July 2018

Continuing Growth and Unparalleled Innovation

Bay Area Economic Profile

Tenth in a Series

BAY AREA COUNCIL ECONOMIC INSTITUTE

About This Report

This report, the tenth in a series of Bay Area Economic Profile reports produced since 1997 by the Bay Area Council Economic Institute and McKinsey & Company, examines the region's economy over the last decade, as it has emerged from the Great Recession to enter a new period of immense growth and innovation. As previous reports have done, it benchmarks the Bay Area's performance against other knowledge-based economies to assess the region's national and global competitiveness. It also examines the economic and policy challenges that continue to confront the region, even in a period of extraordinary growth, and looks to uncover the next wave of innovation and renewal.

Acknowledgments

This Economic Profile report was prepared by the Bay Area Council Economic Institute in partnership with McKinsey and Company. It is the product of extensive analysis by the McKinsey team, research and writing by the Economic Institute, and input from regional leaders. Kausik Rajgopal and Kunal Modi led the effort for McKinsey with support from Joyce Chai, Enrique Camacho, and Luci Fonseca. Micah Weinberg and Sean Randolph led an Institute team that included Jeff Bellisario, Alice Bishop, Patrick Kallerman, and Estevan Lopez.

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About the Institute

Since 1990, the Bay Area Council Economic Institute has been the leading think tank focused on the economic and policy issues facing the San Francisco/Silicon Valley Bay Area, one of the most dynamic regions in the United States and the world's leading center for technology and innovation. A valued forum for stakeholder engagement and a respected source of information and fact-based analysis, the Institute is a trusted partner and adviser to both business leaders and government officials. Through its economic and policy research and its many partnerships, the Institute addresses major factors impacting the competitiveness, economic development and quality of life of the region and the state, including infrastructure, globalization, science and technology, and health policy.

It is guided by a Board of Advisors drawn from influential leaders in the corporate, academic, non-profit, and government sectors. The Institute is housed at and supported by the Bay Area Council, a public policy organization that includes hundreds of the region's largest employers and is committed to keeping the Bay Area the world's most competitive economy and best place to live. The Institute also supports and manages the Bay Area Science and Innovation Consortium (BASIC), a partnership of Northern California's leading scientific research laboratories and thinkers.

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Introduction

The nine-county San Francisco-Silicon Valley Bay Area has been the international innovation economy's hub since the 1970s, one of the nation's most resilient regions for the past fifty years, and the fertile ground on which Apple, Facebook, Google, and other corporations have grown into top companies by global capitalization in just the last decade. Even though these economic success trajectories have been almost unprecedented, the Bay Area economy is still currently on the upswing, rather than having reached a peak or started a decline. Much of the growth has occurred in clusters of highly-productive industries. These have thrived due to factors such as the Bay Area's unparalleled workforce, world-class higher education system, premier startup ecosystem, and the almost limitless opportunities created by the region's dense concentration of venture capital that funds innovation across a broad range of established and emerging industries.

Predicting an impending end to this historic run has become a cottage industry, and certainly the Bay Area's ongoing economic success cannot be taken for granted. For all of its advantages, the Bay Area is not inoculated against the impacts of national and international business cycles. In fact, the region has historically had higher peaks and lower valleys in its economic cycles when compared to the rest of the nation. Most notably, the regional economy had to reinvent itself after the dot-com crash of the early aughts. The largest current threats to ongoing prosperity in the region emanate from Washington, DC, where a series of policy choices is undermining the international economic cooperation and exchange of people and ideas that help to power the Bay Area's economy. These concerns are real, but the doomsayers focus too often on the dark clouds on the horizon, rather than on the green shoots coming out of the ground all around them.

A perfect encapsulation of this dynamic occurred when Charles Schwab, the legendary founder of the San Francisco-grown brokerage, warned in mid-May 2018 that people and companies were fleeing the state due to the federal legislation eliminating the deduction for state and local taxes.[1] This was a policy choice that will have a large impact on high-income earners in the Bay Area, and the company Schwab founded is an example of one that has recently moved many jobs to other states. Just two weeks earlier, however, the Charles Schwab Corporation announced that it had chosen San Francisco as one of its two sites for new digital accelerators linked to hundreds of high-wage jobs and a significant new real estate footprint.[2] And although the federal tax reform package will have an unquestionable impact on the region's high earners, it is

also providing a tremendous windfall to Bay-Area-based companies. These companies are using the savings to make massive personnel and real estate investments in the region. Not the least of these are the planning of a transit-oriented campus in San Jose by Google, the leasing of an entire 43-story office tower in San Francisco by Facebook, and the creation of a spectacular new "spaceship" campus in Cupertino by Apple. And such growth is fanning out across the region, with cranes filling the skies in Oakland as it experiences its biggest surge in residential and commercial development since the 1990s.

The myth that high earners and high-productivity companies are fleeing the region has had it exactly backwards for long enough that more people ought to have noticed. In fact, during a period when the Bay Area's economic growth has outstripped that of all of its domestic competitors, the Bay Area—and the state of California generally—have been net importers of higher-income individuals.[3] The challenges have come for lower-margin industries as well as the lower-wage workers who are either leaving the state or traveling increasing distances as mega-commuters from the broader Northern California Megaregion that includes the Sacramento and Monterey areas and the San Joaquin Valley.

But in spite of being home to the spectacular economic engine of the Bay Area, the state of California also has the highest levels of real poverty and child poverty in the nation. Many of the Bay Area's residents are housing cost burdened, and homelessness has increased. What is often missed, however, is that housing costs and homelessness are rising across a broad range of geographies in the United States, not all of which are nearly as economically successful as the Bay Area. What makes the Bay Area different, therefore, is not its challenges, but the resources and innovative minds that it can bring to bear to address them.

As private- and public-sector leaders make economic and policy decisions, they must be informed by the best possible objective analyses and eschew the many myths that attach themselves to culturally significant and economically successful geographies such as the Bay Area. This report endeavors to provide just such data and analysis. Its first chapter lays out the top-level economic data on the robust and highly-productive regional economy. The second chapter drills down into the specific assets of and advantages provided by the San Francisco-Silicon Valley Bay Area's innovation economy. The third chapter details some of the challenges facing our regional economy in areas from housing to transportation to human well-being. And the final chapter expands the focus to the Northern California Megaregion, the area that is increasingly the relevant economic unit for both domestic commute sheds and goods movement, as well as international economic competition.

1

A Regional Economy That Is Still Strong and Growing

Exhibit 1

If it were a country, the Bay Area would be the 19th largest economy in the world, with a gross domestic product (GDP) of $748 billion.

	2017 Nominal GDP, $ Billion	Rank in 2014, Rank	Real GDP CAGR 2014–2017, %
United States	16,768	1	2.2
China	9,181	2	6.8
Japan	4,897	3	1.2
Germany	3,737	4	2.0
United Kingdom	2,809	5	1.9
India	2,678	10	7.3
France	2,243	6	1.3
Brazil	2,150	7	-2.2
Italy	2,096	8	1.1
Canada	1,938	11	1.8
Russia	1,838	9	-0.5
South Korea	1,501	13	2.9
Australia	1,359	12	2.4
Spain	1,304	14	3.3
Mexico	1,261	15	2.3
Indonesia	869	17	5.0
Turkey	854	16	4.9
Netherlands	822	18	2.5
Bay Area	748 (#19)	21	4.3
Switzerland	686	20	1.2
Saudi Arabia	610	19	1.6
Argentina	580	24	1.0
Taiwan	531	27	1.6
Sweden	525	23	3.3
Poland	523	25	3.5

Notes: The Bay Area is defined as the combined San Jose-Sunnyvale-Santa Clara, San Francisco-Oakland-Hayward, Napa, Santa Rosa, and Vallejo-Fairfield MSAs. The 21-county Northern California Megaregion would have the 16th largest economy at $952 billion.

Sources: Global Insight, BEA

Analysis: Bay Area Council Economic Institute and McKinsey & Company

If the Bay Area were a country, its $748 billion GDP in 2017 would qualify it as the 19th largest economy in the world. This ranking is higher than it was in 2014, when the Bay Area economy would have been the 21st largest economy on the world list. From 2014 to 2017, the Bay Area's GDP grew by 4.3%—much faster than the increase for the U.S. as a whole, and faster than the growth of most of the world's 25 largest economies. The Northern California Megaregion as a whole, with a $952 billion GDP, would currently rank even higher—as the 16th largest economy.

Over the past 20 years, the Bay Area's economic output has consistently grown faster than that of the U.S. as a whole, accelerating even more quickly since the end of the recession. This indicates a healthy economy that has continued to expand and adapt.

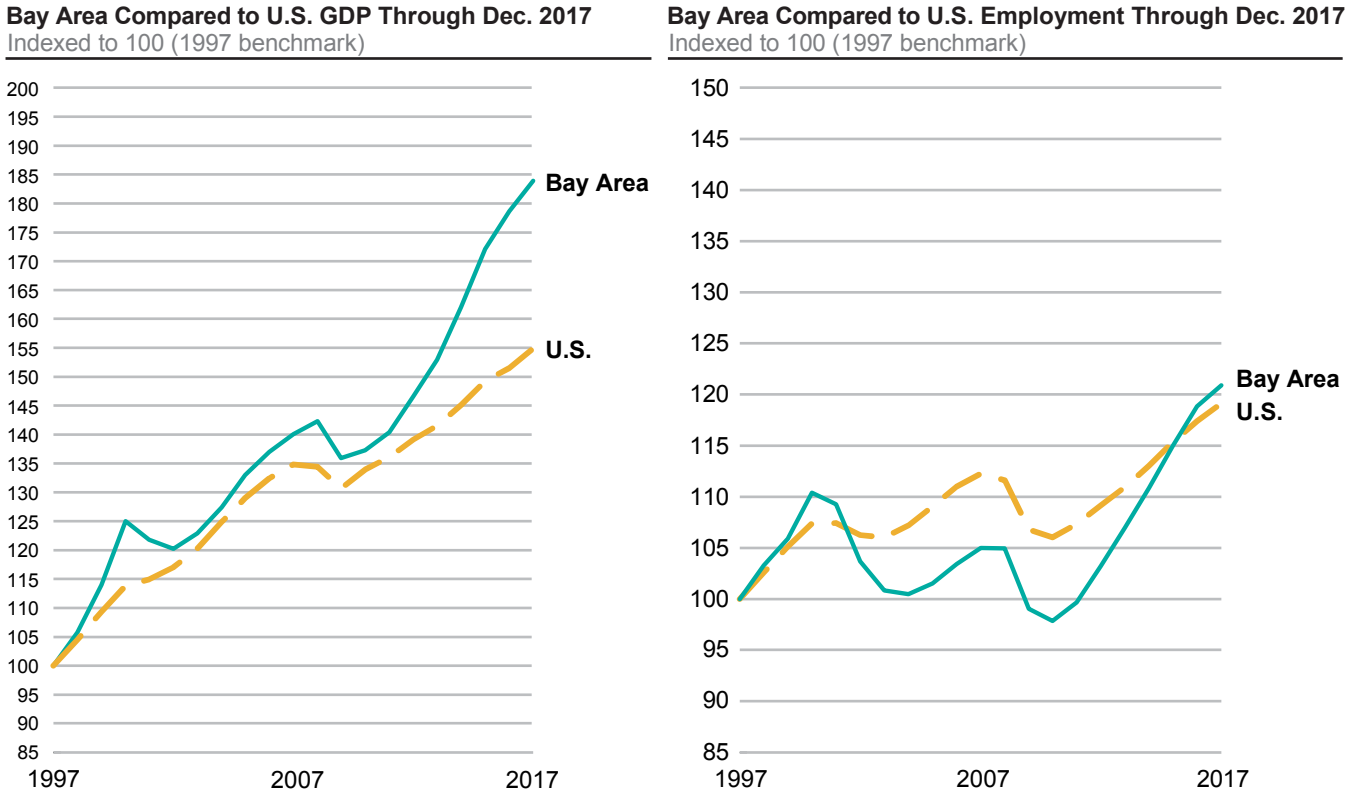
Bay Area employment growth, on the other hand, was significantly impacted in the last two recessions, but since 2010, it has accelerated to outpace U.S. employment growth. Job growth in the region slowed slightly from 2016 to 2017, but it now has far surpassed its late 1990s and mid-2000s peaks.

From 2014 to 2017, Bay Area GDP grew at an annual rate of

4.3%

EXHIBIT 2

The Bay Area's GDP growth has dramatically outpaced that of the U.S. in the post-recession years; the Bay Area GDP has historically grown faster than the U.S. GDP, but employment has only recently ramped up.



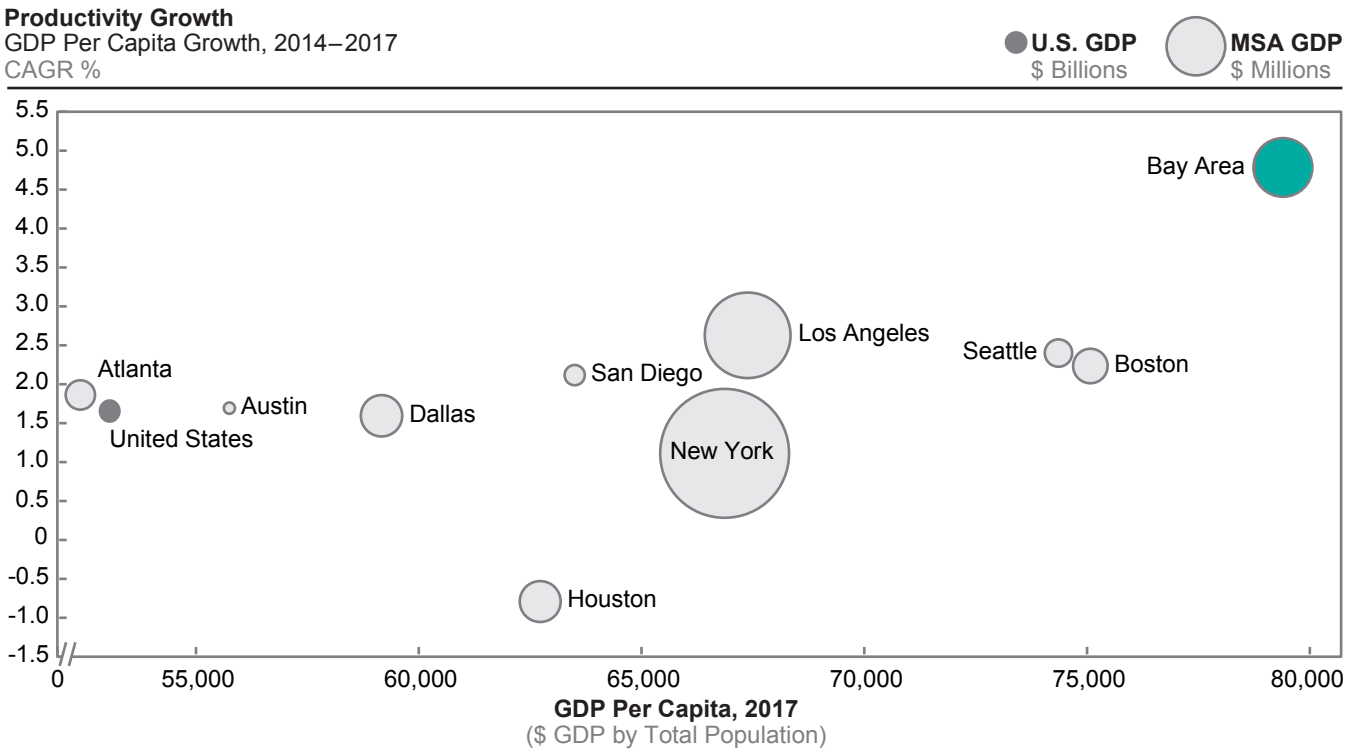
Note: The Bay Area is defined as the combined San Jose-Sunnyvale-Santa Clara, San Francisco-Oakland-Hayward, Napa, Santa Rosa, and Vallejo-Fairfield MSAs.

Sources: BLS, BEA, Moody's Analytics

Analysis: Bay Area Council Economic Institute and McKinsey & Company

EXHIBIT 3

The Bay Area leads in GDP per capita and has significantly outperformed its peer regions in terms of GDP per capita growth over the last three years.



Sources: BEA, Moody's Analytics Economy.com

Analysis: Bay Area Council Economic Institute and McKinsey & Company

Not only does the Bay Area have a fast-growing GDP, it also has a very high GDP per capita. With a per capita GDP of nearly $80,000, the Bay Area ranks higher than most of its peer regions. And over the past three years, it has also experienced strong growth in per capita GDP—a measure of productivity growth. This reflects the high wages paid to workers in the Bay Area, as well as the large amount of value produced by those workers.

The Bay Area's very high GDP per capita

$80,000

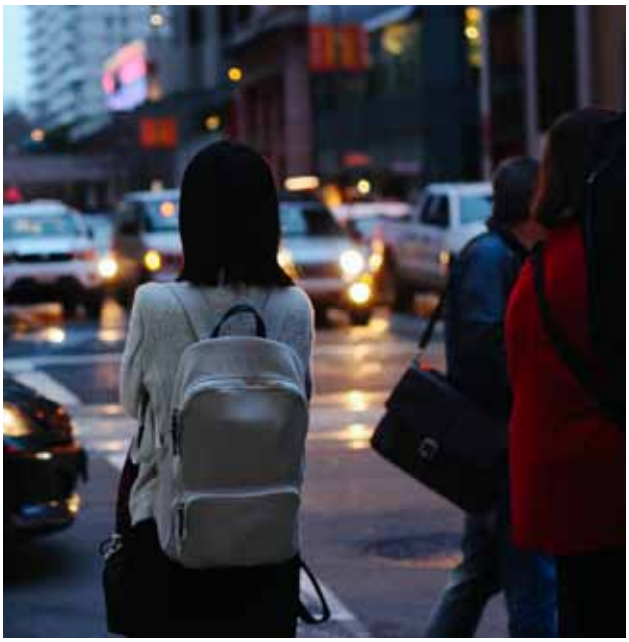
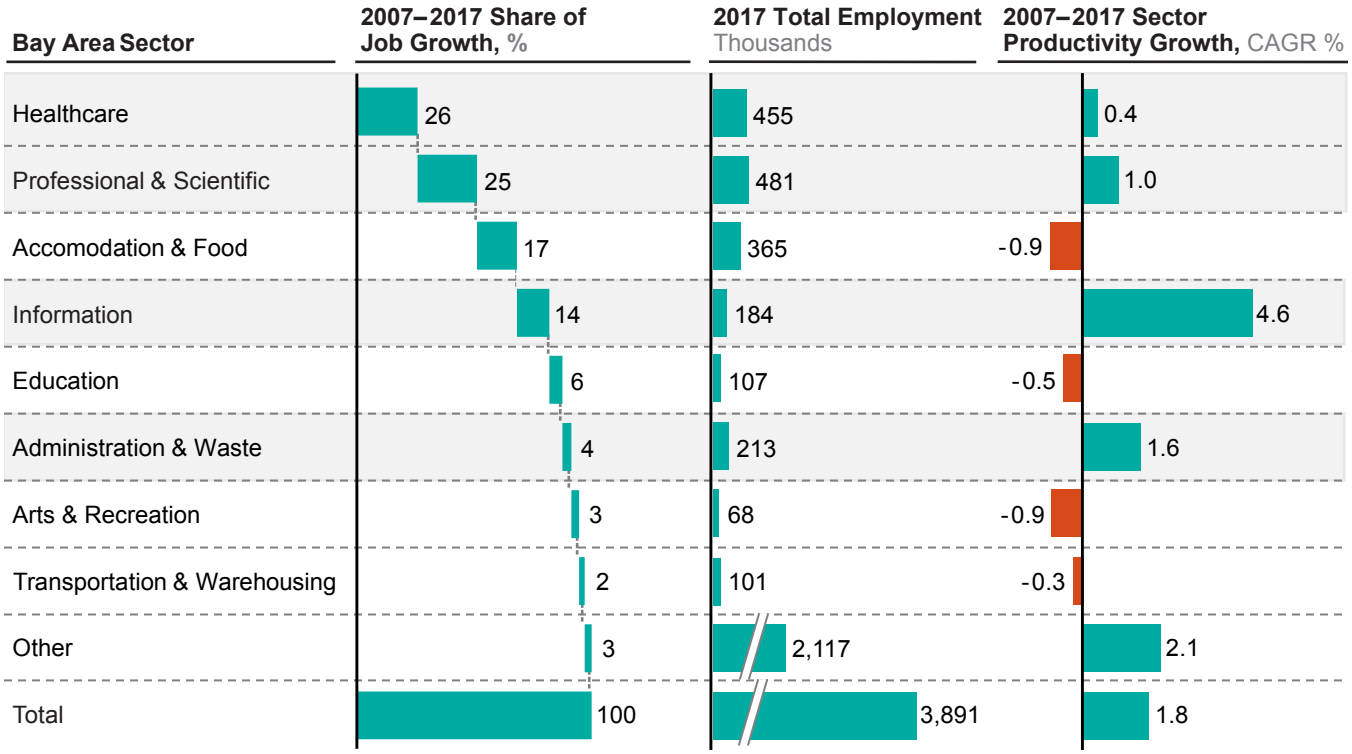


EXHIBIT 4

The Bay Area economy's growth over the last 10 years has been led by sectors with high productivity gains.



Note: The Bay Area is defined as the combined San Jose-Sunnyvale-Santa Clara, San Francisco-Oakland-Hayward, Napa, Santa Rosa, and Vallejo-Fairfield MSAs.
Sources: Moody's Analytics, BEA, BLS

Analysis: Bay Area Council Economic Institute and McKinsey & Company

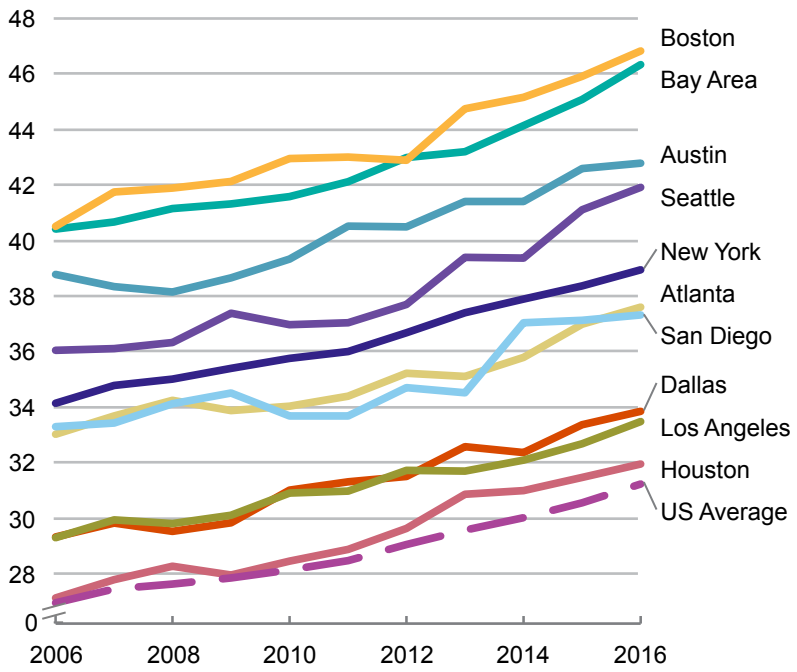
Job growth in the Bay Area over the past 10 years has concentrated largely in four sectors: Healthcare, Professional & Scientific, Accommodation & Food, and Information. Of these four, all experienced productivity growth except for Accommodation and Food. The Administration & Waste sector also experienced substantial productivity growth, although it did not account for a very large share of job growth.

Where the Bay Area separates itself from its peers is in its high and growing share of jobs in the Professional & Scientific and Information sectors. These jobs not only add significantly to output, they are also growing in their productivity at a faster rate than other sectors.

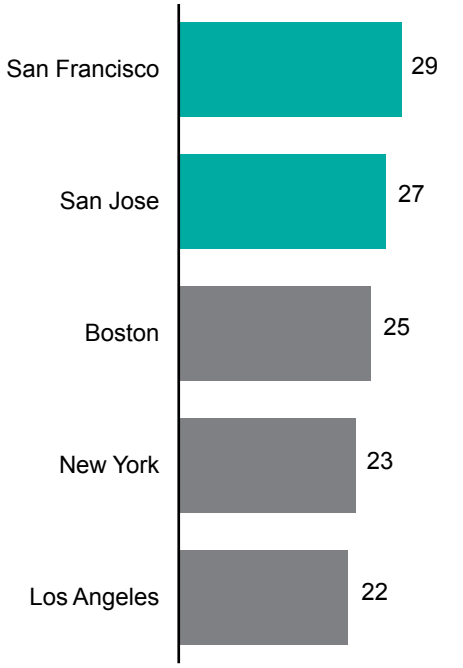
EXHIBIT 5

The Bay Area population continues to be one of the most educated compared to other U.S. peer regions.

Bay Area Educational Attainment Compared to Peer Regions
Percent w/Bachelor's Degree Age 25+



Percent of Those with a Bachelor's Degree Born in Home State, 2016



Note: The Bay Area is defined as the combined San Jose-Sunnyvale-Santa Clara, San Francisco-Oakland-Hayward, Napa, Santa Rosa, and Vallejo-Fairfield MSAs.
Sources: Moody's Analytics, American Community Survey Analysis: Bay Area Council Economic Institute and McKinsey & Company

One important factor driving the Bay Area's impressive growth numbers is its highly educated population. In the Bay Area, the portion of adults over the age of 25 who have a bachelor's degree is 46%. This figure is higher than that of most of the area's peer regions and is much higher than the 31% U.S. Average.

Portion of Bay Area adults over age 25 who have a bachelor's degree

46%

EXHIBIT 6

The Bay Area produces some of the most entrepreneurial undergraduates in the world.

Undergraduate Ranking 2017	Entrepreneur Count, #	Company Count, #	Capital Raised $ Billions	Venture Capital Backed Companies
1 Stanford	1,127	957	22.6	Snap; Solyndra; Guardant Health; Opendoor; Sunru
2 UC Berkeley	1,089	961	17.1	Cloudera; Zynga; Auris Surgical Robotics; Machine Zone; Sapphire Energy
3 MIT	907	780	16.1	Oscar; Dropbox ; Human Longevity; Gilt; Humacyte
4 Harvard	844	750	21.9	Coupang; Cloudera; BabyTree; Zenefits; Peloton
5 University of Pennsylvania	788	712	13.9	Snapdeal; Zynga; Fuze; Flatiron Health; EVA Automation
6 Cornell	721	666	14.8	Lyft; Moderna; Adaptive Biotechnologies; Just; Wayfair
7 University of Michigan	689	614	9.4	Groupon; Medalla; Twilio; 23andMe; Altiostar
8 University of Texas	600	551	5.9	Casper Sleep; Zalora; Apollo Endosurgery; Jounce Therapeutics; HotelTonight
9 Tel Aviv University	582	486	6.7	Houzz; Trax Image Recognition; Zerto; IronSource; Kaltura
10 University of Illinois	506	460	6.3	Avant; Affirm; ZocDoc; Desktop Metal; CRISPR Therapeutics

MBA Ranking 2017	Entrepreneur Count, #	Company Count, #	Capital Raised $ Billions	Venture Capital Backed Companies
1 Harvard	1,203	1,086	28.2	Grab; Zynga; Oscar; BabyTree; Jet
2 Stanford	802	716	18.3	SoFi; Sea; Funding Circle; Fab; Sunrun
3 University of Pennsylvania	666	585	16.0	Flipkart; Dianping.com; Jet; Deliveroo; Adaptive Biotechnologies
4 INSEAD	455	406	7.8	Houzz; BlaBlaCar; MongoDB; Gilt; Apttus
5 Northwestern University	445	417	5.7	Lazada Group; Westwing Home & Living; Kaminario; Fastly; Nubank
6 Columbia University	441	410	5.5	Vroom; Betterment; ZocDoc; Compass; Castlight Health
7 MIT	437	384	7.8	Rocket Internet; Lazada Group; HelloFresh; Foodpanda; Storm8
8 University of Chicago	405	368	5.5	Sapphire Energy; Juno Therapeutics; EVA Automation; Zalora; Cell Medica
9 UC Berkeley	344	314	5.2	51credit; Netskope; RetailNext; Renew Financial; QuantumScape
10 UCLA	247	232	4.0	Radiology Partners; One Kings Lane; Future Finance; The Honest Company; Fulcrum BioEnergy

Note: Ranking is based on analysis of 2009–"current date" data on the education level of founder(s) of VC backed companies.
Source: Pitchbook 2017 report Analysis: Bay Area Council Economic Institute and McKinsey & Company

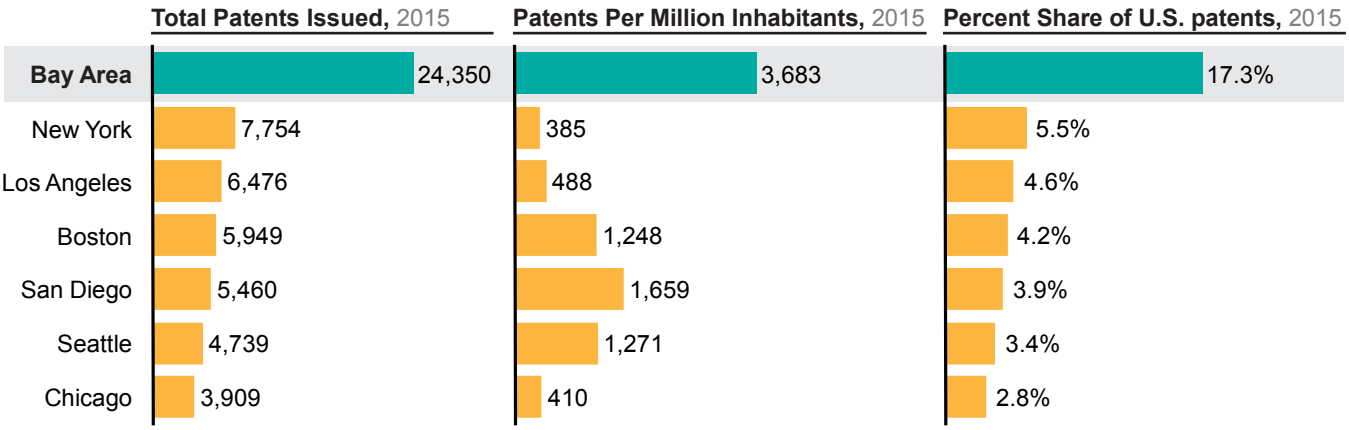
In addition to having an exceptionally well-educated population, the Bay Area also produces some of the most entrepreneurial undergraduates in the world. Undergraduates who create startups that receive venture capital funding often base their companies in the region where they attended school, bringing in business and capital to that area. A strong higher education system with innovative students has been a key driver of economic growth in the Bay Area.

Companies started by Stanford and UC Berkeley graduates since 2009

2,948

EXHIBIT 7

The Bay Area far outpaces its peers in patents issued, producing 17% of all patents issued in the U.S. during 2015.



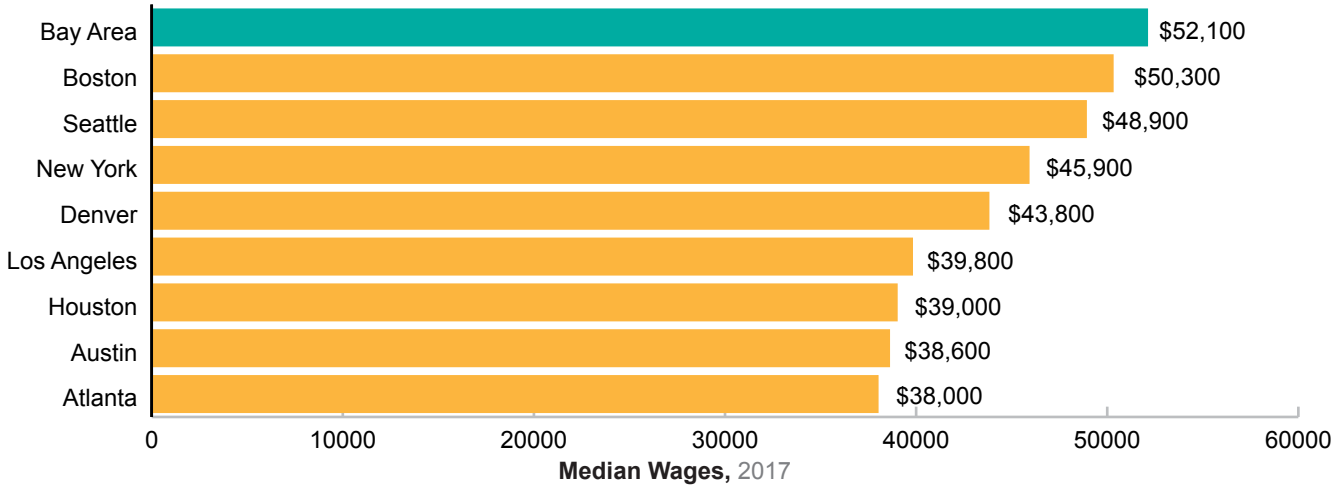
Notes: Bay Area includes data only for the San Jose-Sunnyvale-Santa Clara and San Francisco-Oakland-Hayward MSAs. All listed regions other than Bay Area include full MSA data, not just data for the stated city.
Sources: U.S. Patent and Trademark Office, U.S. Census Bureau Analysis: Bay Area Council Economic Institute and McKinsey & Company

The Bay Area's strength in innovation and entrepreneurship is also apparent in the number of patents granted to its companies. In 2015 (the most recent year for available data), more than three times as many patents were granted to Bay Area inventors than to New York metro inventors. The Bay Area received more patents per inhabitant than any of its peer regions, and it accounted for a remarkable 17% of all U.S. patents granted.

The Bay Area's high levels of innovation, productivity, and overall economic success are reflected in its exceptionally high wages. Median wages for the Bay Area are higher than for its peer regions, and they have grown rapidly in recent years.

EXHIBIT 8

Median wages are substantially higher in the Bay Area than in peer regions.

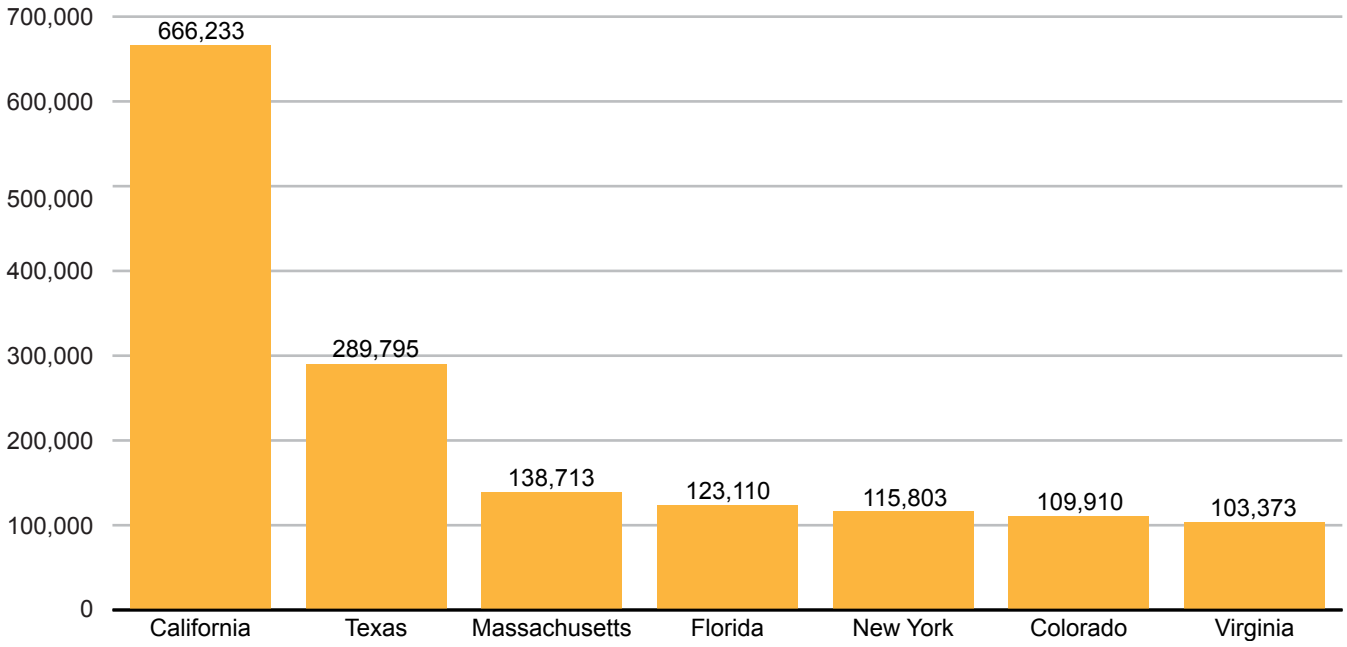


Source: U.S. Census Bureau, BLS Occupational Employment Statistics by Metropolitan Area
Analysis: Bay Area Council Economic Institute and McKinsey & Company

EXHIBIT 9

In 2014, Bay-Area-headquartered companies had more than 600,000 employees located within California but outside of the region, and more than 100,000 employees in each of six other states.

Bay-Area-Headquartered Companies' Direct Employment Outside the Region, 2014



Source: National Establishment Time Series (NETS)

Analysis: Bay Area Council Economic Institute

Bay Area Companies Drive Employment Across the Nation

Silicon Valley is often thought of as being disconnected from the rest of the national economy and primarily as being home to companies that disrupt industries and the jobs they create. However, the San Francisco-Silicon Valley Bay Area is an important job-creation hub in an interconnected national economy. As they grow, companies headquartered in the region—including 33 of the Fortune 500 and 8 of the Fortune Fastest Growing 100—expand into other states and metros, invest in companies outside the region, and purchase goods and services from suppliers across the nation.

In 2016, the Bay Area Council Economic Institute examined the jobs, salaries, and total economic impact of companies headquartered in the Bay Area and found these companies collectively had a total national economic impact of $1.4 trillion in 2014 (the most recent year for available data). Nationwide, Bay-Area-based companies had 3.1 million employees and 33 thousand establishments, and they directly paid $201 billion in wages for the year.

Total national economic impact of Bay Area companies in 2014

$1.4 trillion

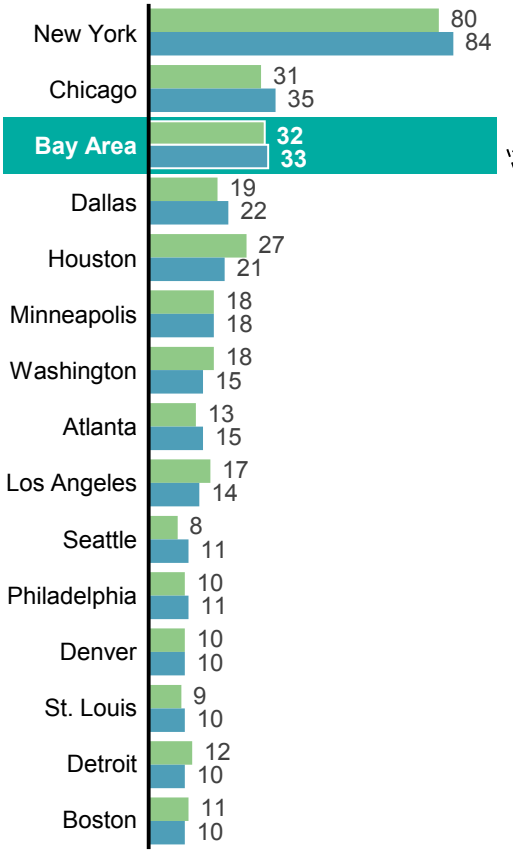
2

Innovation Spreads Across All Industries

EXHIBIT 10

The strong presence of Fortune 500 companies headquartered in the Bay Area significantly surpasses similarly-sized metro areas.

Number of Fortune 500 Companies in 2018 Compared to 2013

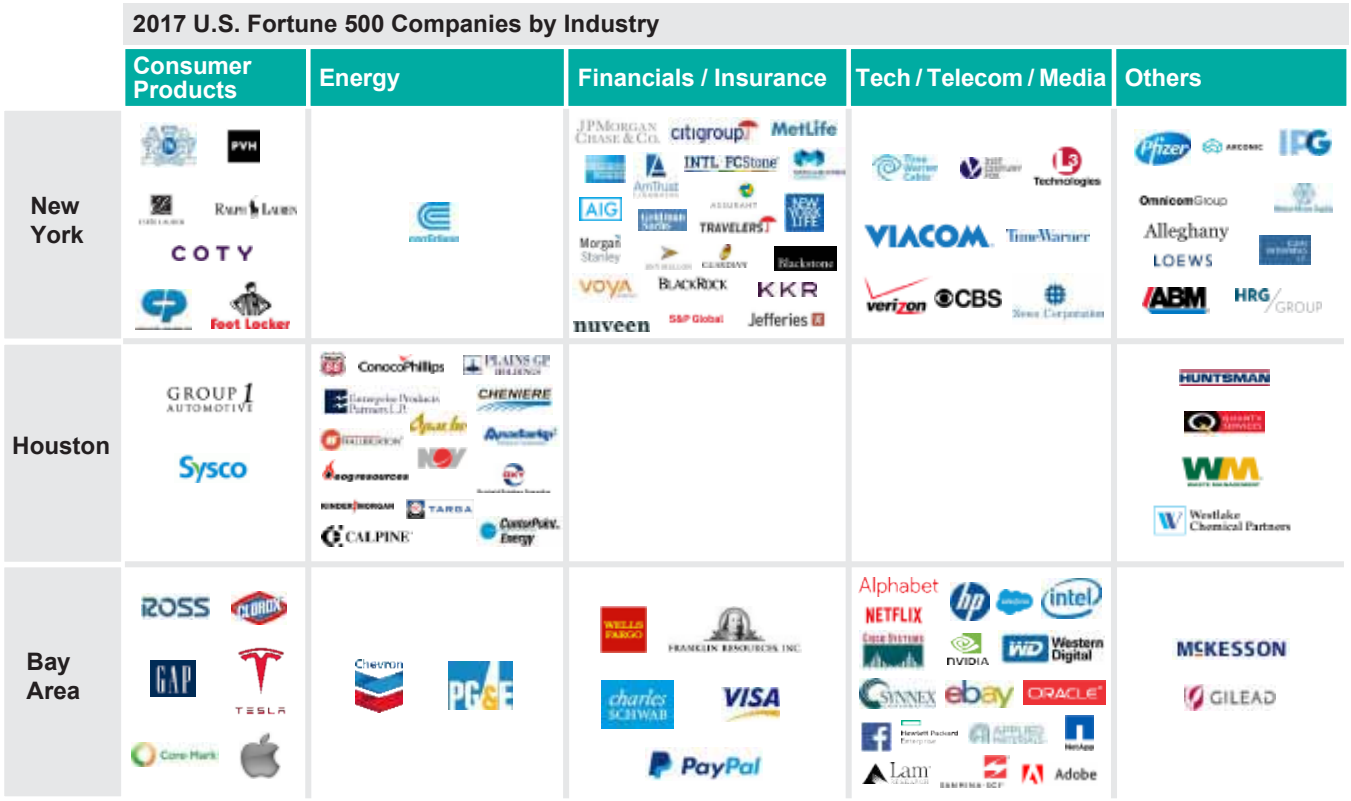


On the List in 2013 and 2018	Gone From the 2013 List	New to the List in 2018
▪ Apple	▪ Advanced Micro Devices	▪ Adobe Systems
▪ Applied Materials	▪ Agilent Technologies	▪ HP Inc.
▪ Charles Schwab	▪ Safeway	▪ Lam Research
▪ Chevron	▪ SanDisk	▪ Netflix
▪ Cisco Systems	▪ Symantec	▪ Nvidia
▪ Clorox	▪ URS	▪ PayPal
▪ Core-Mark Holdings	▪ Yahoo	▪ Salesforce.com
▪ eBay		▪Tesla
▪ Facebook		
▪ Franklin Resources		
▪ Gap		
▪ Gilead Sciences		
▪ Google/Alphabet		
▪ Hewlett-Packard		
▪ Intel		
▪ McKesson		
▪ NetApp		
▪ Oracle		
▪ PG&E Corp.		
▪ Ross Stores		
▪ Sanmina		
▪ Synnex		
▪ Visa		
▪ Wells Fargo		
▪ Western Digital		

Notes: Data presented are for metropolitan statistical areas in all cases except for the Bay Area, which represents companies from nine counties.
Sources: Fortune, D&B Hoovers
Analysis: Bay Area Council Economic Institute and McKinsey & Company

EXHIBIT 11

The Bay Area has strong industry diversification across its top-performing companies compared to other U.S. economic hubs.



Notes: The Bay Area hub includes 17 cities: Cupertino, Dublin, Foster City, Fremont, Los Gatos, Menlo Park, Mountain View, Oakland, Palo Alto, Redwood City, San Jose, San Mateo, San Ramon, Santa Clara, San Francisco, South San Francisco, and Sunnyvale.
Sources: Fortune, Capital IQ Analysis: Bay Area Council Economic Institute and McKinsey & Company

Despite being strongly identified with the tech industry, the Bay Area's economy is remarkably diversified, more so in fact than many of its leading peers. While Fortune 500 companies in New York City, for example, are heavily concentrated in financial services and consumer goods, and Houston is heavily concentrated in energy, public companies in the Bay Area are broadly distributed across technology, financial services, consumer goods, and other sectors. The region is home to the third largest concentration of Fortune 500 companies in the nation after the New York metro area and the Chicago metro area, both of which have higher population numbers than the Bay Area. (The New York metro area has over 20 million people, the Chicago metro is approaching 10 million people, and the Bay Area population is nearing 8 million).

While it has healthy diversification, the Bay Area regional economy is increasingly led by technology, and its future leadership will depend heavily on the continued strength of technology companies. This is true for both large industry leaders and the many smaller but substantial companies that are rising quickly behind them. As of the end of 2017, four of the top ten global companies by market capitalization—Apple, Alphabet, Facebook, and Wells Fargo—are headquartered in the Bay Area, and three of those four are technology companies. The region also has a dramatically higher concentration of technology companies than leading peer regions such as New York and Chicago.

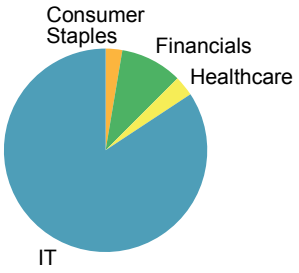
EXHIBIT 12

The value of Bay Area Fortune 500 companies is concentrated in the tech sector. Four of the top ten global companies by market capitalization are headquartered in the Bay Area.

Market Capitalization Share by Industry / Top Ten Companies by Market Capitalization

Bay Area

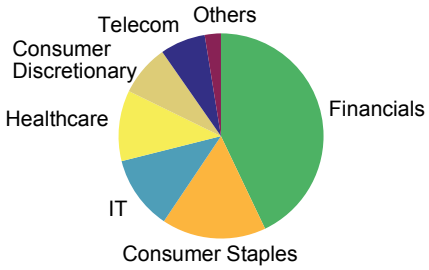
100% = 2,983 USD billion



Company	USD billions
Apple	890
Alphabet	769
Facebook	543
Wells Fargo	309
Visa Inc.	269
Intel	209
Oracle	201
Cisco	195
Gilead	97
PayPal	95

New York

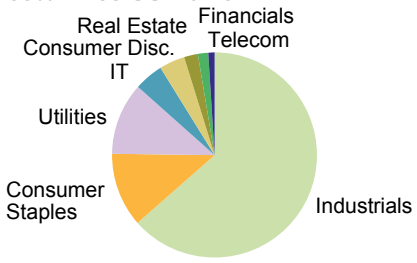
100% = 4,087 USD billion



Company	USD billions
JP Morgan	376
Pfizer	220
Verizon	214
Citigroup	199
Pepsico	169
Mastercard	168
Phillip Morris	162
IBM	150
Bristol-Myer	101
Goldman Sachs	96

Chicago

100% = 205 USD billion



Company	USD billions
Boeing	184
Exelon	37
Archer-Daniels	23
UC Holdings	21
Conagra	15
Motorola	15
LKQ	13
Jones Lang LaSalle	7
ORI	5
TDS	3

Sources: Capital IQ, 2017 PwC Global Top 100 Report

Analysis: Bay Area Council Economic Institute and McKinsey & Company

High Technology's Role in the Region

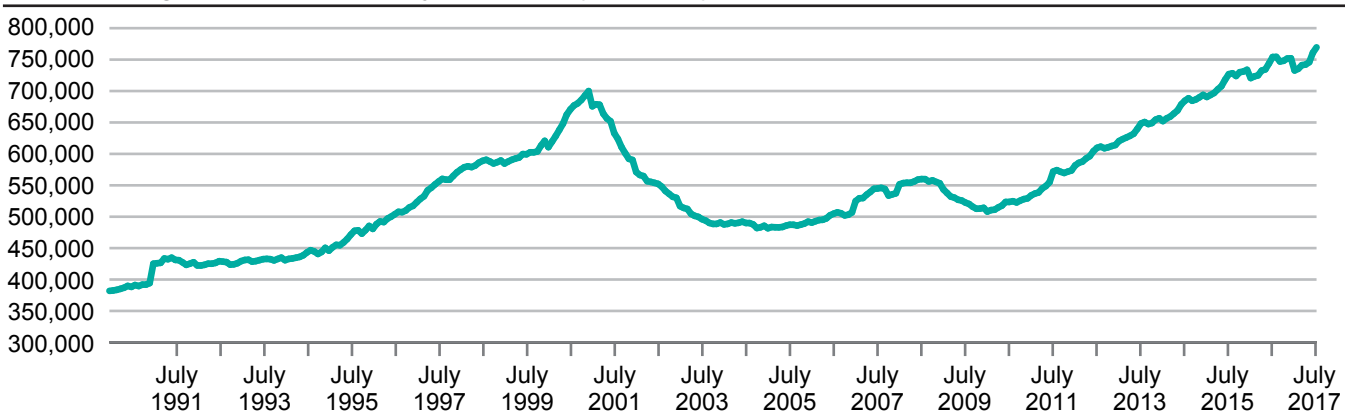
High-technology industries remain the driving force in the Bay Area economy. Since the Great Recession, high-technology employment has increased by 45%—representing an average growth of 5% per year—compared to 26% employment growth overall. This new employment peak is now over 70,000 jobs higher than the previous peak, just before the dot-com bust, and it drove the San Jose MSA to grow faster than China in 2015 and by nearly 7 percent in 2016.

As expected, the Bay Area's two major MSAs still have the first and third highest relative concentrations of high-technology jobs in the country. What has changed however, is the concentration of high-technology jobs in other regions.

Exhibit 13

The Bay Area has seen rapid high-technology jobs growth since the Great Recession.

Number of High-Tech Jobs in the Bay Area, January 1990–July 2017



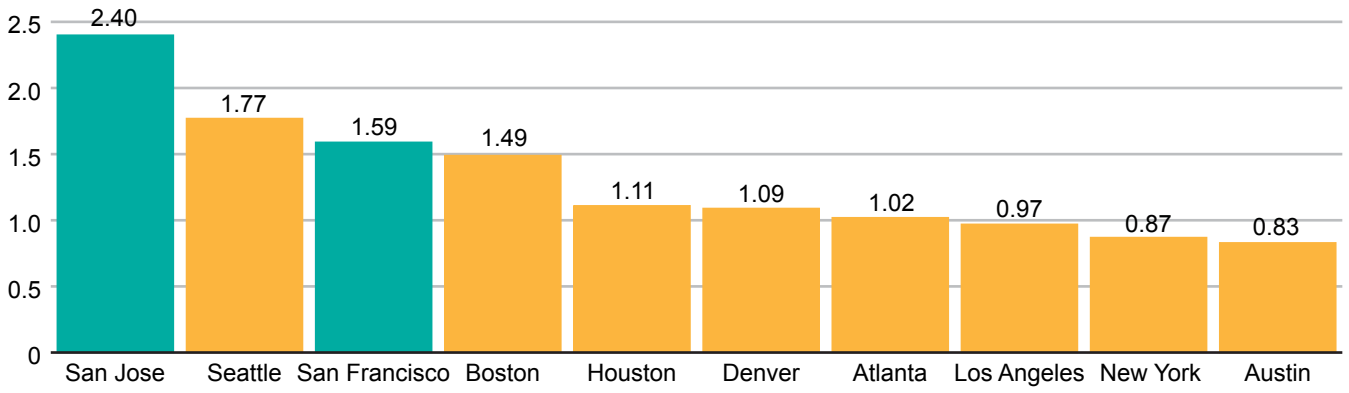
Source: BLS Quarterly Census of Employment and Wages

Analysis: Bay Area Council Economic Institute

Exhibit 14

The Bay Area's San Jose Metropolitan Statistical Area has the highest concentration of high-technology jobs in the nation.

Top Ten Concentrations of High-Technology Jobs by MSA, 2017 Location Quotient

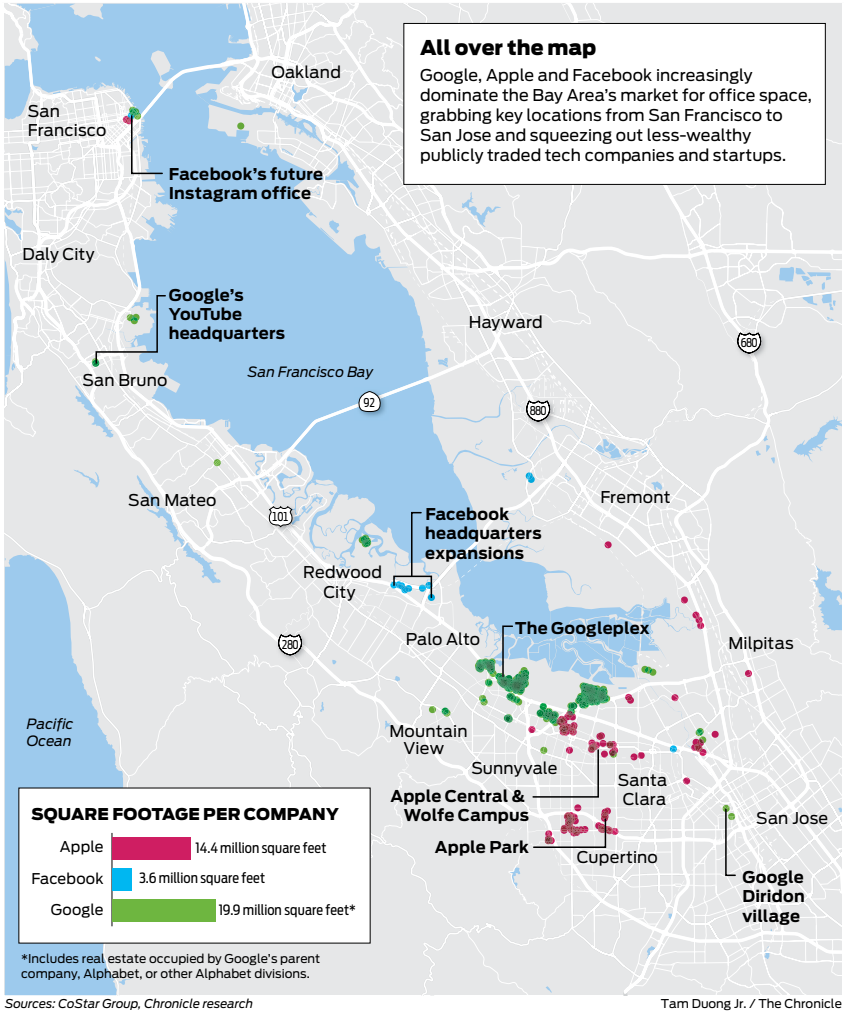


Source: BLS Quarterly Census of Employment and Wages

Analysis: Bay Area Council Economic Institute

EXHIBIT 15

The Bay Area's three largest companies by market capitalization—Alphabet, Apple, and Facebook—have real estate footprints that span the region.



Source: Tam Duoing, Jr. / San Francisco Chronicle / Polaris

The "titans" of the Bay Area tech economy—Alphabet, Apple, and Facebook—continue to grow at an extraordinarily fast pace. This is most visible in the companies' expanding real estate portfolios: Apple has built a new campus in Cupertino, Google has plans for a transit-oriented village near San Jose's Diridon Station, and Facebook continues to expand in Menlo Park and San Francisco. The trio have also grown their combined revenue at an annual rate of 12.2% since 2013, ten times faster than the revenue growth rate for other Fortune 500 companies in both 2013 and 2018 (1.2% CAGR).

Since 2013, Alphabet, Apple, and Facebook have grown revenues

10 times

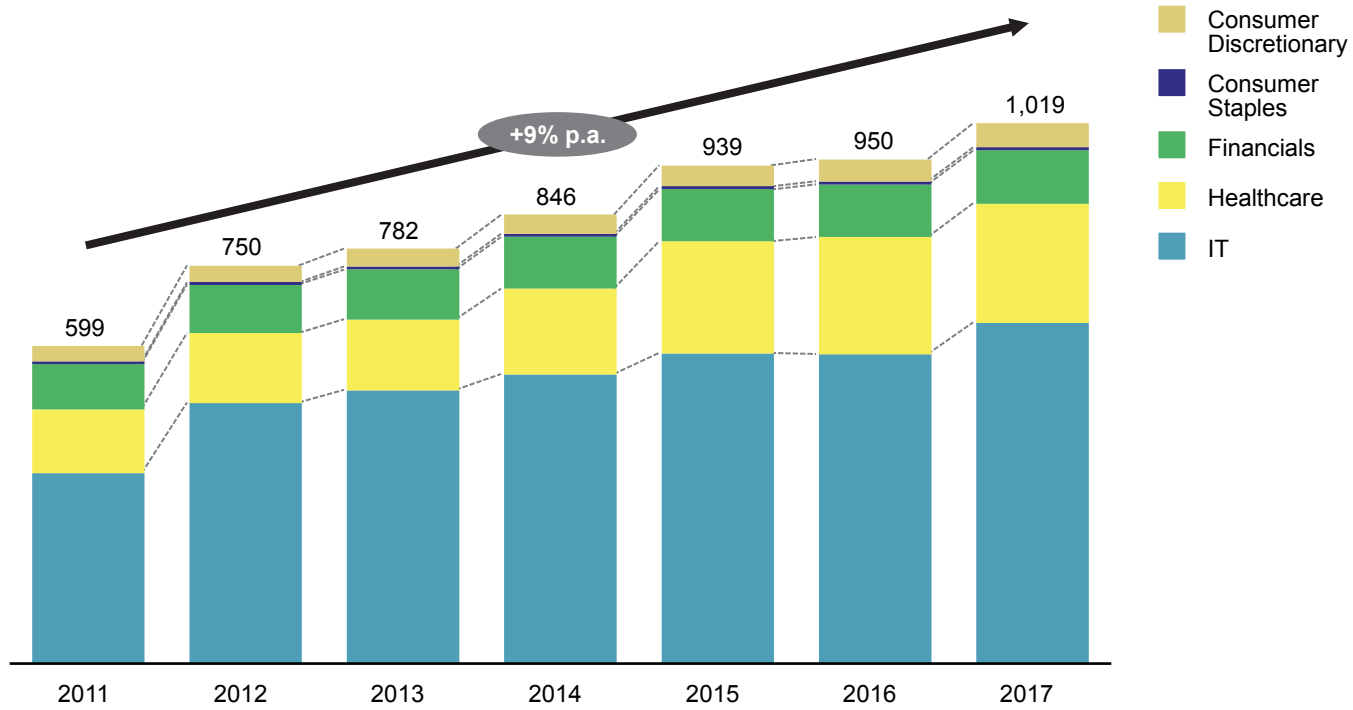
faster than the rest of the Fortune 500

EXHIBIT 16

Since 2011, the tech sector has represented more than 60% of sales from Fortune 500 companies in the Bay Area.

Bay Area Fortune 500 Company Share by Sector Sales 2011–2017

Totals in USD Billions



Source: Fortune, Capital IQ

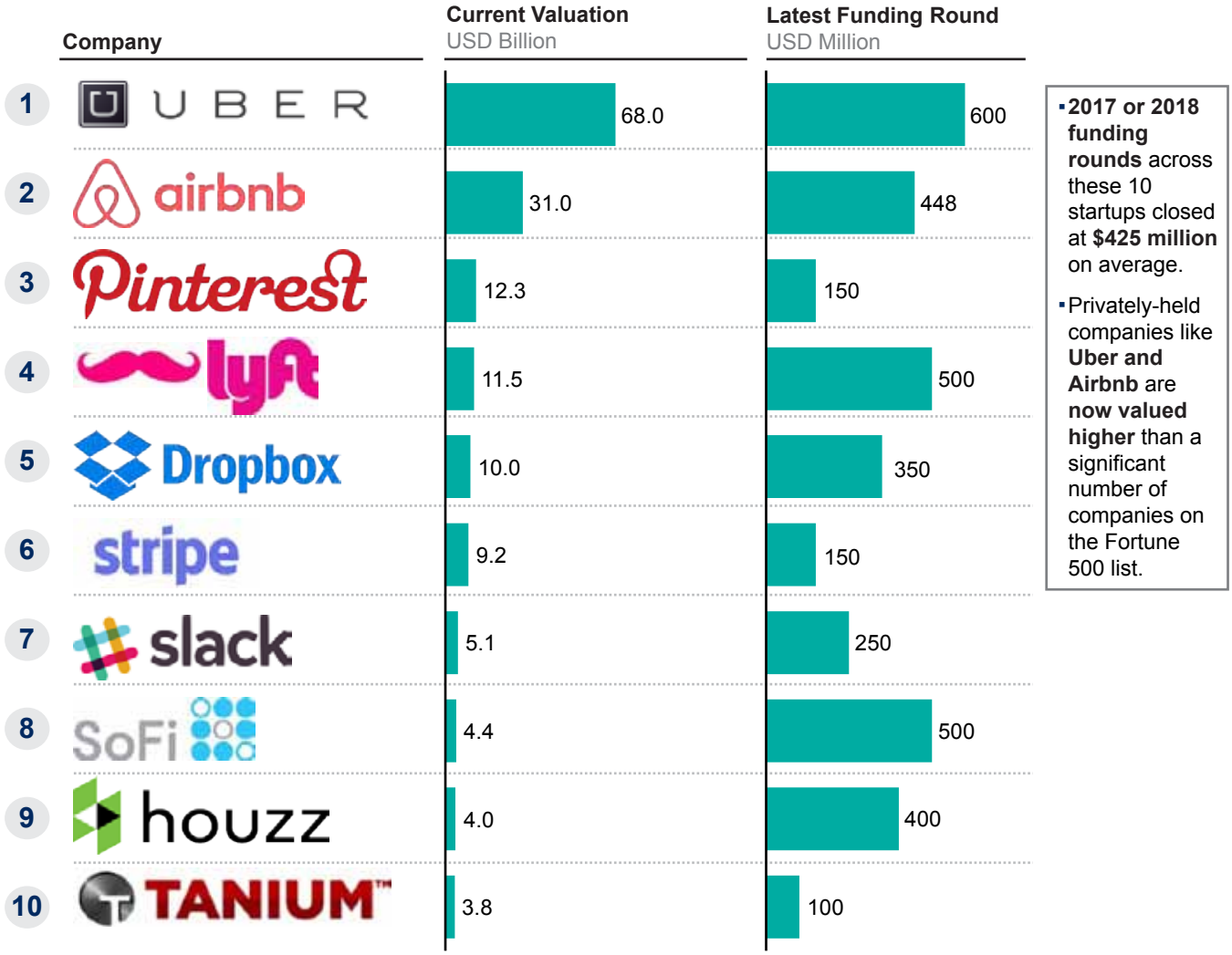
Analysis: Bay Area Council Economic Institute and McKinsey & Company

The technology sector's strength can be seen in sales, where it leads by a large margin in comparison to top-performing Bay Area companies in other sectors.

This environment is dynamic, with the Bay Area hosting more U.S. Fortune 100 Fastest-Growing Companies than any other region. Privately held Bay-Area-based companies, such as Uber and Airbnb, have reached multi-billion dollar scale, emerging as global leaders. Uber and Airbnb lead a group of ten startups valued at or near $4 billion that are disrupting their sectors with new business models that are upending existing industries. These startups are benefitting from large funding rounds and succeeding in building global market share without going public.

EXHIBIT 17

Ten disruptive Bay Area startups have valuations close to or greater than $4 billion, with 2017 or 2018 funding rounds closing at $425 million on average.



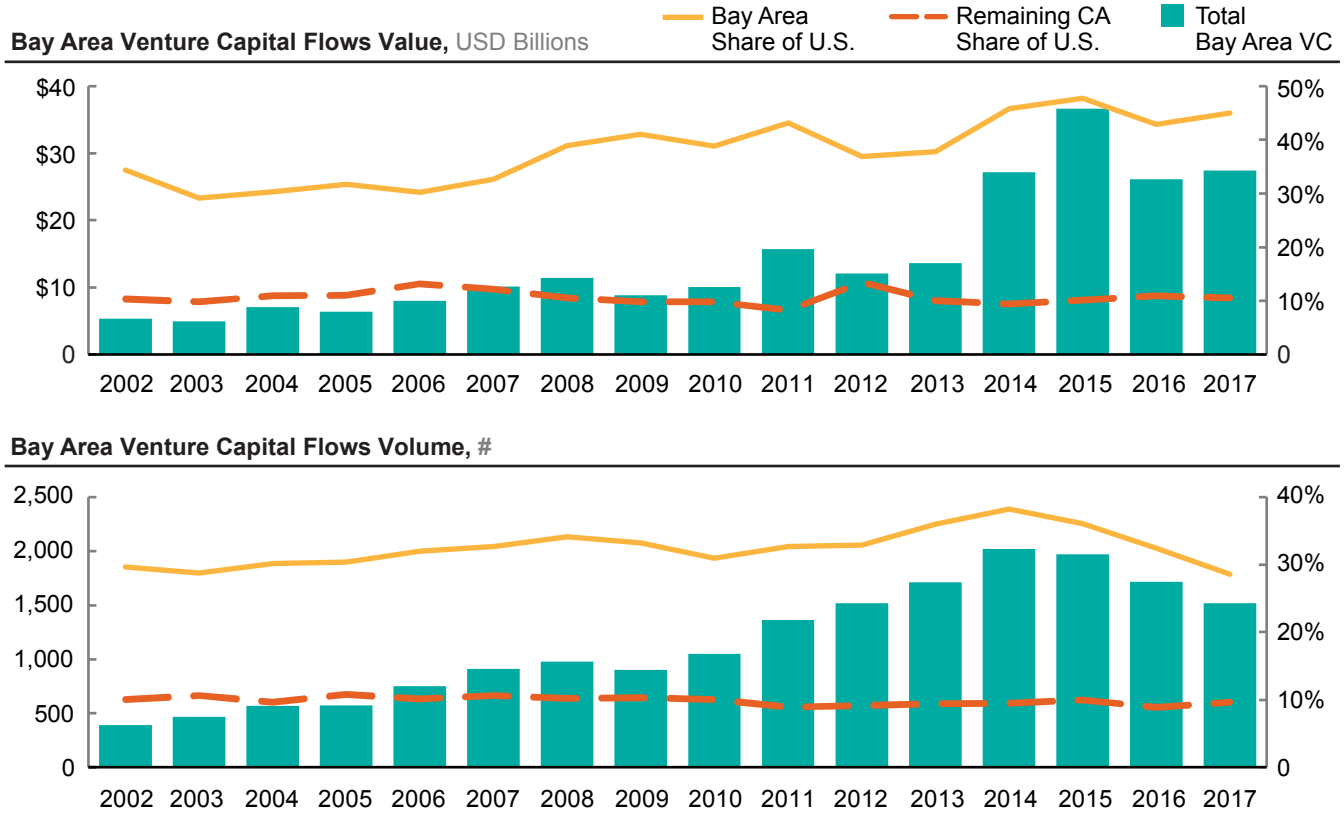
Note: Valuation is based data accessed December 22, 2017.
Source: Pitchbook

Analysis: Bay Area Council Economic Institute and McKinsey & Company

Much of the nation's venture capital investment continues to be concentrated in the Bay Area, which in 2016 received $27 billion or more than 45% of all venture investment in the United States. The number of venture-backed investment deals has fallen since 2015, but average size of investment in those deals has increased. This reflects a continuing pattern in which larger levels of investment are going into later-stage companies (many of them unicorns) that are closer to acquisition or IPOs. As many institutional venture capital firms have shifted their focus to later stages, the importance of angel investors for early-stage companies has increased. Corporate venture capital activity is also playing a greater role.

EXHIBIT 18

The Bay Area attracts much of the nation's venture capital investment, and deal size in the region is growing.



Note: The Bay Area is defined as the San Francisco and Silicon Valley constituent MSAs.
Sources: PwC MoneyTree Report Analysis: Bay Area Council Economic Institute and McKinsey & Company

The Bay Area's growing venture capital deal size is attributable to the high number of its companies that are in the IPO pipeline. California dominates the national landscape with 207 high-tech companies with a valuation of $100 million or more, compared to 54 for New York and 21 for Massachusetts. Those 207 companies raised $18 billion in funding in 2016.[4]

This explosion of activity has been supported by growing venture capital investment in a range of key sectors: AI, Big Data, FinTech, Life Sciences, Mobile, and SAAS (Software as a Service). The levels of venture investment in the Bay Area in these sectors exceed by a large margin the levels of venture investment in the same sectors in other peer regions.

Portion of U.S. venture capital investment made in Bay Area companies in 2017

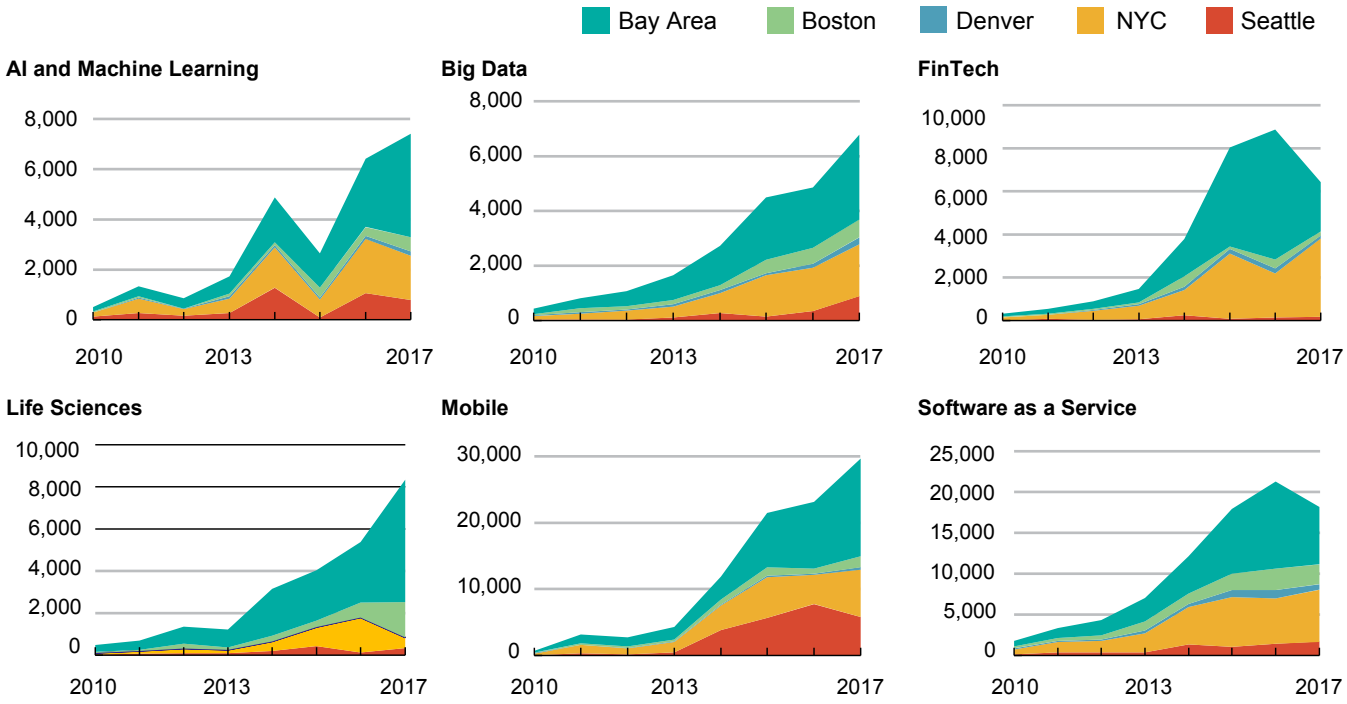
45%

EXHIBIT 19

Since 2010, levels of venture capital investment in the Bay Area in six key sectors have greatly exceeded venture investment in the same sectors in other peer regions.

Venture Capital Investment by Industry Vertical, 2010–2017

$ Millions



Source: Pitchbook

Analysis: Bay Area Council Economic Institute and McKinsey & Company

The distribution of venture capital investment in the region reflects the Bay Area's concentration of a number of key assets that anchor its innovation economy: leading research universities (Stanford University and four campuses of the University of California); five national laboratories; a large number of non-profit independent laboratories; industry leaders that both produce proprietary research and invest in smaller companies through corporate venture arms; a large network of incubators and accelerators that support early-stage companies and in some cases invest in their own right; a highly educated and experienced technical workforce; and the world's largest pool of entrepreneur-led startups, many with founders who have come to the Bay Area from other states and nations.

The thread unifying these trends and the region's sustained technology strength is the accelerating digitization of the national and global economies. Few industries today are untouched by digitization's rapid progress, whether in the auto sector (autonomous vehicles and connected cars), entertainment (digital media and games), finance (fintech and mobile payments), manufacturing (through the Internet of Things), or life sciences (as seen in bio-informatics and the application of information technology to fields such as personalized medicine). Even traditional, non-technology companies are being transformed and driven by the need to digitize, and more than any other region in the world, the Bay Area is driving this digital revolution.

INSIGHT

Tech Is More Than Silicon Valley and Apps

Technology innovation in the Bay Area is not just taking place in software industries in the heart of Silicon Valley. Bay Area tech companies are spread across the region and across industries, and they often have connections to anchor research institutions. As this innovation grows more and more, it has been spreading into communities surrounding these institutions.

FibroGen is one example. A biotechnology-based drug discovery company, FibroGen partnered with the City of San Francisco and the California Institute for Quantitative Biosciences to create the QB3 Mission Bay Incubator Network. Not only has FibroGen itself had great success in innovation, it has also helped many other bioscience startups succeed through this partnership with UC campuses.

The two national laboratories in Livermore have also served as similar anchor institutions. Many local startups have drawn on the resources offered by the labs and have licensed their technologies for entrepreneurial uses. QuantaLife, for example, used a technology co-invented by its founder while he was working at Lawrence Livermore National Laboratory. In 2008, he left the lab to start QuantaLife, which was acquired by Bio-Rad for $162 million in 2011.

Bay Area innovation is also flourishing at businesses with locations near these major research institutions. For example, Lam Research has locations in both Livermore and Fremont. It benefits from its connections to Lawrence Livermore National Laboratory and Sandia National Laboratory, and it draws advantages from both its location in the highly entrepreneurial Tri-Valley sub-region and its headquarters in Fremont, which provides it with connections to Silicon Valley.

Newly a Fortune 500 company, Lam Research is a top maker of semiconductor manufacturing equipment, employing over 10,000 people. It has facilities in Europe and Asia as well, giving it a substantial global presence. Lam was able to utilize its founder's connections to Xerox, Hewlett-Packard, Texas Instruments, and Intel to establish itself and gain funding early on, and its location in the highly innovative Bay Area has been beneficial as it has grown and expanded.

3

The Consequences of Growing and Not Growing

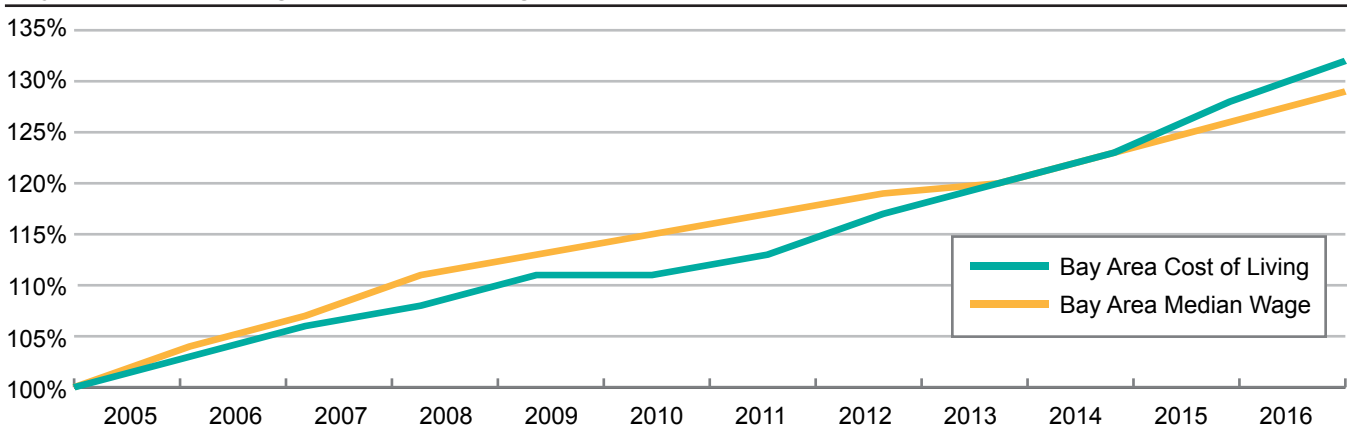
The first chapter of this report has detailed the remarkable strength of the Bay Area economy coming out of the Great Recession. The second chapter highlighted high-technology companies—including some of the largest firms by market capitalization in the world. They continue to demand large swaths of office space and tens of thousands of high-skilled employees. This rate of growth would surely strain any region's resources and infrastructure, but the Bay Area's hesitation to grow has residents at odds and has left housing, transportation, and the workforce stretched thin. As a result, some companies that are planning to expand have begun to look elsewhere.

By nearly every economic measure, the Bay Area has outperformed the nation. What has not kept up however, is population growth. Individuals and families that otherwise might move to the Bay Area to find opportunity have been prevented from doing so by the Bay Area's high and accelerating cost of living, increasing congestion, and aging infrastructure.

EXHIBIT 20

The Bay Area's cost of living is now rising more steeply than its median wage increase.

Bay Area Growth in Wages and Cost of Living, Indexed to 2005



Sources: BLS Occupational Employment Statistics and Consumer Price Index; Zillow Home Value Index, All Homes
Analysis: Bay Area Council Economic Institute

EXHIBIT 21

Population growth is the only area where the Bay Area lags peer regions. The regional economy's fast recent growth is based largely on industry mix, not an ability to attract new workers.

Compound Annual Growth Rates, CAGR %

	Wages	Population	GDP	Household Income	Employment	Productivity	Income Per Capita
2009–2014							
Bay Area	**8.5%**	**1.6%**	**4.5%**	**2.6%**	**2.8%**	**1.5%**	**6.2%**
Peer Average	4.6%	1.4%	3.1%	0.9%	2.1%	1.0%	4.6%
2014– 2017							
Bay Area	**6.1%**	**0.8%**	**4.3%**	**5.7%**	**2.9%**	**1.3%**	**5.1%**
Peer Average	3.2%	1.0%	2.5%	3.2%	2.2%	0.3%	2.7%

Note: Included peer regions are New York, Los Angeles, Austin, Dallas, Boston, Seattle, and San Diego.
Source: Moody's Analytics Analysis: Bay Area Economic Institute and McKinsey & Company

An Unprecedented Housing Affordability Crisis

The second half of the Bay Area's recovery from the Great Recession has been punctuated by a rapid increase in the lack of housing affordability region-wide. As of the drafting of this report, the median price of a single-family home in San Francisco is over $1.6 million, a year-over-year increase of 24%, while median prices in San Jose are nearing $1.1 million, an increase of 22%.[5] The severe increase in home prices is a result of decades of underbuilding in the region.

Over the years, the Bay Area has failed to build enough housing to keep up with population growth, let alone the record pace of job creation the region has experienced over the past few years. Housing production has picked up recently, though it will take years of concerted effort and, potentially, policy changes at the state level to erase the deficits of previous years and put downward pressure on prices.

Portion of households that are housing-cost-burdened

37.4%

in the San Jose area and

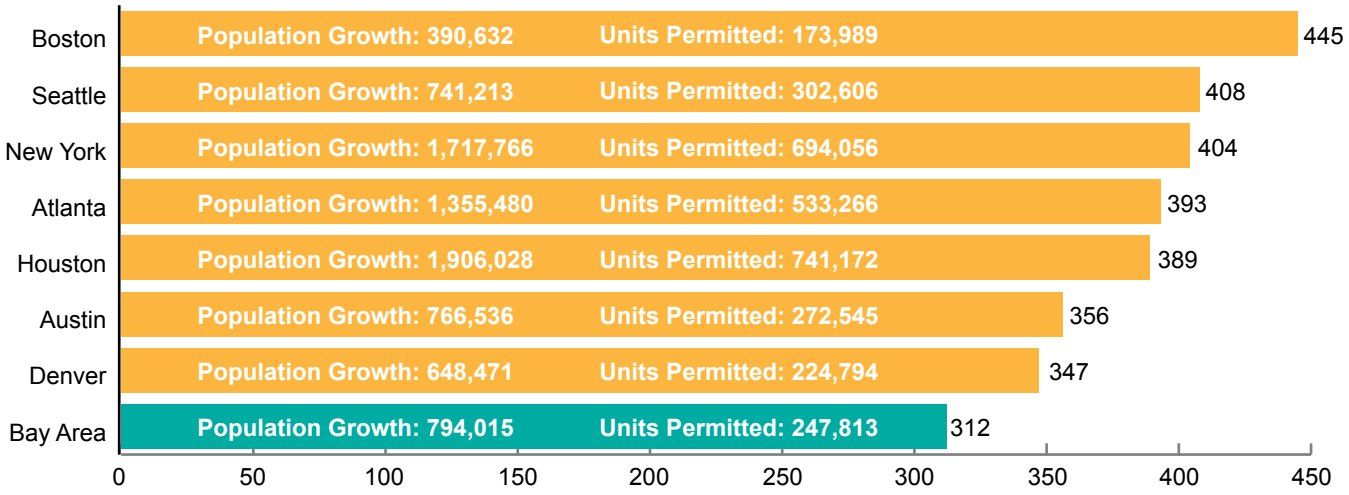
39.0%

in the San Francisco–Oakland area

Exhibit 22

The Bay Area builds fewer homes per 1,000-person increase in population than other peer regions.

Ratio of Housing Units Permitted Per 1,000-Person Increase in Population, 2003–2017

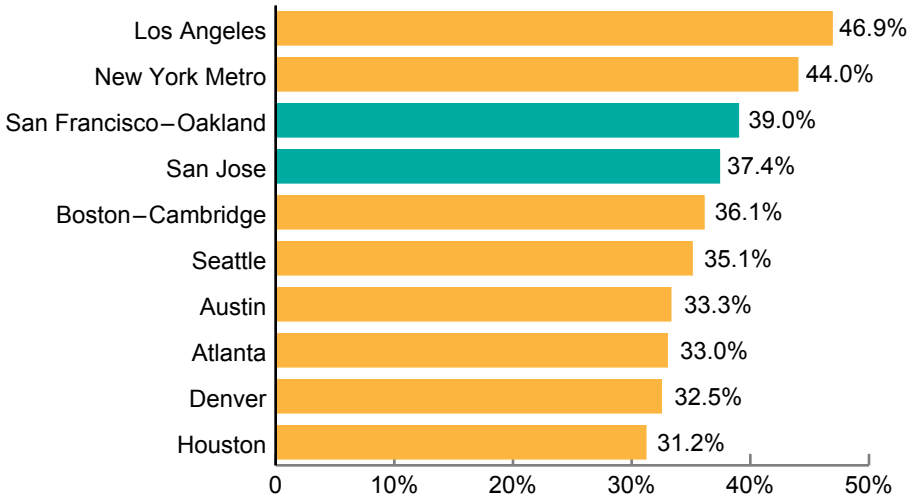


Source: U.S. Census Bureau Building Permits Survey and U.S. Census Bureau Metropolitan and Micropolitan Data
Analysis: Bay Area Council Economic Institute

Exhibit 23

The Bay Area's percentages of housing-cost-burdened households are exceeded only by Los Angeles and the New York Metro.

Households Paying More Than 30% of Income on Housing Costs, 2016



A similar percentage of households are housing cost burdened in all Bay Area Counties.

Bay Area Counties	
Sonoma	41.1%
Marin	40.1%
Solano	39.7%
Alameda	39.5%
San Mateo	39.3%
Contra Costa	39.2%
Napa	39.0%
San Francisco	37.6%
Santa Clara	37.3%

Source: U.S. Census Bureau American Community Survey

Analysis: Bay Area Council Economic Institute

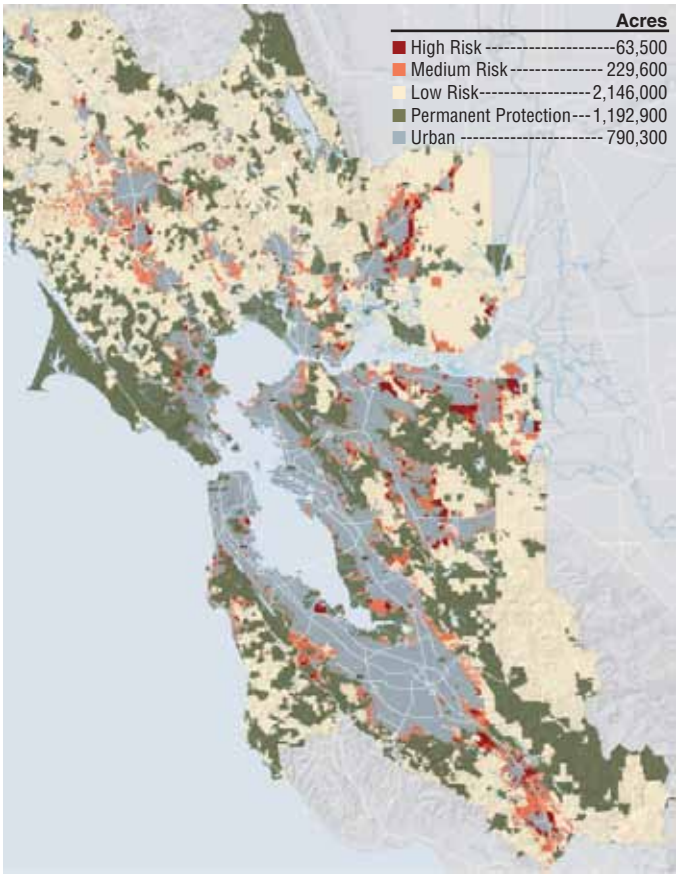
A Growing Need for (the Right Type of) Housing

Rapid growth in the Bay Area has exacerbated long-developing housing and transportation crises created by an inability—and in many cases an unwillingness—to build near major transit and job centers. In turn, the Bay Area's open spaces and working lands have been put at increased risk as resistance to urban infill projects shifts development to suburban and rural greenfields. In 2017, 293,100 acres of open land were found to be at risk in the Bay Area, with 63,500 acres facing a high probability of development within the next ten years.[6]

Protecting open space, while at the same time accommodating growth in ways that make housing affordable for people at all income levels, can ensure that the Bay Area remains economically resilient, sustainable, and equitable. A 2016 McKinsey Global Institute study found that one to three million housing units could be added within half a mile of major transit hubs in California.[7] The region should continue to adopt and advance policies that preserve open space and working lands, while also continuing recent efforts to make infill development easier. Together, these strategies will take development pressure off less-transit-served suburban and greenfield areas.

EXHIBIT 24

Shown in red on the map, 63,500 acres of the Bay Area's open space are at high risk of development.



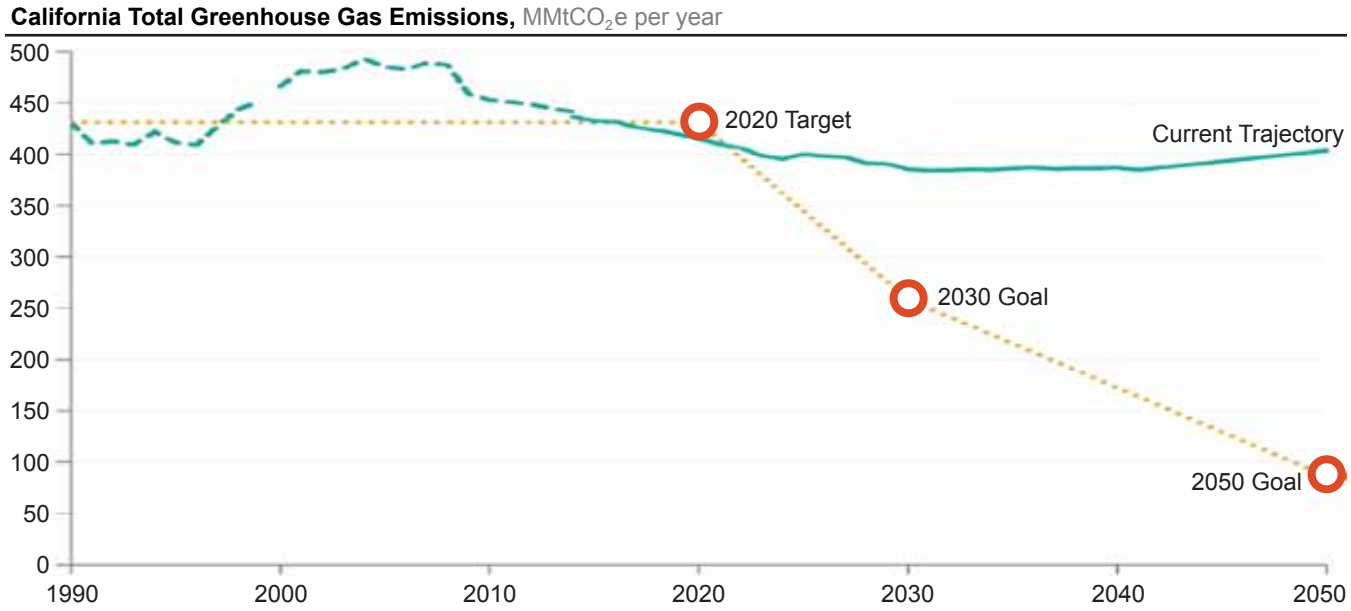
Source: Adapted from Greenbelt Alliance, *At Risk: The Bay Area Greenbelt*, January 2017

Housing units that could be added within half a mile of major transit hubs in California

1 to 3 million

EXHIBIT 25

California is off track in the race to meet its 2030 and 2050 climate goals.



Note: $MMtCO_2e$ = million metric tons of carbon dioxide equivalents
Source: California Air Resources Board

Analysis: Bay Area Council Economic Institute

Meeting Ambitious Climate Goals

Ten or more years ago, California passed the Global Warming Solutions Act (2006) and the supporting Sustainable Communities and Climate Protection Act (2008). These landmark pieces of legislation, AB 32 and SB 375, set goals for the reduction of greenhouse gases statewide and for improving the ways in which we plan our communities. However, recent projections show that California is falling short of its climate goals.

Data from the California Air Resources Board shows that the state is behind the 5.2% per year reduction required to meet its 2050 goals. If the state's level of greenhouse gas emissions continues on its current trajectory, by 2050 over 5 billion additional metric tons of carbon dioxide will be emitted.[8]

One of the main causes of California's failure to achieve its climate goals is sprawling land use patterns driven primarily by local barriers to producing sustainable, affordable, transit-oriented housing—especially near major job centers in the coastal communities of Los Angeles, San Diego, and the Bay Area. This lack of compact development has led to increased sprawl, the consumption of inland greenfields, and substantial increases in traffic and congestion as people commute farther to work. A set of studies partially funded by the Environmental Protection Agency found that compact development could reduce vehicle miles traveled by 20–40% and could reduce emissions from transportation by 9–15% by 2050.[9]

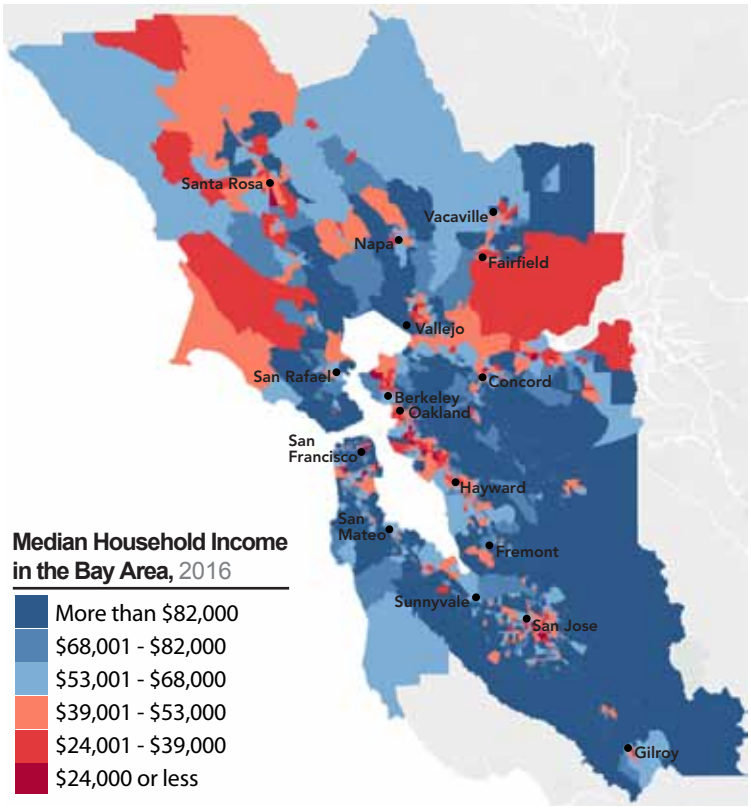
5

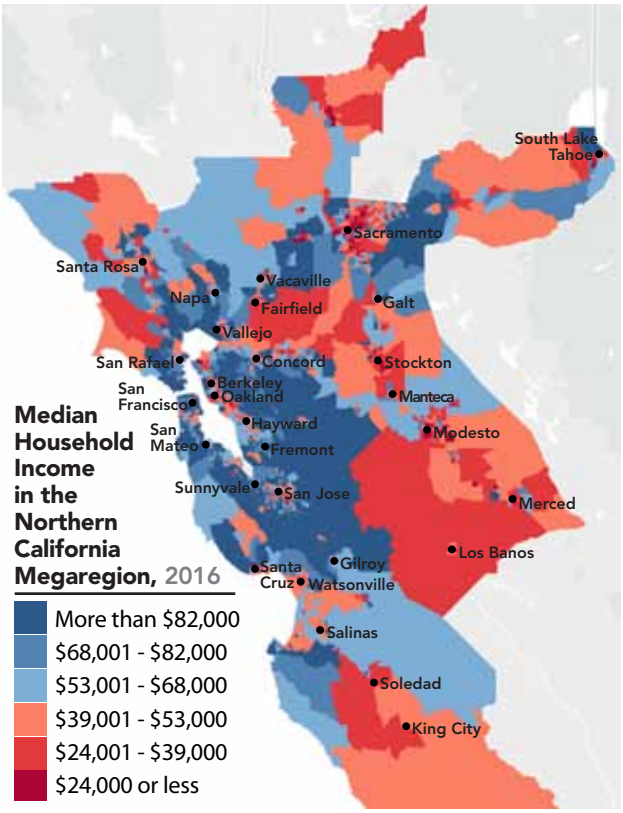
billion

additional metric tons of $C0_2$ will be emitted if California's GHG emissions level continues on its current trajectory

EXHIBIT 26

Median household incomes are substantially higher within the Bay Area's inner core than they are across the broader Northern California Megaregion.





Source: U.S. Census Bureau American Community Survey 2016

Analysis: Bay Area Council Economic Institute

Making Room for Everyone

Any account of the Bay Area economy's growth is incomplete without addressing the extent to which that prosperity is not shared equally. There are many ways of examining these inequities.

The maps above show the contrast in median household incomes between different census tracts in the Bay Area and across the broader Northern California Megaregion. Median incomes are substantially higher within the inner core of the Bay Area than they are across broader geographies, but substantial inequities exist within smaller areas as well. San Francisco and Oakland contain census tracts with both the highest and lowest levels of median income.

More than

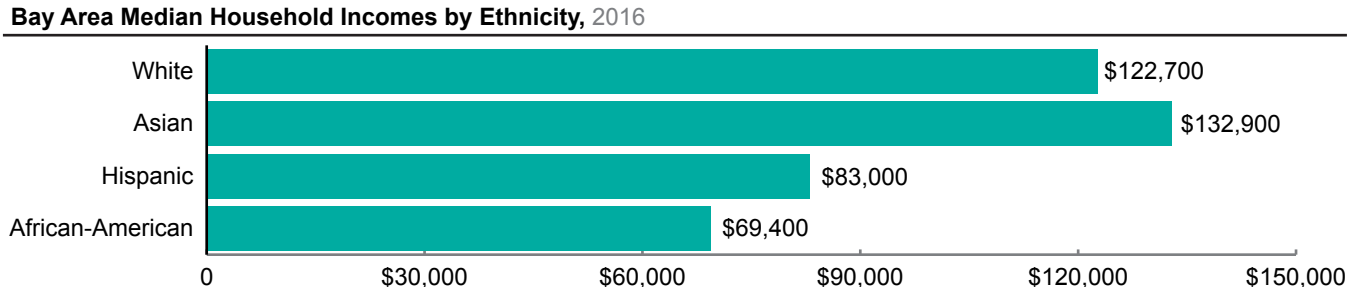
80

thousand

people commute from the Northern San Joaquin Valley into the Bay Area each day

Exhibit 27

Substantial inequities in Bay Area median household incomes also correlate with ethnicity.



Source: U.S. Census Bureau American Community Survey 2016

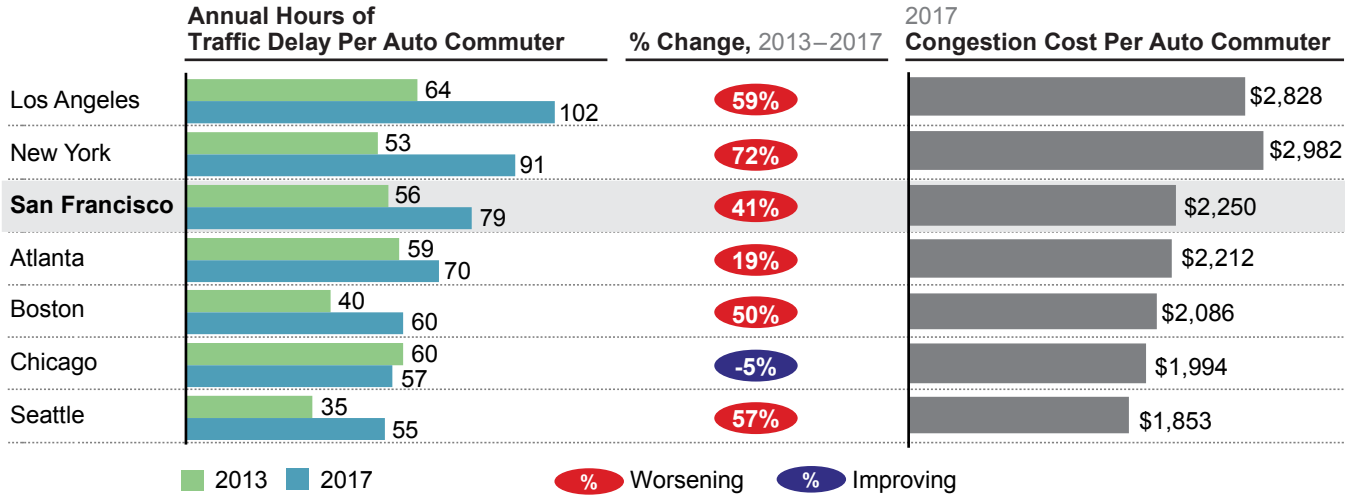
Analysis: Bay Area Council Economic Institute

Substantial inequities also correlate with ethnicity. The group with the highest median income is actually Asian-Americans, though this grouping conflates many different communities, especially Asian-Pacific Islanders who experience outcomes that are not on par with the others in this category. As has been extensively documented, incomes among Latinos and African-Americans lag significantly behind their peers. These ethnic inequities are often associated with geographic inequities. Segregation within the Bay Area has been falling slowly over the course of the past decade according to the Equity Profile produced in 2017 by PolicyLink and the USC Program for Environmental and Regional Equity (PERE), but it remains high for certain groups. In particular, according to the Equity Profile, "61 percent of White Bay Area residents would need to move to achieve integration with Black residents."[10]

Raj Chetty of Stanford University is among those who have pointed out that the neighborhood a person grows up in has a profound effect on everything from health outcomes to economic mobility over the course of one's life. On average, the Bay Area is a relatively good geography for economic mobility. Contra Costa County has the 5th highest economic mobility nationwide, measured in terms of the likelihood that a child born there whose parents are in the lowest income quintile nationally will end up in the highest income quintile.[11] A person must be able to move into a geography, however, to access its impact on upward mobility. In the fourth chapter of this report, Exhibit 36 indicates the long distances that increasing numbers of workers are willing to travel in order to access this opportunity; many others are simply locked out of upward mobility because of the significant undersupply of housing.

EXHIBIT 28

Traffic is highly correlated with economic activity, and San Francisco congestion is third worst among cities in Bay Area peer regions and among U.S. cities overall.



Note: Annual hours of traffic delay historical numbers are from 2013, except for Chicago and Atlanta which are from 2015.
Source: INRIX
Analysis: Bay Area Council Economic Institute and McKinsey & Company

Growing Elsewhere?

The Bay Area economy has been rapidly expanding for several years now, contributing to the housing-affordability and cost-of-living crises described previously. In addition, other quality of life issues—such as mounting congestion throughout the region—have businesses questioning whether further expansion within the region is a good idea. Recent expansions outside the region by Amazon, Google, Charles Schwab, and others highlight the considerations businesses are making when planning for expansion. Furthermore, 46% of Bay Area residents say they are considering leaving the region within the next few years.[12]

Portion of Bay Area residents who say they are considering leaving the region within the next few years

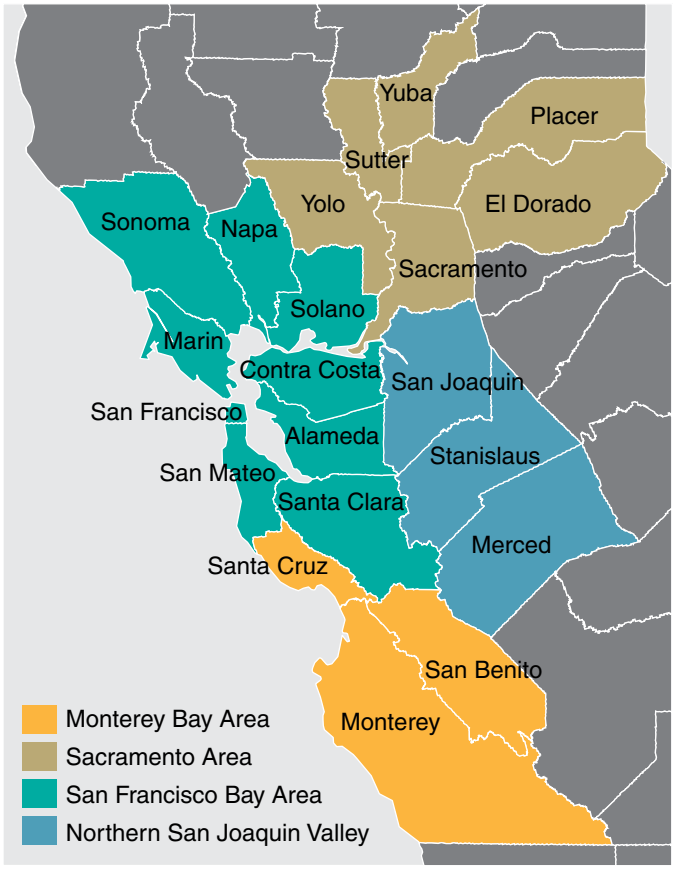
46%

4

The Northern California Megaregion

EXHIBIT 29

The 21-county Northern California Megaregion includes two coastal regions and two inland regions.



Source: Bay Area Council Economic Institute

The potential for the Bay Area to continue its strong economic growth is not constrained by the region's workforce talent profile or a lack of innovative businesses that can drive future employment. Where possible roadblocks do lie is in the availability of affordable space—in the form of housing for a growing workforce and office and industrial buildings for growing companies. For this reason, embracing opportunities outside of the traditional nine-county boundary of the Bay Area region is imperative as part of the process for continuing along an upward economic growth trajectory.

In a 2016 report entitled, *The Northern California Megaregion: Innovative, Connected, and Growing*, the Economic Institute defined a 21-county megaregion stretching into the Northern San Joaquin Valley to the southeast and through Sacramento to Lake Tahoe to the northeast. The analysis identified two major characteristics that make the Northern California Megaregion a critical geography for coordinated economic and human capital development, and for planning and enabling connectivity through transportation networks:

- Home values in the Bay Area's core have always been higher than values in outlying areas of the megaregion. But the run-up in prices over the last decade has considerably widened the pricing gap to the point where Bay Area median home prices are three times higher. The Bay Area's high housing prices and its overall high cost of living

have contributed to a population influx in the inland areas of the megaregion—the Sacramento Area and the Northern San Joaquin Valley—and to faster population growth in those areas combined than in the nine-county Bay Area.

- The economies of the Northern San Joaquin Valley and the Sacramento region have been growing at slower rates than the Bay Area's economy. This is largely correlated with the high and fast-growing concentration of high-paying technical jobs in the Bay Area, while employment in high-tech sectors remains a relatively small percentage of total employment in the inland areas of the Northern California Megaregion.

Placing the Northern California Megaregion in Context

This analysis also compares the Northern California Megaregion to two other U.S. megaregions: the Texas Triangle—encompassing Dallas, Houston, San Antonio, and Austin—and Cascadia—stretching from Seattle to Portland. These two megaregions were chosen because they have recently been popular locations for Bay Area transplants, in terms of both population and businesses.

The Northern California megaregion has grown its population at a slower pace than the Texas Triangle and Cascadia over the last decade. Whereas the other two megaregions grew their employment levels at a lesser rate than their overall populations, the Northern California Megaregion actually grew its employment base at a faster rate than its population—a byproduct of a very strong recovery from the Great Recession.

Notably, per capita GDP in the Northern California Megaregion outpaces its competitors. However, this is largely a function of strength in the core of the Bay Area, where high-value industries are driving growth. In the outer 12 counties of the Northern California Megaregion, per capita GDP is 59% of the level produced in the nine-county Bay Area. In the last 10 years, the Texas Triangle's economy has grown more quickly than the economy in the Northern California Megaregion, although it is important to note that economic swings in the Texas Triangle are often correlated with fossil fuel prices.

EXHIBIT 30

Unlike the Texas Triangle and Cascadia megaregions, the Northern California Megaregion's employment growth rate was higher than its population growth rate between 2008 and 2017.

Megaregional Economy Comparisons

	2017 Population (millions)	2008–2017 Annual Population Growth	2017 Employment (millions)	2008–2017 Annual Employment Growth	2017 GRP (millions)	GRP Per Capita	2008–2017 Annual GRP Growth
Texas Triangle	**20,827**	**2.0%**	**9,538**	**1.8%**	**1,192,565**	**57,261**	**3.1%**
Northern California Megaregion	**12,555**	**1.1%**	**5,614**	**1.4%**	**842,298**	**67,088**	**2.6%**
Nine-County Bay Area	7,791	1.1%	3,891	1.6%	617,998	79,325	3.1%
Outer Megaregion Counties	4,764	1.0%	1,723	0.8%	224,299	47,078	1.5%
Cascadia	**8,598**	**1.4%**	**4,058**	**1.2%**	**531,363**	**61,798**	**2.2%**

Note: GRP=Gross Regional Product
Source: Moody's Analytics

Analysis: Bay Area Council Economic Institute


ACE
ALTAMONT COMMUTER EXPRESS
3104

Industry Mix

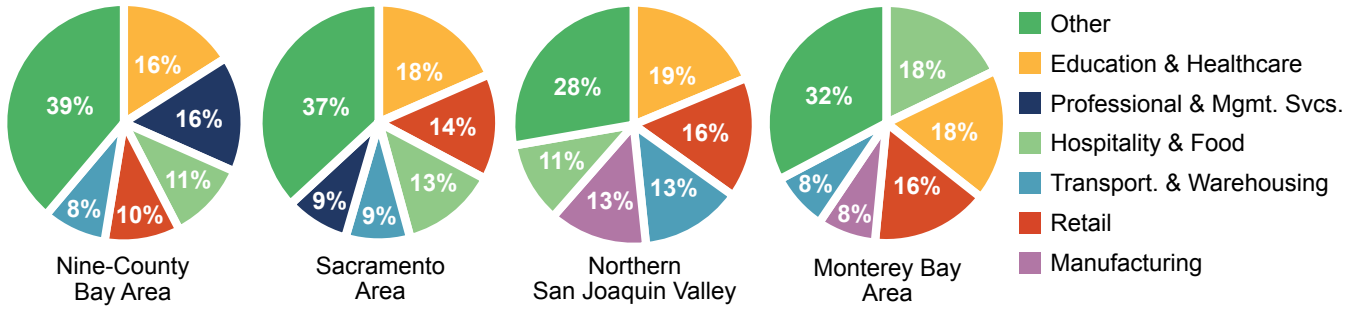
The four regions within the Northern California Megaregion vary in their industry mixes. The nine-county Bay Area and the Sacramento Area have strengths in broad-footprint industries and businesses that bring in revenues from outside their local areas, and this is reflected in their economies' significant shares of professional and management services. Nonetheless, these two regions do not have particularly strong manufacturing presences, whereas the manufacturing sectors in the Northern San Joaquin Valley and the Monterey Bay Area are significantly larger.

The Monterey Bay Area's economy is more reliant on the local-population-serving hospitality and food industries than the other region's economies, and the Bay Area is less reliant on retail than the others. The transportation and warehousing sector is particularly well-represented in the Northern San Joaquin Valley. In general, the Bay Area and the Sacramento Area have more industries that draw revenues from beyond their local areas, while local-population-serving industries are more predominant in the Northern San Joaquin Valley and the Monterey Bay Area.

Exhibit 31

The four regions within the Northern California Megaregion differ in their industry mixes.

Top Five Industries Per Region by Share of Private Sector Employment, 2016

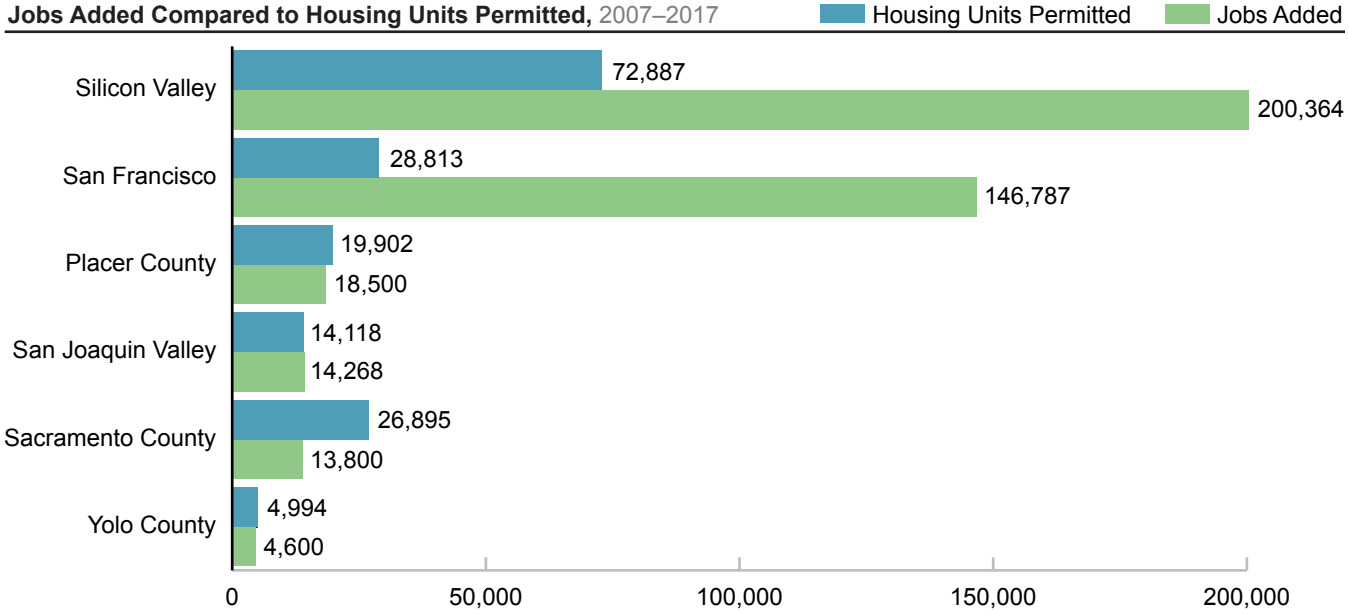


Source: California Employment Development Department

Analysis: Bay Area Council Economic Institute

EXHIBIT 32

In San Francisco and Silicon Valley, growth in the number of housing units lags far behind job growth.



Sources: Association of Bay Area Governments Regional Housing Need Allocation Progress Reports; U.S. Department of Housing and Urban Development State of the Cities Data Systems; BLS Quarterly Census of Employment and Wages; California Employment Development Department; U.S. Census Bureau Building Permits Survey
Analysis: Bay Area Council Economic Institute

Jobs and Housing

While the Bay Area, led by San Francisco and Silicon Valley, has been the primary driver of strong economic performance in the Northern California Megaregion, growth in its number of housing units has not followed. The outer counties of the megaregion have produced housing and jobs at much more balanced rates, although a 1:1 ratio of incremental jobs to new housing is not necessarily a sign of a strong economy. These outer areas have the potential to add to their employment bases, and all are looking to absorb and benefit from some of the Bay Area's growth. To encourage Bay Area companies to refrain from jumping to Denver, Austin, or Portland, leaders in the Sacramento Area and in the Northern San Joaquin Valley have made concerted efforts to make their communities more attractive areas for companies in higher-value industries to find relatively affordable space.

Cost of Living Disparity Fuels Population Shift

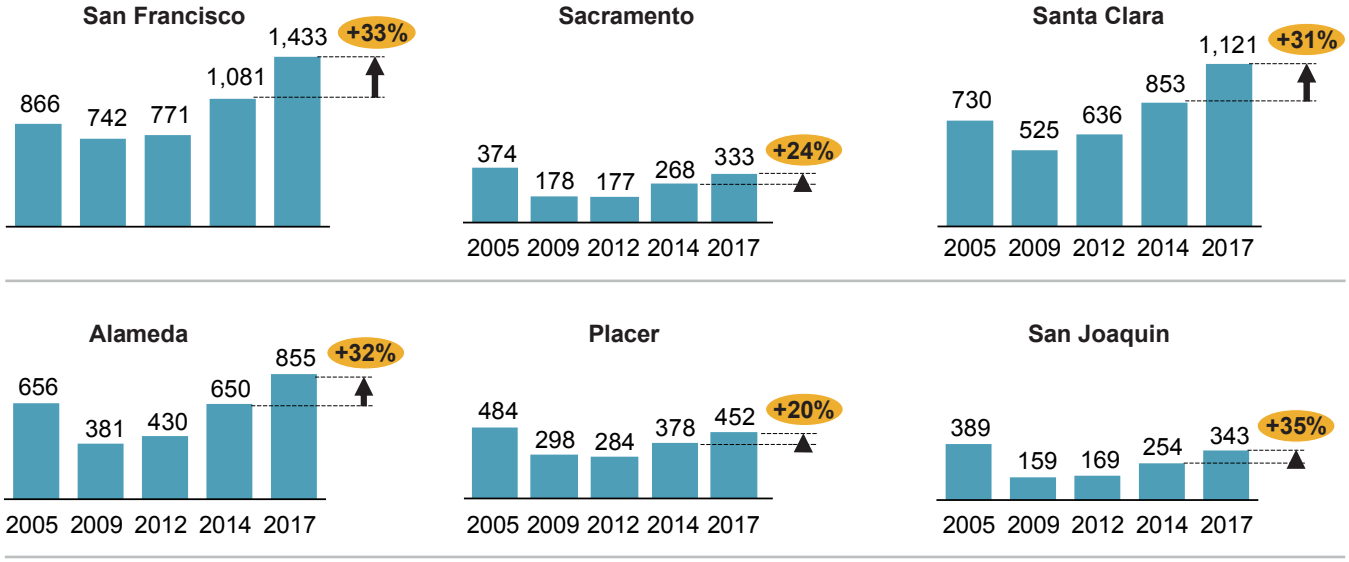
Median home prices in the core of the Bay Area have grown by more than 30% since 2014. In San Francisco and Santa Clara counties, the median home value is now well over $1 million. Alternatively, median prices in nearby San Joaquin County (which has easy access to jobs in the Tri-Valley area) are under $350,000, but they are growing rapidly as the county has become an outlet for the Bay Area's spillover growth.

A high cost of living has created a significant barrier to moving into the Bay Area from other regions—as exemplified by the difficulties that companies have in hiring even the most skilled workers. Escalating housing costs are also driving portions of the population out of the Bay Area. Over the last three years, net domestic migration to the nine-county Bay Area has turned negative, and the net loss expanded to over 35,000 people in 2017.

EXHIBIT 33

Home prices have increased substantially across Northern California Megaregion counties, but wide gaps exist between the core and outlying areas.

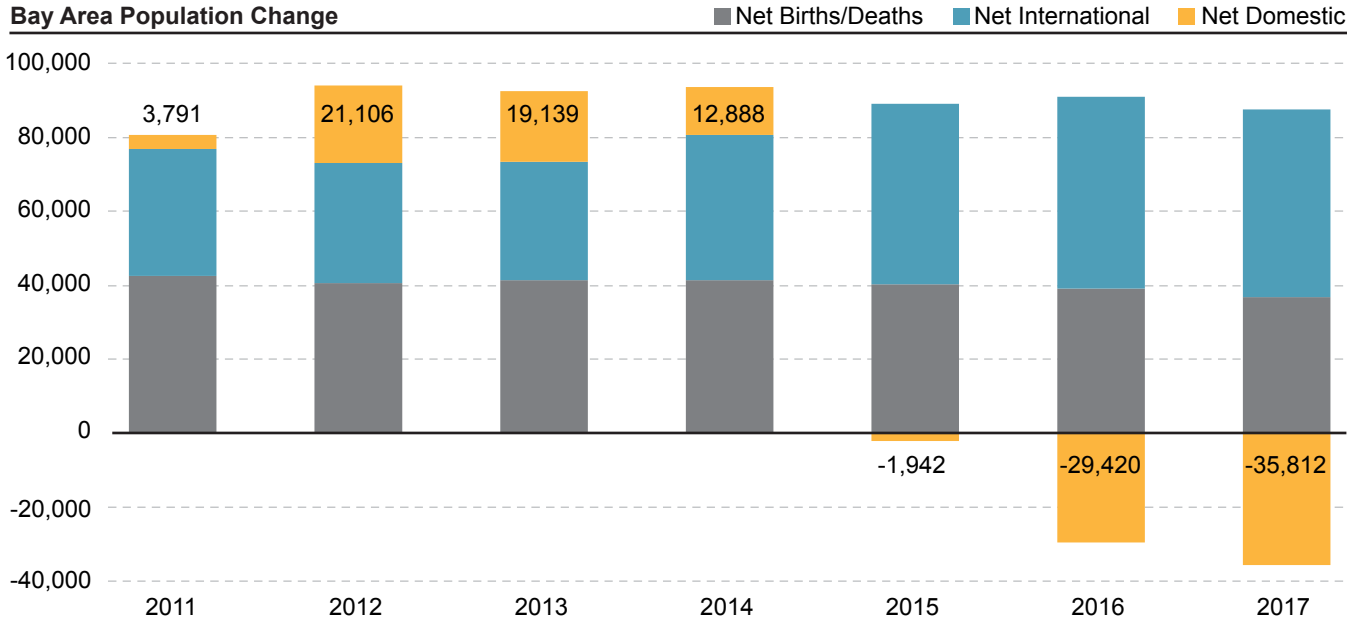
Median Home Prices in Key Northern California Megaregion Counties, $ Thousands



Note: Data represents annual average median home price estimate in 2013 dollars.
Data Source: National Association of Realtors, Moody's Analytics Analysis: Bay Area Council Economic Institute and McKinsey & Company

EXHIBIT 34

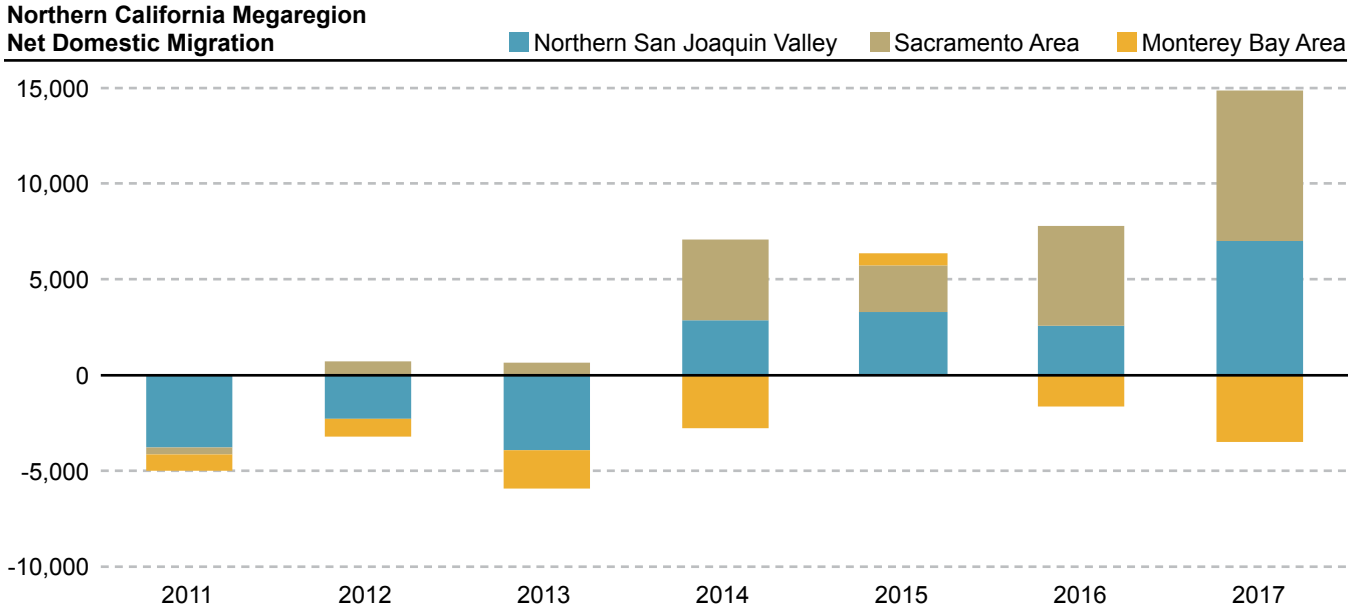
The Bay Area's domestic migration has turned negative in the last three years.



Source: California Department of Finance Demographic Research Unit Analysis: Bay Area Council Economic Institute

EXHIBIT 35

In contrast to and partially as a result of out-migration from the Bay Area, the Sacramento Area and the Northern San Joaquin Valley have experienced net domestic migration increases in the past few years.



Source: California Department of Finance Demographic Research Unit

Analysis: Bay Area Council Economic Institute

The Bay Area's difficulties in attracting and retaining population have led to population growth in the Sacramento Area and the Northern San Joaquin Valley. In the last few years, net domestic migration in both of these areas has increased, moving in the opposite direction in comparison to the Bay Area.

The movement of population to the outer portions of the Northern California Megaregion and the continuing concentration of jobs in the Bay Area core have created a situation in which a growing number of Bay Area workers are commuting in from long distances. This pattern is most prevalent in the Northern San Joaquin Valley, where over 80,000 people commute into the Bay Area each day. Mega-commuting has added to highway congestion, contributed to greenhouse gas emissions, and lowered the quality of life for many commuters as they spend hours in their cars each day.

The number of megaregional commuters is also rising rapidly, jumping by more than 25% for commutes originating in the Sacramento Area or the Northern San Joaquin Valley and ending in the Bay Area. Without improvements to the megaregional rail infrastructure—such as Amtrak's Capitol Corridor and San Joaquin lines, the Altamont Corridor Express, and the future High Speed Rail network—the growing number of megaregional commuters will continue to stress the megaregion's gateway corridors.

Expanding Economic Prosperity in the Megaregion

Potential exists for greater interconnectedness of the economic engines in the Northern California Megaregion in order achieve a broader footprint of economic prosperity for all. In conjunction with added transportation infrastructure that can help facilitate movement in the Bay Area's commute shed and throughout the broader megaregion, efforts can be made to draw more employment into the areas that are relatively more affordable to do business, allowing the megaregional economy to capture more jobs and

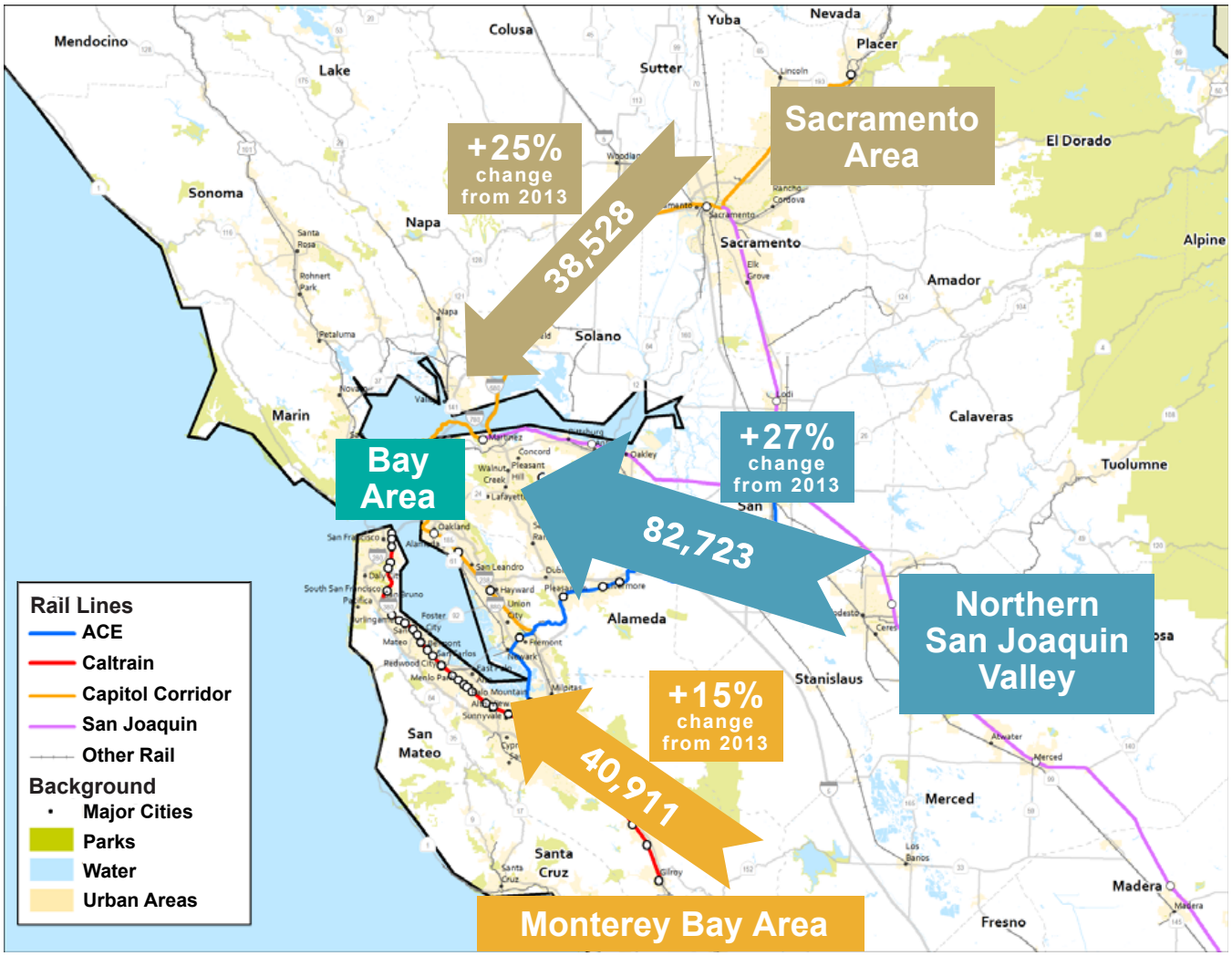
economic activity. If the megaregional rail network is built out, inland places like Tracy, Merced, and even Fresno in the Central Valley will become significantly more accessible to the Bay Area. With strategically planned investments in workforce development, downtown revitalization, and business attraction, such places can become options for advanced manufacturing companies, logistics providers, and nascent technology companies looking to maintain access to the Bay Area at a more affordable price.

A broader footprint of economic prosperity is possible with innovation and renewal in the Northern California Megaregion, which will help to keep the nine-county Bay Area and its more connected neighbors competitive in the global economy.

EXHIBIT 36

A growing number of workers in the Northern California Megaregion are commuting long distances.

Daily Commuters Crossing Sub-Regional Boundaries, 2016



Source: U.S. Census Bureau American Community Survey 2016 One-Year Estimates

Analysis: Bay Area Council Economic Institute

Notes

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