. (2003). The gift exchange in the social networks of Silicon Valley. *California Management Review*, *45*(4), 120-138.

Ferrary, M., & Granovetter, M. (2009). The role of venture capital firms in Silicon Valley's complex innovation network. *Economy and society*, *38*(2), 326-359.

Florida, R. (2023, December 7). *Where US tech investment is growing the most*. Bloomberg. https://www.bloomberg.com/news/articles/2023-12-07/san-francisco-bay-area-nyc-boston-dominate-vc-investment-in-us

Florida, R. (2022, March 9). *Where venture capital and tech jobs are growing*. Bloomberg. https://www.bloomberg.com/news/articles/2022-03-09/where-venture-capital-and-tech-jobs-are-growing

Florida, R., & Kenney, M. (1988). Venture capital and high technology entrepreneurship. *Journal of Business Venturing*, *3*(4), 301-319.

Florida, R., & King, K. M. (2018). Urban start-up districts: Mapping venture capital and start-up activity across ZIP codes. *Economic Development Quarterly*, *32*(2), 99-118.

Florida, R., & Mellander, C. (2016). Rise of the startup city: The changing geography of the venture capital financed innovation. *California Management Review*, *59*(1), 14-38.

Fried, V. H., & Hisrich, R. D. (1994). Toward a model of venture capital investment decision making. *Financial management*, 28-37.

Gompers, P. A. (1998). Venture capital growing pains: Should the market diet?. *Journal of Banking & Finance*, *22*(6-8), 1089-1104.

Gompers, P., & Lerner, J. (2001). The venture capital revolution. *Journal of economic perspectives*, *15*(2), 145-168.

Gompers, P. A., Gornall, W., Kaplan, S. N., & Strebulaev, I. A. (2020). How do venture capitalists make decisions?. *Journal of Financial Economics*, *135*(1), 169-190.

Gompers, P., Gornall, W., Kaplan, S. N., & Strebulaev, I. A. (2021). Venture capitalists and COVID-19. *Journal of Financial and Quantitative Analysis*, *56*(7), 2474-2499.

Gorman, M., & Sahlman, W. A. (1989). What do venture capitalists do?. *Journal of business venturing*, *4*(4), 231-248.

Gupta, A. K., & Sapienza, H. J. (1992). Determinants of venture capital firms' preferences regarding the industry diversity and geographic scope of their investments. *Journal of business Venturing*, *7*(5), 347-362.

Hambrecht, W. R. (1984). Venture capital & the growth of Silicon Valley. *California Management Review*, *26*(2), 74-82.

Jeng, L. A., & Wells, P. C. (2000). The determinants of venture capital funding: evidence across countries. *Journal of corporate Finance*, *6*(3), 241-289.

Kaplan, S. N., & Strömberg, P. E. (2004). Characteristics, contracts, and actions: Evidence from venture capitalist analyses. *The journal of finance*, *59*(5), 2177-2210.

Lee, S. H., & Shaver, D. A. (2008). *The Impact of Regional Venture Capital Markets on Startups*. Journal of Business Venturing, 23(2), 167-183.

Maier II, J. B., & Walker, D. A. (1987). The role of venture capital in financing small business. *Journal of business venturing*, *2*(3), 207-214.

Office of Governor Gavin Newsom. (2025, April 23). *California is now the 4th largest economy in the world*. https://www.gov.ca.gov/2025/04/23/california-is-now-the-4th-largest-economy-in-the-world/

Paglia, J. K., & Harjoto, M. A. (2014). The effects of private equity and venture capital on sales and employment growth in small and medium-sized businesses. *Journal of banking & finance*, *47*, 177-197.

Rosenstein, J., Bruno, A. V., Bygrave, W. D., & Taylor, N. T. (1993). The CEO, venture capitalists, and the board. *Journal of business venturing*, *8*(2), 99-113.

Rossi, M., Chouaibi, J., Graziano, D., & Festa, G. (2022). Corporate venture capitalists as entrepreneurial knowledge accelerators in global innovation ecosystems. *Journal of Business Research*, *142*, 512-523.

Sapienza, H. J. (1992). When do venture capitalists add value?. *Journal of business venturing*, *7*(1), 9-27.

Samila, S., & Sorenson, O. (2011). Venture capital, entrepreneurship, and economic growth. *The Review of Economics and Statistics*, *93*(1), 338-349.

Tian, X. (2011). The causes and consequences of venture capital stage financing. *Journal of Financial Economics*, *101*(1), 132-159.

Zacharakis, A. L., Shepherd, D. A., & Coombs, J. E. (2003). The development of venture-capital-backed internet companies: An ecosystem perspective. *Journal of Business Venturing*, *18*(2), 217-231.

Zider, B. (1998). How venture capital works. *Harvard business review*, *76*(6), 131-139.