Silicon Valley Competitiveness and Innovation Project - 2020 Update

A Dashboard and Policy Scorecard for a Shared Agenda of Prosperity and Opportunity



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About the SVCIP partners

The **Silicon Valley Leadership Group**, founded by David Packard of Hewlett Packard, is a diverse public policy association of more than 350 dynamic companies shaping the future innovation economy of Silicon Valley, the Bay Area, and the nation. The Leadership Group's strength is the breadth of its membership, ranging from technology name brands to startups and others who, together, account for nearly one of every three private sector jobs in Silicon Valley and contribute more than \$5 trillion to the worldwide economy. Through collaboration, we work to find solutions to issues affecting the Bay Area's economic vitality and quality of life.

Silicon Valley Community Foundation advances innovative philanthropic solutions to challenging problems. We engage donors and corporations from Silicon Valley, across the country and around the globe to make our region and world better for all. Our passion for helping people and organizations achieve their philanthropic dreams has created a global philanthropic enterprise committed to the belief that possibilities start here.

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Dear Friends,

The most pressing policy challenges that we face in Silicon Valley today must be solved by philanthropy, business, government and nonprofits working together. When we bring all our diverse strengths to bear, we know we can surmount any challenge.

The Silicon Valley Competitiveness & Innovation Project tracks indicators of Silicon Valley's economic health and quality of life – both over time and in comparison to other top U.S. technology regions. Since 2014, Silicon Valley Community Foundation and the Silicon Valley Leadership Group have joined forces on this project to establish a shared understanding of where we stand as a region on the most pressing policy challenges of our time – and to be a catalyst for change.

In recent years, the Silicon Valley economy has roared ahead, leading the other technology regions in just about every category we monitor. Meanwhile, solutions to our housing, transportation, and workforce challenges remained elusive, and access to opportunity much too limited.

This year's report shows that change may be ahead. For the first time since 2015, the median home price in Silicon Valley dropped. Average commute time increased again, but at the slowest rate we've seen since 2015. Job growth continued in 2018, but more slowly than in previous years. Growth rates in the other regions increased.

The cost of living and quality-of-life challenges that have accompanied our region's economic growth continue to exact a heavy toll on the region's residents, communities and businesses. This year's report shows that residents left Silicon Valley for other parts of the country at an increasing rate in 2018. Our commutes were still second worst in the nation, behind only New York City. And, while we've seen modest positive trends in student Math and English performance in recent years, broad swaths of our young people are still being left behind.

It is a testament to the Valley's fundamentals that the executives surveyed for this report remain generally bullish on our region, and actively committed to its success. Nearly half expect to grow their employee presence here over the next five years, and just five percent anticipate reductions in their local headcount. The likelihood of continued job growth underscores how important it is that we forge partnerships across sectors.

We invite you to join us in making Silicon Valley the very best it can be. Please visit us at svcip.com for updates on progress and opportunities to contribute.

Sincerely,

Carl Awarduro

Carl Guardino President and CEO Silicon Valley Leadership Group

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Nicole Taylor President and CEO Silicon Valley Community Foundation

SVCIP Indicator Dashboard 2020 Update		Strong and Gaining Ground	Trending positively, but still a critical area for improvement	Critical need for attention, and/or trending down	Change from SVCIP 2019	
SSETS		STEM Degrees Conferred			•	×
OUTCOMES & PROSPERITY	Talent	International Talent	•			0
		Talent Migration			•	×
	Business Competitiveness	Cost of Doing Business			•	×
	Quality of Life	Home and Rent Values		•		1.
		Traffic Congestion			•	1.
	Access to Opportunity	Third Grade English and Math Proficiency		•		
		Eighth Grade Math Proficiency			•	×
	Jobs	Jobs in Innovation Industries			•	×



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Executive Summary

In 2015, the Silicon Valley Leadership Group and Silicon Valley Community Foundation joined together to develop the Silicon Valley Competitiveness and Innovation Project (SVCIP) to proactively identify a datadriven, overarching economic strategy to enhance and reinforce the Silicon Valley region's competitive advantages in innovation, and ensure that Silicon Valley residents have access to the job opportunities and prosperity linked to growth in key industries. Guided by an advisory council and a series of discussions with legislators and business and civic leaders, the SVCIP team developed an Indicator Dashboard and public policy agenda to evaluate and promote the health of Silicon Valley's innovation ecosystem.

The 2020 report provides an annual update of selected indicators (i.e., employment in innovation industries, STEM degrees conferred per capita, migration flows, median home price, median rent, commute times, and third grade student achievement), and revisits indicators that were in earlier reports (i.e., global innovation ecosystem rankings, STEM talent pool, cost of doing business, and eighth grade student achievement). It provides a partial update of the Indicator Dashboard and summarizes progress on the public policy agenda. As in previous years, to the extent available, data from Silicon Valley is juxtaposed with comparable data for key innovation regions, including the New York metro area, Boston, Southern California, Seattle, and Austin. This year, we examine the growth of innovation industries in five "regions on the rise" (i.e., Denver/Boulder, Phoenix, Portland, Research Triangle, and Salt Lake City) which are generally smaller than our primary comparison regions but have shown marked gains in specific innovation industries. The Silicon Valley region is defined as Santa Clara, San Mateo, and San Francisco Counties.

Key findings:

Silicon Valley's innovation industry job growth continued, but at a slower pace than the previous two years, making it the only comparison region to experience slower growth in 2018.

For the third year in a row, more people left Silicon Valley than moved in.

Fewer people from other countries relocated to Silicon Valley in 2018.

The median home price in Silicon Valley dropped in 2018, while prices in other innovation regions continued to rise or stay about the same. Silicon Valley's innovation industry job growth slowed from 5% in 2017 and 2016 to 4% in 2018. Meanwhile, Austin doubled its growth rate from 5% in 2017 to 10% in 2018, while Seattle more than doubled its growth rate from 2% to 5% during the same period. The innovation industry job growth rate also rose in Boston (from 3% to 4%), Southern California (1% to 3%), and New York City (0.5% to 3%).

A net average of 632 residents left the Valley each month in 2018, an increase from a net average of 165 who departed monthly in 2017, and 42 who left monthly in 2016. The last three years are a sharp reversal from 2015, when the region gained a net average of 1,962 new residents per month through migration. The primary reason for the accelerating net loss of residents is domestic out-migration: in 2015, Silicon Valley was losing on average 832 residents per month to other locations in the United States, but in 2016 that figure jumped to 2,548 and in 2017 grew higher still to 3,051. It was about the same in 2018 (3,041).

Monthly average foreign in-migration declined from 2,887 in 2017 to 2,408 in 2018, a decrease of 17%. Three of the other five comparison innovation regions also experienced a decline in net new residents from foreign in-migration in 2018: New York (-39%), Southern California (-29%), and Austin (-4%). However, Seattle (+21%) and Boston (+14) increased their foreign in-migration in 2018.

Silicon Valley's 7% home price decline was an outlier among innovation regions. The growth of median home prices did slow in the other innovation regions, except for Austin (whose 4% growth rate held steady). Silicon Valley recorded the smallest year-over-year increase in commute time of all the innovation regions in 2018, but has experienced the largest increase between 2010 and 2018.

The cost of doing business in Silicon Valley is among the highest in the country.

The number of STEM degrees conferred in Silicon Valley stopped growing in 2018, while continuing to grow in most innovation regions.

Over the past five years, more Silicon Valley third graders tested proficient in English Language Arts and Mathematics, but the percentage of students proficient in Mathematics declines by eighth grade and large disparities among ethnic groups remain. The region's rate of increase in commute time has dropped steadily between 2015 and 2018. Commute time rose 5% in 2015, but 3% in 2016, 2% in 2017, and just 0.5% in 2018. Nonetheless, Silicon Valley's 21.5% increase in commute time between 2010 and 2018 is the highest among innovation regions.

Across all U.S. metro areas, San Francisco and San José had the first and third highest business costs in 2017, up from fourth and sixth place in 2015. The cost of doing business in the San Francisco metro area is 74% higher, and in the San José metro area 51% higher, than the national average. Except for New York City, the other innovation regions have much lower business costs—between 2% and 34% above the national average.

There was no year-over-year growth in STEM degrees conferred in Silicon Valley in 2018, and Austin experienced a 1% decline. However, STEM degrees conferred grew 7% in New York City, and increased 3% in Boston, Seattle, and Southern California. Silicon Valley ranks third behind Boston and Austin in STEM degrees conferred per capita.

Over the last five years, the percentage of third grade students who achieved proficiency in English Language Arts rose from 52% ot 59%, and in Mathematics from 56% to 63%. However, the proportion of eighth graders who achieved proficiency in Mathematics was 49% in 2014-15 (7% less than in third grade) and 54% in 2018-2019 (9% less than in third grade). The gap in student test scores by ethnicity in Silicon Valley remains substantial: almost two-thirds of Silicon Valley Hispanic, Latino, and African American third grade students are not proficient in English Language Arts and Mathematics, while only about two in ten Asian and White third grade students fail to meet state standards in these areas.

Silicon Valley's growth is slowing. The region's innovation industries added jobs at a slower rate than in recent years. The price of housing actually dropped, and commute time grew very little in 2018. The net outflow of people accelerated, with the Valley experiencing a decline in foreign in-migration for the first time in several years. These signs may lead some to ask the question: Will Silicon Valley be able to sustain its post-recession expansion?

It is clear that other innovation regions are sustaining their expansions. Our comparison regions experienced faster growth rates in 2018, while Silicon Valley's growth slowed. Unlike the Valley, Austin, Boston, and Seattle added more residents than they lost, with Boston and Seattle experiencing large gains in foreign in-migration. Except for Austin, all these regions experienced growth in STEM degrees conferred, while Silicon Valley's growth stopped in 2018. And, there are several "regions on the rise" such as Denver/Boulder, Phoenix, Portland, Research Triangle, and Salt Lake City that are rapidly expanding their innovation industries, in most cases faster than Silicon Valley.

Make no mistake, Silicon Valley's innovation assets remain strong, particularly its large, diverse STEM talent pool, drawn from California, other states, and other countries. Even as Silicon Valley has experienced booms and busts, it has also demonstrated an economic resilience that keeps it at the top of global innovation rankings. Yet as we see other innovation regions thrive, with their own burgeoning industries and talent pools, Silicon Valley must be vigilant. Innovation can be positive-sum, with many sharing its benefits, but strong investments in people and infrastructure remain critical.

For the second year, this report includes input from a survey of Silicon Valley executives regarding their hiring plans for the region between now and 2025. While we should be cautious about reading too much into just two years of survey results, the modest shift in responses between December 2018 and December 2019 seems to reinforce other data in this report: The wildly expansive Silicon Valley economy of recent years remained the envy of most regions, but seemed a bit tamer as the decade came to a close. The survey was conducted in December 2019, with 108 respondents from among the Silicon Valley Leadership Group's 350 member employers.

How Will Your Silicon Valley Workforce Look in 2025



Despite the high costs of operating in Silicon Valley, more than 9 in 10 executive respondents expect to maintain or grow their employee presence in the region, up from just over 8 in 10 last year. Outright pessimism about job growth in the Valley was even lower than it was in December 2018, with those expecting reductions in their local employee headcount dropping from 9.5% of respondents to just 5.6% in December 2019. Yet business leaders are showing signs of wariness toward Silicon Valley, compared with other technology regions. In December 2018, 56.2% percent of respondents expected to grow their employee presence in Silicon Valley, while 59.1% anticipated doing so in other regions of the U.S. or internationally. A year on, respondents' optimism about job growth outside Silicon Valley was about the same (59.3%), but the percentage of respondents expecting to grow their employee presence in Silicon Valley had dipped from 56.2% to 49.1%.

The Global Startup Ecosystem Ranking Top 25 Regions*, 2017-2019

Global Innovation Region	2019 Ranking	Change from 2017
Silicon Valley	1 st	No Change
New York City	2 nd	No Change
London	Tied for 3 rd	No Change
Beijing	Tied for 3 rd	Moved up from #5
Boston	5 th	No Change
Tel Aviv	Tied for 6 th	No Change
Los Angeles	Tied for 6 th	Moved up from #10
Shanghai	8 th	No Change
Paris	9 th	Moved up from #11
Berlin	10 th	Moved down from #7
Stockholm	11 th	Moved up from #14
Seattle	12 th	Moved down from #10
Toronto-Waterloo	13 th	Moved up from #16
Singapore	14 th	Moved down from #12
Amsterdam	15 th	Moved up from #19
Austin	16 th	Moved down from #13
Chicago	17 th	Moved up from #18
Bangalore	18 th	Moved up from #20
Washington D.C.	19 th	New in top 25
San Diego	20 th	New in top 25
Denver-Boulder	21 st	New in top 25
Lausanne-Bern-Geneva	22 nd	New in top 25
Sydney	23 rd	Moved down from #17
Vancouver	24 th	Moved down from #15
Hong Kong	25 th	New in top 25

*In this report, a regional ecosystem is defined as "a shared pool of resources, generally located within a 60-mile (100-kilometer) radius around a center point in a given region, with a few exceptions based on local reality."

Source: The Global Startup Ecosystem Ranking, Startup Genome et al, 2019. Analysis: Collaborative Economics The Startup Genome's Global Startup Ecosystem Ranking of 2019 found Silicon Valley continues to be the world's leading innovation region based on a composite measure incorporating venture capital investment, start up company exit valuations, talent pool, and entrepreneurial supports and networks. According to the 2019 report, the global innovation economy is now worth almost \$3 trillion, an increase of 20% from 2017.

Since 2017, there has been considerable movement in the global rankings, demonstrating the dynamism-and competition-among innovation regions. Beijing, Los Angeles, Paris, Stockholm, Toronto-Waterloo, Amsterdam, Chicago, and Bangalore moved up in the rankings, while Berlin, Seattle, Singapore, Austin, Sydney, and Vancouver moved down. In addition, several new regions rose into the top 25 rankings: Washington D.C., San Diego, Denver-Boulder, Lausanne-Bern-Geneva, and Hong Kong. Silicon Valley may remain the top innovation region in the world, but there is a growing group of global competitors that are on the move.

Silicon Valley Employment

Detailed Innovation Industries and All Other Industries, 2018



Employment in Innovation Industries by Region

Per 10,000 Workers in Overall Economy

3000 -----





Data Source: Bureau of Labor Statistics, Quarterly Census of **Employment and Wages**

Analysis: Collaborative Economics

2017, and 25% in 2014. Software continues to represent the largest proportion of innovation industry jobs, and grew faster than other innovation industries, increasing its share of total innovation industry jobs from 9.3% to 9.8%.

Silicon Valley continues to have the highest proportion of workers in innovation industries among U.S. innovation regions. Seattle (16.7%), Austin (14.0%), Boston (14.0%), Southern California (9.2%), and New York City (6.8%) all rank well behind Silicon Valley (27.2%) in the share of total workers in innovation industries. For the first time, Austin pulled even with Boston on this measure.

Over the past decade (2008-2018), Silicon Valley's innovation industry jobs grew 64%, far outpacing other innovation regions. On a second tier are Austin (up 48% from a smaller base) and Seattle (32%), while Boston (22%), Southern California (9%), and New York City (7%) grew much more slowly than the Valley.

In 2018, Silicon Valley's innovation industry growth rate slowed to 4%, down from 5% in 2017. In contrast, the other five comparison innovation regions all grew faster in 2018 compared to 2017. Austin experienced the largest increase, from 5% growth in 2017 to 10% growth in 2018. Seattle more than doubled its growth rate from 2% to 5%. Southern California's growth rate rose from 1% to 3%, while New York City's grew from 0.5% to 3%. Boston's growth rate also increased, albeit more slowly (from 3% to 4%). What sectors drove growth in the innovation regions in 2018? Silicon Valley's largest sector (Software) experienced 8% growth, compared to a 5% gain in 2017. Similarly, Seattle benefitted from an increase in the growth rate of its largest sector, with Software jobs increasing 6% in 2018, up from 5% in 2017. Software was also a strong contributor to increasing innovation industry growth rates in New York City and Southern California. Austin's largest and fastest growing sector (Software) expanded 10% in 2018, matching 2017's figure, but its second largest sector (Specialized Innovation Services) grew 15% in 2018, after having contracted 2% in 2017. Specialized Innovation Services also drove Boston's growth, as its largest sector gained 9% in 2018, compared to 6% in 2017. As New York City's largest sector, Specialized Innovation Services rebounded from a 0.1% loss in 2017 to a 2% gain in 2018.

Employment Growth in Top Innovation Industries 2017-2018



Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages Analysis: Collaborative Economics

Employment in Innovation Industries in Four Regions on the Rise

2018



Source: Bureau of Labor Statistics, Quarterly Census of Employment & Wages Analysis: Collaborative Economics

This year's SVCIP Update also looks at a second group of regions that have experienced substantial innovation industry growth over the past decade. While generally not as large as the innovation regions that have served as comparisons for Silicon Valley in this and earlier reports, between 2008 and 2018, Salt Lake City (46%), Denver/Boulder (39%), Portland (31%), Research Triangle (25%), and Phoenix (24%) added innovation industry jobs at a faster rate than Boston, New York City, and Southern California.

In 2018, however, the growth of these "regions on the rise" was larger than most of the established innovation regions. Phoenix (8%) and Salt Lake City (7%) grew faster than all of the established innovation regions but Austin. Denver/Boulder (5%) and Research Triangle (5%) also exceeded the growth rates of the established innovation regions with the exception of Seattle and Austin. All the "regions on the rise" experienced higher growth rates in 2018 than in 2017.

While these "regions on the rise" gained on some of the established innovation regions over the past decade, they lost ground to others. Silicon Valley (64%) was both much larger and faster-growing in innovation industry employment than all of the "regions on the rise." Seattle (32%) was also much larger and faster-growing than Phoenix, Research Triangle, and Portland. Austin (48%), whose base of innovation industry jobs is comparable to that of Research Triangle and smaller than that of Denver/Boulder and Phoenix, nonetheless added innovation industry jobs at a faster rate than all of the "regions on the rise."

Looking more closely at the activity of these regions, we see that different innovation industries are helping to drive growth. For example, in 2018, Software was a fast-growing sector in Denver/Boulder (7%) and Salt Lake City (7%), while Specialized Innovation Services was a particularly strong growth driver in Research Triangle (12%) and Phoenix (10%), along with Other High-Tech Manufacturing in Portland (14%). For innovation regions like Silicon Valley, the size and growth of its Science, Technology, Engineering, and Math (STEM) talent pool are critical ingredients of economic success. People with STEM skills are essential in researching, developing, improving, and scaling innovative technologies, businesses, and processes.

International STEM Talent by Country of Origin

Silicon Valley International Talent STEM Workers with a Bachelor's Degree or Higher by Place of Origin, 2018		
India	20%	
China	13%	
Taiwan	3%	
Korea	2%	
Russia	2%	
Vietnam	2%	
Hong Kong	1%	

Data Source: U.S. Census Bureau, PUMS Analysis: Collaborative Economics Silicon Valley relies much more on STEM workers born abroad (59%) than do other innovation regions (ranging from 31% to 46%). Moreover, the composition of the Valley's pool of foreignborn STEM talent is substantially different from other innovation regions.

Immigrants from India accounted for 20% of all Silicon Valley STEM workers in 2018, while immigrants from China, Hong Kong, and Taiwan comprised 17% of the STEM workforce. Korean, Russian, and Vietnamese immigrants each accounted for 2% of Silicon Valley STEM workers.

Silicon Valley's proportion of STEM talent originating from India (20%) is substantially higher than that in other innovation regions (8-15%). Similarly, the percentage of Silicon Valley STEM workers born in China, Taiwan, and Hong Kong (17%) is much higher than in other innovation regions (4-10%). Between 2008 and 2018, the percentage of STEM workers who are foreign-born has increased slowly in Silicon Valley (+1%), New York City (+1%), Southern California (+2%), and Austin (+2%), while growing faster in Boston (+6%), and expanding much more in Seattle (+16%).

International	Talent	
memanona	IMCIII	

STEM Workers with a Bachelor's Degree or Higher by Place of Origin, 2018

	Total Foreign Born	Born in India	Born in China/Taiwan/Hong Kong
Silicon Valley	59%	20%	17%
New York City	46%	15%	8%
Southern California	45%	8%	9%
Seattle	42%	14%	10%
Boston	34%	10%	7%
Austin	31%	13%	4%

Data Source: U.S. Census Bureau, PUMS Analysis: Collaborative Economics

STEM Degrees Conferred Per 10,000 Residents

Innovation Regions, 2017-2018 School Year*



* Data are preliminary; extracted 10.20.2019; Degrees included are based on first major and include bachelor's, master's and doctorate degrees. Data Source: National Center for Educational Statistics, IPEDS Analysis: Collaborative Economics STEM degrees conferred indicates the availability of homegrown, highlyskilled talent. Boston and Austin continue to outpace Silicon Valley in STEM degrees conferred per capita, although Silicon Valley edged closer to second-place Austin in recent years, with 32% vs. 14% growth between 2012 and 2018. Although Southern California, Seattle, and New York City continue to lag substantially behind the top three regions on a per capita basis, all three have recorded faster growth rates than Austin and Silicon Valley in recent years (41-65% vs. 14-32% from 2012 to 2018).

Most recent data from 2017-2018 show that growth of STEM degrees conferred has stopped in Silicon Valley (0%) and Austin (-3%), while continuing to grow in the other innovation regions. STEM degrees conferred grew 8% in both New York City and Boston, followed by Southern California (3%), and Seattle (2%).

Growth in STEM Degrees Conferred Per 10,000 Residents 2012-2018*				
	2012-2018	2017-2018		
New York City	65%	8%		
Boston	49%	8%		
Southern California	42%	3%		
Seattle	41%	2%		
Silicon Valley	32%	0%		
Austin	14%	-3%		

* Data are preliminary; extracted 10.20.2019; Degrees included are based on first major and include bachelor's, master's and doctorate degrees. Data Source: National Center for Educational Statistics, IPEDS Analysis: Collaborative Economics

Migration Flows

Average Net New Residents Per Month Due to Migration Innovation Regions, 2018



Data Source: US Census, Population Estimates Analysis: Collaborative Economics

> For the third year in a row, Silicon Valley experienced a net out-migration of residents in 2018-and the flow continued to accelerate. According to comparable year-to-year U.S. Census population estimates, an average of 632 residents left the Valley monthly in 2018, an increase from an average of 165 and 42 who departed monthly in 2017 and 2016, respectively. The 2016-2018 period was a sharp reversal from 2015, when population estimates showed the region gaining an average of 1,962 net new residents per month. The primary reason for out-migration has been the departure of residents to other locations in the United States, which has been partially offset by arrival of residents from other countries.

Silicon Valley experienced lower net foreign in-migration than in earlier years. The region's net monthly foreign in-migration was 2,480 in 2018, compared to 2,887 in 2017, 2,506 in 2016, and 2,793 in 2015. What remained relatively constant in 2018 was the net out-migration of residents to other locations in the United States, with net monthly departures (3,041) about the same as in 2017 (3,051). Notably, these domestic departures were much higher during the 2016-18 period (ranging from 2,548 to 3,051) than in 2015 (832).

Almost all the innovation regions experienced a decline in net new residents from migration in 2018. For Seattle, the net decline stemmed entirely from decreases in domestic in-migration (from a monthly net of 1,756 in 2017 to 644 in 2018). Southern California and New York City experienced major declines in foreign in-migration (from 6,544 and 13,404 in 2017 to 4,624 and 8,142 in 2018, respectively). Austin recorded a more modest decline in both domestic and foreign in-migration, resulting in just 91 fewer net new residents per month in 2018. Boston was the only innovation region that experienced a small increase in net new residents due to a modest gain in foreign in-migration.

Costs of Doing Business Compared to the USA Average, 2017

Metro Area	Total Ranking of Business Costs Among All U.S. Metro Areas	Overall Business Costs, % Above National Average
San Francisco	1	74%
New York City	2	56%
San José	3	51%
San Diego	7	34%
Boston	10	27%
Los Angeles	27	16%
Seattle	53	7%
Austin	70	2%

Data Source: Moody's Analytics, 2019 Edition, North American Business Cost Review. September 2019 Silicon Valley proxied by San José metro area, Southern California proxied by Los Angeles Analysis: Collaborative Economics While Silicon Valley has had the highest worker productivity among innovation regions, it also is a comparatively highcost region for doing business. A 2017 ranking of total business costs by U.S. metropolitan statistical areas (MSAs) finds that the San Francisco and San José MSAs have the first and third highest costs in the country, respectively. In 2015, the San Francisco MSA ranked fourth and the San José MSA ranked sixth highest in business costs.

The cost of doing business in the San Francisco MSA is 74% higher than the national average; the San Jose MSA is 51% higher. Except for New York City (56% higher), all other innovation regions have business costs much closer to the national average: Southern California (San Diego MSA 34%, Los Angeles MSA 16%), Boston (27%), Seattle (7%), and Austin (2%). While overall business costs in innovation regions are consistently higher than the national average, business costs attributed to state and local taxes are typically lower than the national average. Only the New York City MSA is above the national average (+8%). Business costs due to state and local taxes are lower in the Los Angeles MSA (-7%), San Diego MSA (-8%), San Francisco MSA (-11%), San José MSA (-12%), Boston MSA (-17%), Seattle MSA (-21%), and Austin MSA (-43%). Higher costs in other categories–often costs associated with highly-skilled labor–are the reason innovation regions exceed the national average in overall business costs.

Outcomes and Prosperity: Quality of Life

Housing costs and commutes are key factors influencing residents' quality of life, which affect innovation regions' ability to attract and retain talent.

Housing Costs in Innovation Regions

Median Home Values and Average Monthly Rent, 2019*



*Average for 2019, through October for Home Value, through November for Rental

**Traditional Silicon Valley proxied by San José Metro Region (Home), San José City (Rental), Southern California by Los Angeles Metro Region (Home), Los Angeles City (Rental), New York City is New York Metro Region (Home), New York City (Rental) Source: Zillow, Rent Jungle

Analysis: Collaborative Economics

Using the San José Metropolitan Statistical Area (MSA) to represent Silicon Valley home prices, the median home price dropped 7% in 2019 after having risen 15% in 2018. Looking at MSAs for both San José and San Francisco, we see the median home price remained substantially higher in both (\$1,176,540 in San José and \$945,370 in San Francisco) than in other innovation regions (ranging from \$314,630 in Austin to \$654,850 in Southern California). However, the gap narrowed in 2019—the median home price declined in both the San José (-7%) and San Francisco MSAs (-2%), while none of the other comparison regions experienced price decreases. Many innovation regions experienced much slower growth rates in median home price from October 2018 to October 2019, compared to the period October 2017 to October 2018: Seattle's growth rate dropped from 5% to 1% over this period (and down from 9% growth the previous year). Boston (3% to 1%), Southern California (2% to 0%), and New York City (3% to 2%) also dropped, with only Austin maintaining a steady growth rate of 4% over the period.

Average monthly rent for a two-bedroom apartment in 2019 rose 2% in San José City and 3% in the San Francisco MSA. Average monthly rent in the San Francisco MSA remains higher than that of the San José MSA and all of the other innovation regions. The San José MSA's 2% increase in 2019 was less than its 3% gain in 2018, but represents a two-year rise after a 4% drop in 2017. The San Francisco MSA also broke its trend of lower rents, with a 3% gain following 3% and 4% declines in 2018 and 2017, respectively. In contrast to 2018, when average rent rose between 3-10% in other innovation regions except Seattle, in 2019 every region except Seattle and Austin experienced slower growth or a decline in average rent. Seattle experienced the biggest increase in average rent, recording a 2% rise in 2019 compared to a 3% decline in 2018.

Average Minutes for Round Trip Commute to Work

Innovation Regions, 2010-2018



Note: Reflects commute times for workers employed in innovation regions Source: American Community Survey, 1 Year Estimates Analysis: Collaborative Economics Commute time can be an important factor in worker productivity and quality of life. Commute times continued to rise in 2018 in all the innovation regions, increasing the most in Boston (2.7%) and Seattle (2.3%) between 2017 and 2018. Notably, Silicon Valley experienced the smallest increase in commute time (0.5%) of all the innovation regions in 2018.

Silicon Valley has experienced the largest increase in commute time since 2010 among innovation regions (21.5%). However, the region's rate of increase in commute time has dropped steadily between 2015 and 2018. Commute time rose 4.5% in 2015, but 2.9% in 2016, 1.7% in 2017, and 0.5% in 2018. Seattle has experienced the second largest increase in commute time since 2010 (16.9%), followed by Boston (11.6%) and Austin (10.7%).

In 2018, an average Silicon Valley commuter spent 73.6 minutes commuting per day (round trip), slightly more than in 2017 (73.2). This figure remains second only to the commute time of New York City workers, who spent about 76.6 minutes commuting daily in 2018 (vs. 75.4 minutes in 2017). Other innovation regions have shorter commute times: Boston (67.6 minutes in 2018, vs. 65.8 minutes in 2017), Seattle (65.0 vs. 63.4 minutes), Southern California (63.0 vs. 62.4 minutes), and Austin (56.0 vs. 55.4 minutes). The difference between the longest and shortest commute times among innovation regions grew from 20.0 minutes in 2017 to 20.6 minutes in 2018.

Outcomes and Prosperity: Access to Opportunity

Education enables access to well-paying jobs and facilitates income mobility. Jobs in innovation industries have strong earning potential; high quality education is therefore particularly important to promote access to opportunity across the full population.

Percentage of Students Meeting or Exceeding State Standards in Third Grade Language Arts and Mathematics



Silicon Valley, 2014-2015 to 2018-2019 Academic Years

Data Source: California Department of Education, CAASPP 2019, 2018, 2017, 2016, 2015 Analysis: Collaborative Economics

English Language Arts Proficiency Levels Among Third Grade Students by Race/Ethnicity Silicon Valley, 2019

100% Percentage of students 90% not meeting standard 80% 70% 59% - Silicon Valley 60% average percent proficient 50% 49% - California average percent proficient 40% 30% Percentage of students 20% meeting or exceeding standard 10% 0% Asian Filiping Ethnicity -Two or More Rares White Hispanic o Latino Native Hawaiian or Pacific Islander Black or African

In the past five years, there have been measurable gains in the performance of Silicon Valley third grade students in both English Language Arts and Mathematics. The proportion of third grade students who achieved proficiency in English Language Arts rose from 52% to 59% and in Mathematics from 56% to 63% between the 2014-15 and 2018-19 academic years.

Despite recent gains, about four in ten third grade Silicon Valley students are still not proficient in English Language Arts and Mathematics. There remains a substantial proficiency gap across ethnicities: Almost twothirds of Silicon Valley Hispanic, Latino, and African American third grade students are not proficient in English Language Arts and Mathematics, while only about two in ten Asian and White third grade students fail to meet state standards in these areas. These remain troubling gaps, as third grade proficiency in English Language Arts and Mathematics is an important indicator of future academic success and STEM workforce readiness.

Note: Data for American Indian or Alaska Native students not available, due to small number of test takers Source: California Department of Education, CAASPP 2019 Analysis: Collaborative Economics Mathematics Proficiency Levels Among Third Grade Students



Note: Data for American Indian or Alaska Native students not available, due to small number of test takers Source: California Department of Education, CAASPP 2019

Analysis: Collaborative Economics

Percentage of Students Meeting or Exceeding State Standards in Eighth Grade Mathematics

Silicon Valley, 2014-15 School Year to 2018-19 School Year



Over the past five years, there have been measurable gains in the performance of Silicon Valley eighth grade students in Mathematics. The proportion of eighth grade students who achieved proficiency in Mathematics rose from 49% to 54% between the 2014-15 and 2018-19 academic years. However, for the first time since 2014-15, the percentage of eighth grade students proficient in Mathematics declined from the previous year.

Data Source: California Department of Education, CAASPP 2019,2018, 2017, 2016, 2015 Analysis: Collaborative Economics

Mathematics Proficiency Levels Among Eighth Grade Students by Race/Ethnicity

Silicon Valley, 2019



Source: California Department of Education, CAASPP 2019 Analysis: Collaborative Economics The percentage of Silicon Valley students proficient in Mathematics declines between third and eighth grade. In 2018-19, 63% of the region's third grade students but just 54% of eighth grade students achieved proficiency in Mathematics. This proficiency gap has grown between 2014-15 (7 points) and 2018-19 (9 points). The proficiency gap at the state level is 13 points, with 50% of California third grade students and 37% of eighth grade students achieving proficiency in Mathematics.

Despite recent gains, 46% of Silicon Valley eighth grade students are still not proficient in Mathematics. There remains a substantial proficiency gap across ethnicities: Only one in four Hispanic/Latino and African American eighth grade students scored proficient or higher. There is nearly a 60 percentage-point difference between the share of Asian students who met or exceeded state standards in Mathematics (82%) and African American students who did so (23%). Just as with third grade proficiency in English Language Arts and Mathematics, these persistent achievement gaps will affect future academic success and STEM workforce readiness of today's youth.

In 2015, the Silicon Valley Leadership Group and Silicon Valley Community Foundation hosted a series of public policy strategy sessions with federal, state and local officials, CEOs, education administrators, and community leaders. The following public policy recommendations emerged as priorities to enhance the health of Silicon Valley's economy.

High-Skill Immigration		
Streamline the visa process for permanent residents and non-immigration visas.		
Broaden eligibility criteria for EB-5, to better reflect start-up company growth.		
Maximize O-1 visas, especially for high-talent entrepreneurs.		
Education: STEM Education and High-Quality Pre-K		
Increase funding for public preschool education programs, particularly targeting at-risk populations	\	
Increase student opportunities to engage with STEM in pre-K and K-12	👗 ★ 💧	
Accept more STEM courses as A-G requirements (e.g., engineering, science courses) for UC/CSU admission	5	
Increase student proficiency in third grade reading and eighth grade Algebra	\	
Transportation and Housing		
Increase funding for BART and Caltrain, leveraging New Starts, Cap & Trade funds, local ballot initiatives and infrastructure financing districts	*	
Develop a permanent funding source for affordable housing	\ *	
Engage corporate leaders to encourage connectivity to transit	*	
Research and Development		
Develop R&D funding matching program for areas such as biotechnology, clean energy and DARPA	W	
Implement permanent R&D (and R&D equipment) tax credits	** (
Emphasize return on investment in funding formula, tax credits	W	
Cost of Doing Business and Regulation		
Modernize CEQA	N	
Augment tax credits, incentives to encourage business expansion locally	\ *	
Automate local permitting system	*	



Education

Advancing Computer Science Education: The 2019 State budget appropriated \$1M to fund a statewide K-12 Computer Science (CS) Coordinator role housed in the California Department of Education to support the rollout of CS across the state. State investment – in particular, a statewide coordinator and funds for teacher professional development – is vital in order to expand CS access throughout the K-12 system, especially to low-income and other underrepresented student populations. The Leadership Group was part of a coalition of CS advocacy organizations that supported these critical state investments.

Improving Student Performance through

Better Measurement: The 2019 State budget included \$10M to establish the California Cradle-to-Career Data System Working Group to help integrate data from various state entities responsible for the education and workforce development of Californians at all levels. A stronger student data infrastructure is critical for understanding what strategies are helping our students succeed.

Transportation

Securing Federal Funds for BART Extension to Silicon Valley: In August 2019, the Federal Transit Administration (FTA) announced the approval of \$125 million in funds to help BART Phase II, the project to extend BART to downtown San José. The Valley Transportation Authority was the first agency in the nation to be awarded funds under this new pilot project, after the Leadership Group sent two teams to Washington in early 2019 to help make the case for VTA's application.

Housing

Renter Protections: The Governor signed into law a 10-year rent stabilization measure (AB 1482 – Chiu) that creates certainty for 8 million Californian renters by limiting rent increases to a maximum of 5% per year, plus inflation not to exceed 10%, and requiring "just cause" for eviction. SVCF and the Leadership Group worked with a broad coalition of housing, tenant and business groups towards its passage.

Streamlining New Moderate-Income Housing: The Governor signed into law AB 1485 (Wicks), which expands housing streamlining regulations passed in 2017 (SB 35 – Weiner) to include new

developments in which at least 20% of units are moderate-income, if those developments are located in a jurisdiction that is not meeting its housing needs for this category.

New Home Production: SVCF advocated for several bills the Governor signed in to law to bolster housing production:

- SB 330 (Skinner) temporarily suspends specific local rules and regulations that are recognized as obstacles to housing production (such as parking and fees), and establishes reasonable time periods for processing housing permits.
- AB 68 (Ting) removes barriers to the development of Accessory Dueling Units (ADUs or "Granny Units") across California.
- AB 1483 (Grayson) improves data collection for projects at the local level to help ensure a more streamlined local review process.

Tenant Protections: To address tenant protection needs, SVCF also advocated for AB 1482 (Chiu) which prevents rent-gouging by limiting extreme or unreasonable rent increases and was signed in to law.

Executive Survey - Results are drawn from a Silicon Valley Leadership Group survey of 105 of its senior business executive members representing many of Silicon Valley's major employers in December 2019.

International Comparisons at a Glance - Data drawn from the Startup Genome's 2019 Global Startup Ecosystem Ranking Report, released May 2019.

Employment in Innovation Industries - BLS-QCEW employment data are county-level survey-based employment estimates, available to the 4-Digit NAICS level. In this report, BLS-QCEW employment levels are annual averages. As a consistent methodology over time, this source is the basis for industry growth estimates.

Geographies for "Regions on the Rise" are defined using the Bureau of Labor Statistics' Metropolitan Statistical Area definitions for 2018. Due to availability of data/data suppression in the QCEW dataset (accessed 12.10.2019), 2016 data points were used for biotechnology employment in Johnson County, NC and Internet and Information Services in Wake County, NC in the 2017 and 2018 figures.

International Talent - Data for international talent are provided by IPUMS USA, University of Minnesota, www.ipums.org (Steven Ruggles, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, José Pacas, and Matthew Sobek. IPUMS USA: Version 9.0 dataset. Minneapolis, MN: IPUMS, 2019. http://doi.org/10.18128/D010.V9.0). Data includes all currently employed individuals with a bachelor's degree or higher. Foreign-born does not include individuals from U.S. territories.

STEM Degrees Conferred - Data on the number of STEM Degrees conferred comes from the National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS). Data are based on first major and include bachelor's, master's, and doctoral degrees in Biological & Biomedical Sciences, Physical Sciences, Engineering, Computer & Information Sciences, Mathematics & Statistics, Engineering Technologies and Related, Science Technologies/Technicians. To obtain STEM degrees conferred per 10,000 residents, Collaborative Economics divides the number of STEM degrees in each region by the region's population.

Migration/Geographic Mobility - Migration estimates reflect net change in number of migrants, based on origin, from U.S. Census Bureau Population Estimates. To obtain monthly averages, yearly migration numbers are divided by 12 months. In Silicon Valley, Boston, Southern California, and New York City, the net change in domestic migrants was negative, meaning that more people left those regions than arrived from the rest of the U.S., hence all positive change in population was from abroad.

Costs of Doing Business - Costs of doing business data are sourced from Moody's Analytics 2019 North American Business Cost Review, and includes costs for labor, energy, state and local taxes, and office rents.

Median Home Value and Average Rents -Median Home Value data are from Zillow (www.zillow.com), and are inflation adjusted. Rents are sourced from Rent Jungle. Due to data constraints, Silicon Valley is proxied by San Jose Metro Region (Home) and San Jose City (Rental); Southern California by Los Angeles Metro Region (Home) and Los Angeles City (Rental); and New York City by New York Metro Region (Home) and New York City (Rental).

Average Commute Times - Change in average commute time for workers in innovation regions is sourced through the U.S. Census, American Community Survey. For the Austin region, Caldwell and Bastrop Counties in Texas are excluded in this analysis due to data suppression.

English and Mathematics Proficiency - Exam performance data are from the California Department of Education, CAASPP Results in 2019, and "proficiency" reflects students meeting or exceeding state standards in third grade English Language Arts and Mathematics, and eighth grade Mathematics. Regions are defined by County.



The **Silicon Valley Leadership Group**, founded by David Packard of Hewlett Packard, is a diverse public policy association of more than 350 dynamic companies shaping the future innovation economy of Silicon Valley, the Bay Area, and the nation. The Leadership Group's strength is the breadth of its membership, ranging from technology name brands to startups and others who, together, account for nearly one of every three private sector jobs in Silicon Valley and contribute more than \$5 trillion to the worldwide economy. Through collaboration, we work to find solutions to issues affecting the Bay Area's economic vitality and quality of life. For more information, visit **svlg.org**.



Silicon Valley Community Foundation advances innovative philanthropic solutions to challenging problems. We engage donors and corporations from Silicon Valley, across the country and around the globe to make our region and world better for all. Our passion for helping people and organizations achieve their philanthropic dreams has created a global philanthropic enterprise committed to the belief that possibilities start here.

Learn more at **siliconvalleycf.org**.

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