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United States Outlook

By Christopher Thornberg, PhD

Looking back, 2018 was clearly a solid year for the U.S. economy, with vastly more positives than negatives to reflect on. The nation's economy grew by 2.9% in real terms over the year, a modest uptick from 2017 and 2016, and the best number since 2015. Acceleration in growth occurred almost across the board, but the greatest contributions came from government and business investment. Exports had a good year despite ongoing trade disputes with key partners.

Labor markets also added plenty of jobs last year—and will likely continue to do so in 2019. The job openings rate at the end of the year was 4.7%, significantly higher than the unemployment rate. Household finances look good as well. The consumer savings rate ended the year above 6%, even as the financial obligation ratio (the share of disposable income used for debt and rent payments) fell to a record low. Wages are rising, consumer spending is solid, and with the exception of autos, the debt markets look very clean.

Still, public sentiment has turned remarkably grim as we move further into 2019 and there have been a surprising number of predictions calling for a potential recession in the next two years. Drivers of this pessimism range from the stock market plunge and slow pace of sales in the housing market to fears surrounding the impact of an expanding trade war with China and decelerating global growth. A smattering of recent economic data seem to support such fears from a dismal showing for retail sales in December to weak employment growth in February.

Despite all the negative sentiment, Beacon Economics sees little reason (still) to change our near-term outlook for the U.S. economy. Most of the current concerns are unfounded in our view. China is offsetting U.S. tariffs by depreciating the Yuan. The slowing of U.S. exports to China has been made up elsewhere. Corporate fundamentals, including profits and employment, look better now than two years ago. And this stock market decline is the sixth major selloff since the Great Recession came to an end—an unprecedented level of volatility that is more a sign of problems in the stock market—not the economy.

Yes, U.S. economic growth will slow from its pace in 2018, falling to the low 2% range, but this is only because the sugar rush created by the fiscal stimulus tax plan of 2017 is wearing off—as easily anticipated. And while there have been some weaker-than-normal numbers in certain economic data, these seem to be in line with the normal ebb and flow of economic growth rather than any bellwether of an impending downturn. The difference is best illustrated by the current handwringing over the nation's residential real estate market (the focal point of this quarter's national outlook).

Eventually, the current economic expansion the United States is experiencing will come to an end. When it does, that ending will be driven by a large, negative shock to the economy, which in turn, will be driven by some major internal imbalance that has formed. To date, Beacon Economics has yet to see any imbalance develop within the U.S. economy that has the capacity to cause a downturn, much less a recession, in the near term.

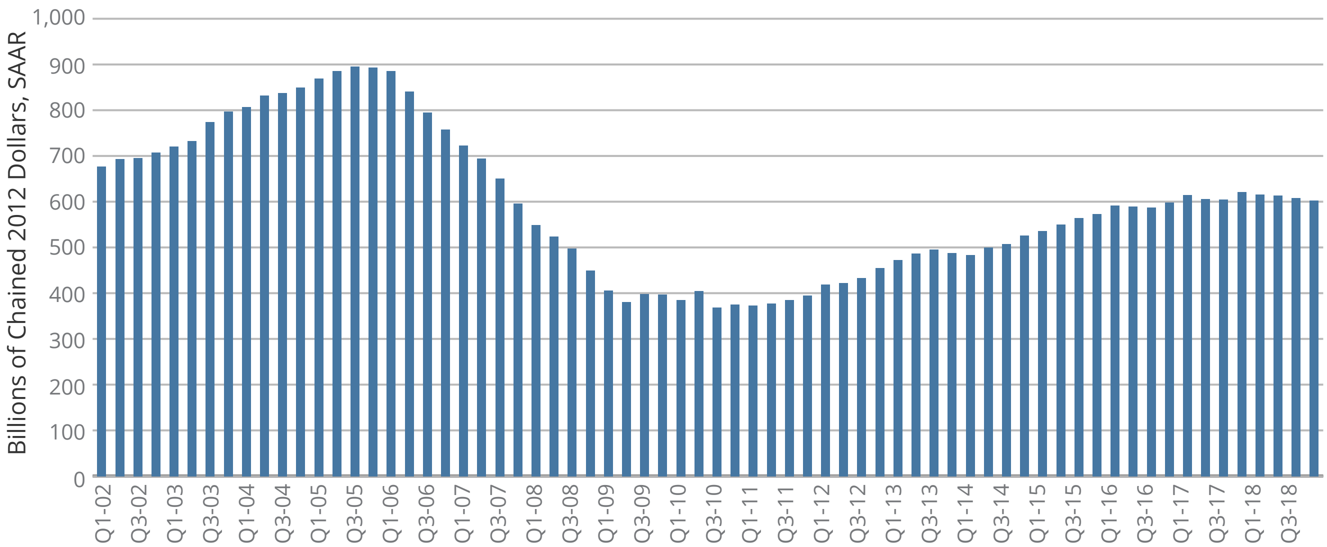
Housing And The Economy: Singing The Housing Blues

Housing has always been an important indicator of the U.S. economy for both macro and individual reasons. It has been a leading indicator of economic growth for the majority of business cycles over the past seventy years and, of course, played an outsized role in the 'Great Recession'. For most households, housing is the largest expense and for homeowners, their largest asset. It's little wonder that public sentiment suffers when negative news about housing begins to dominate the front page. The grim headlines can best be summed up by the closing line of a recent New York Times article "In other words: Housing is in recession already." [1]

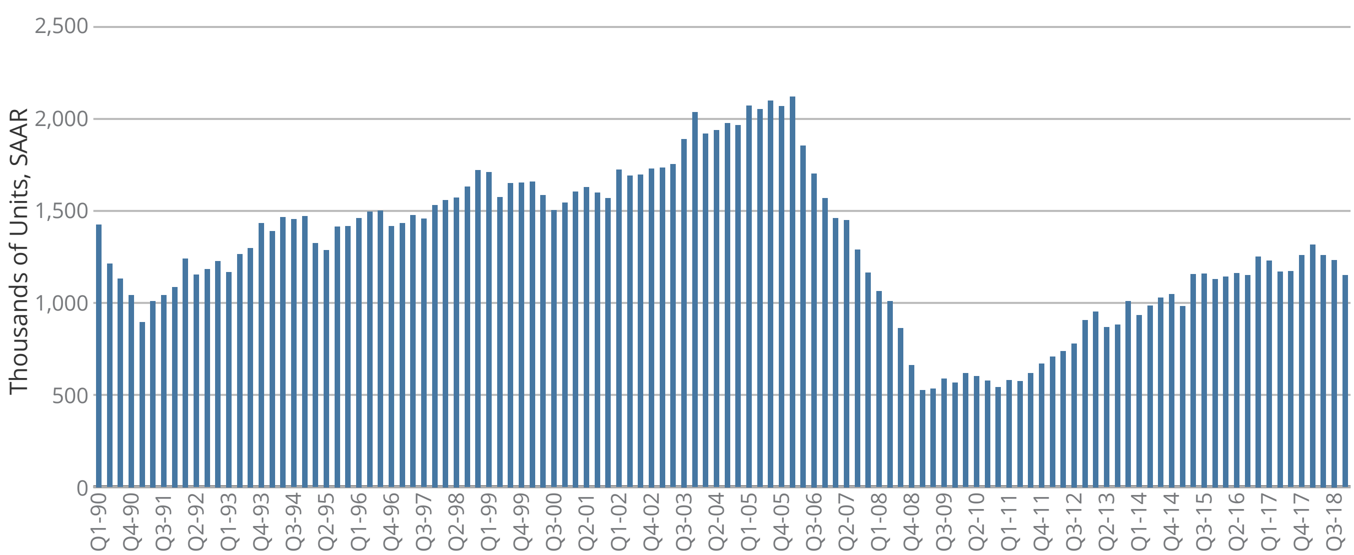
[1]https://www.nytimes.com/2019/02/19/business/economy/housing-recession.html

Strong words—with little basis in reality. There is little doubt the market is flat, but flat is not a downturn. According to data from the U.S. Bureau of Economic Analysis, economic activity in the residential real estate sector has changed very little for two years, either up or down. When parsing out the components of this data—housing starts, sales, inventories—the same picture emerges. Home prices are still rising, albeit at a slower pace. Housing has shifted to neutral, but it has not moved towards anything resembling a decline.

REAL PRIVATE RESIDENTIAL FIXED INVESTMENT
Source: U.S. Census Bureau, Analysis by Beacon Economics

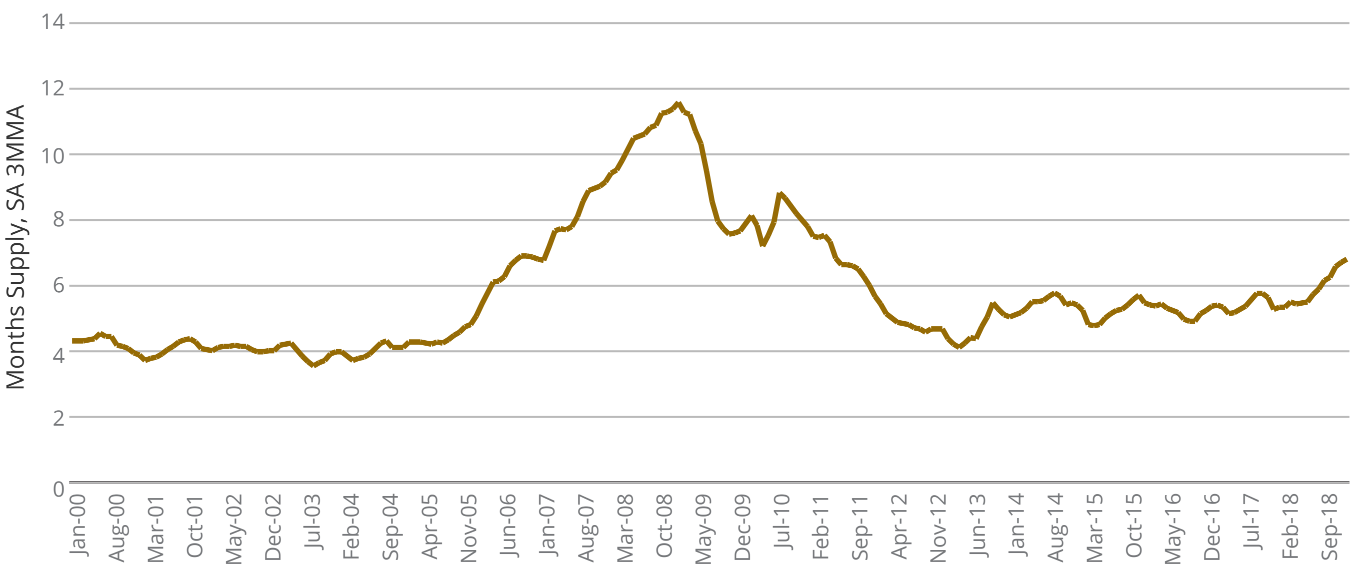


HOUSING STARTS
Source: U.S. Census Bureau, Analysis by Beacon Economics

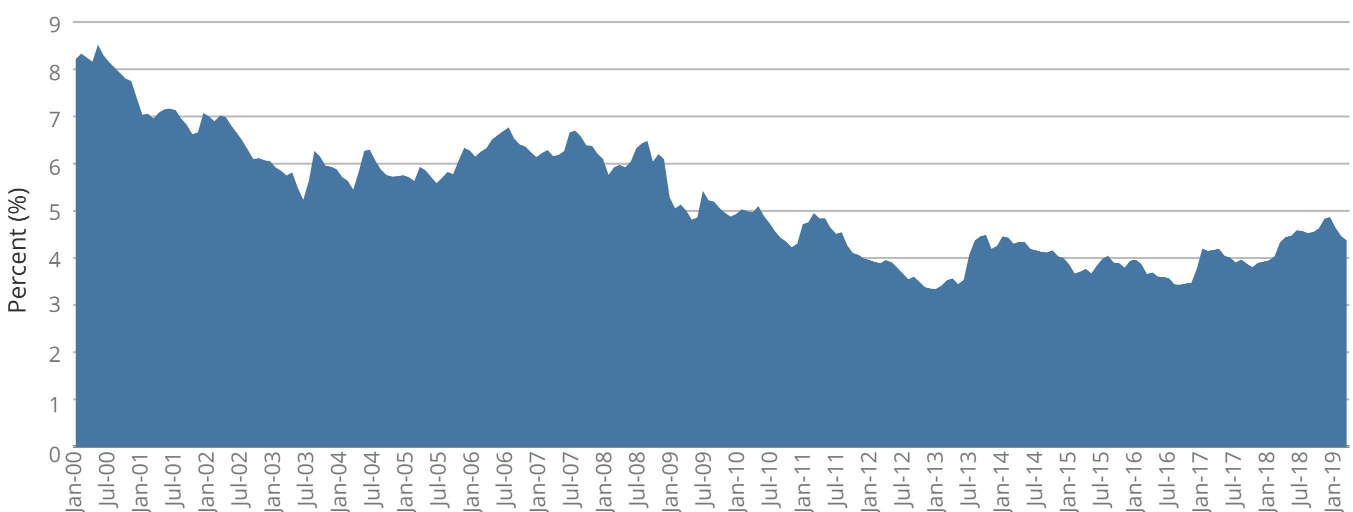


Why has the U.S. housing market been flat? There are three major reasons, short-, medium-, and long-term. The short-run driver is interest rates, which have been gradually rising over the last few years. Interest rates are still low from any longer term perspective, but the market still has to adjust to them. This tends to precipitate a short period of slowing as prices (and thus sales) adapt to new fundamentals. But while sales of existing homes have slowed, so too has the number of units being put on the market, with the available inventory of homes well below 5 months supply nationally. This represents a lower level of supply than in 2014. The good news is that interest rates have stabilized—and will likely remain in their current range for a while. Inflation is cooling and the Fed has stopped tightening. Beacon Economics expects the negative influence of interest rates on the housing market to fade in the spring.

MONTHLY SUPPLY OF HOUSES IN THE UNITED STATES
Source: U.S. Census Bureau, Analysis by Beacon Economics



30-YEAR FIXED RATE MORTGAGE AVERAGE IN THE UNITED STATES
Source: Freddie Mac, Analysis by Beacon Economics



In the medium-term, U.S. Census data over the last few years have shown a rapid pace of population movement within the United States from the Northeast and Midwest to urban areas in the South and West. Many of these destinations (with California being the poster child) have constrained housing construction markets due to strict zoning, high fees, slow-growth sentiment, and downright NIMBYism. As a result of these constraints, there has been a greater utilization of existing housing stock rather than a significant increase in building permits, resulting in tighter inventory and higher prices.

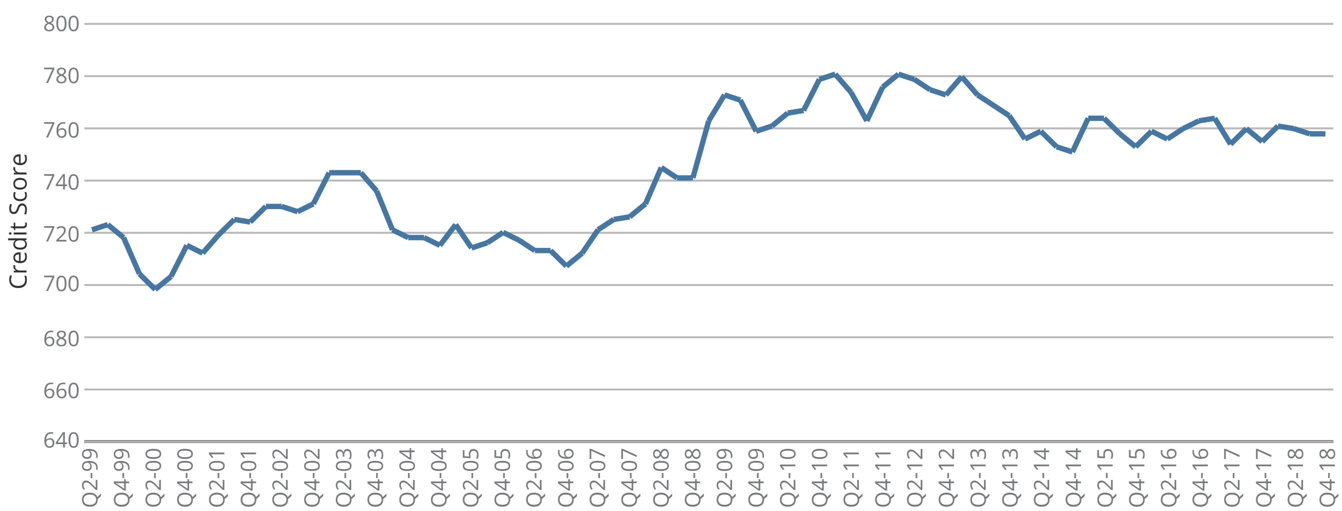
Lastly, there is the long-term issue of slow growth in the U.S. population base, driven by both low child birth rates and a sharply decelerating pace of immigration. Overall population growth in the nation is currently running about 2 million per year—substantially slower than twenty years ago when it was over 3 million annually. Working age population growth has slowed even more dramatically, from over 2 million per year to just one million. The United States, as a whole, simply doesn't need as much new housing as it used to.

Add it all up and the fact that housing starts and sales are flat is hardly a surprise. Still, far too many pundits are trying to link what is happening now to what happened back in 2006 when the great housing bubble began to unwind. There is no comparison. The fundamentals of today's housing market—including affordability, vacancy rates, credit quality, household incomes, and debt levels—look better than they have for twenty years.

MEDIAN CREDIT SCORE AT ORIGINATION: MORTGAGES*

Source: New York Fed Consumer Credit Panel/Equifax, Analysis by Beacon Economics

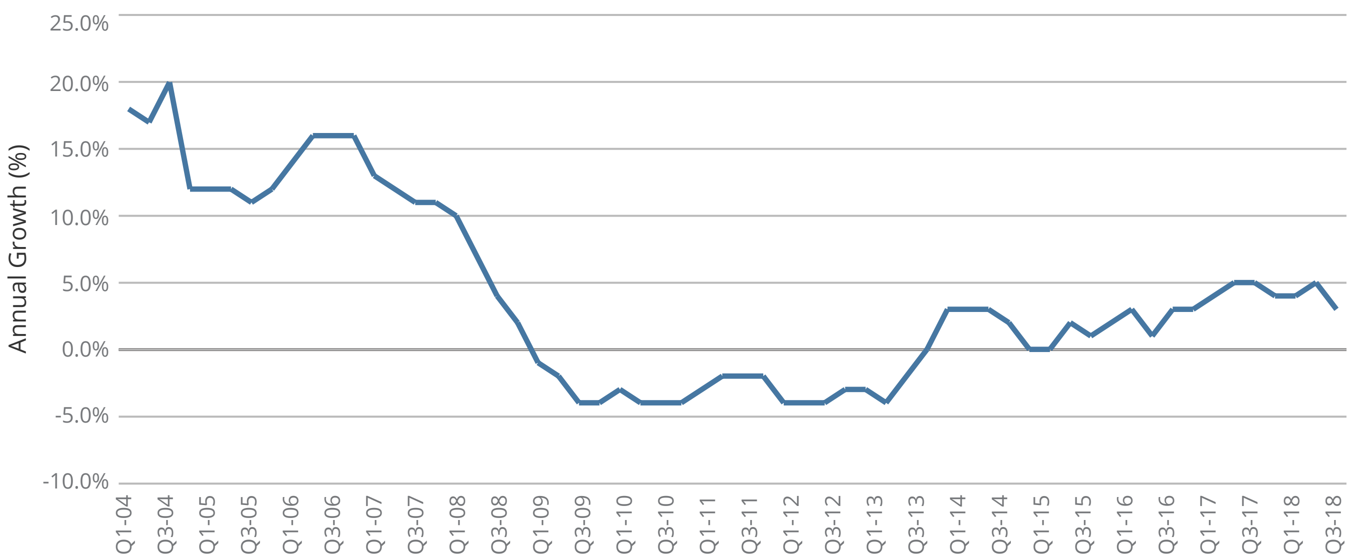
*Credit Score is Equifax Riskscore 3.0; mortgages include first-liens only.



This stands in complete contrast to 2006 when each one of these indicators was severely unbalanced. Take for example housing starts, which were running well over 2 million in 2005, vastly more than population growth would indicate was appropriate. The 'slow' 1.2 million unit pace of building in the past few years is in step with population growth or possibly even a little low. But a lack of supply should give you more, not less, confidence in the fundamental strength of the market.

Another example is the pace and quality of mortgage lending. In 2006, mortgage debt was expanding by 15% per year. Today it is less than 5%. And the median credit score of a borrower today is above 750—compared to below 700 in 2006. The aggregate housing debt to equity ratio is also better today, and that can be seen in household finances. According to the American Community Survey from the U.S. Census Bureau, in 2017, 27% of households with a mortgage used over 30% of their income on housing costs; in 2016 it was 29% and in 2006, 37%.

ANNUAL GROWTH IN MORTGAGE DEBT
Source: New York Fed Consumer Credit Panel/Equifax, Analysis by Beacon Economics



The current slowness in the U.S. housing market is not a downturn in any broader sense, nor will it turn into one. On the contrary, all the market worry is much ado about nothing and as 2019 advances, market activity will start to pick up again. This canary in the coalmine will soon wake from its short nap and start singing again.

California Outlook

By Robert Kleinhenz, PhD

Now Is The Time To Move Wisely Into The Future

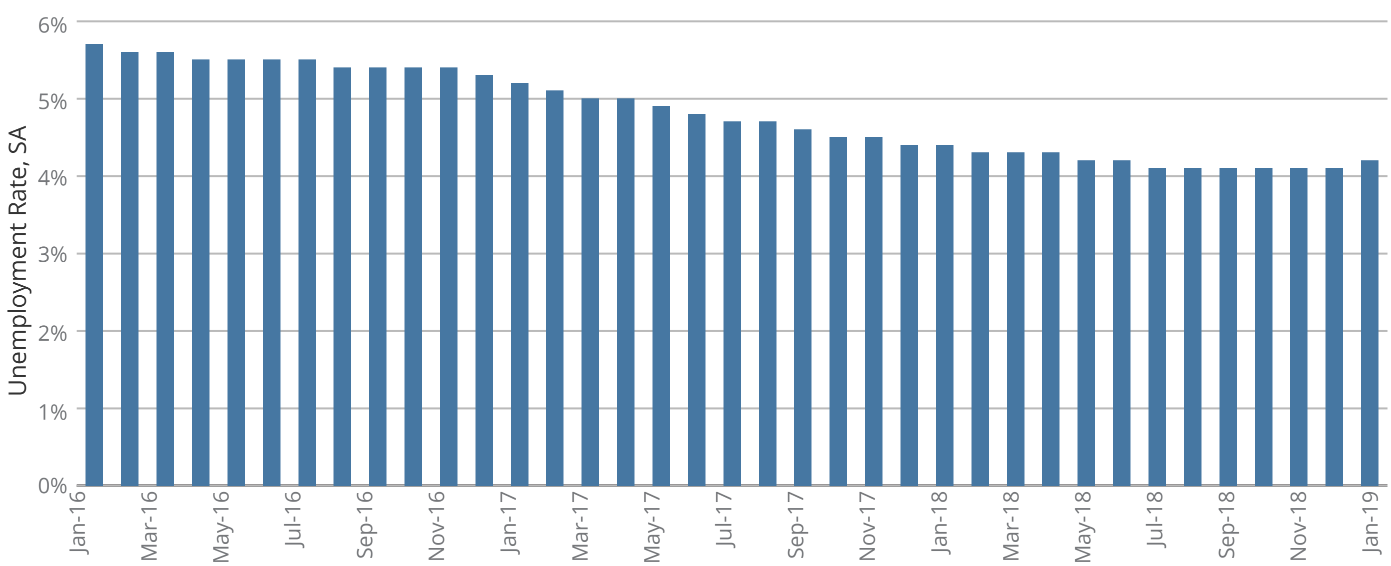
California's economy, in the first part of 2019, remains on a steady growth track despite concerns about how long the current expansion will continue. Like the nation, the state economy benefited from expansionary fiscal policy in the form of tax cuts coupled with increases in government spending that pushed the labor market closer to full employment and fueled solid job gains. Tech-related sectors made significant contributions to the state's economic growth, as did a handful of other industries. Still, California faces a huge housing challenge, something that the new governor is addressing head on.

Staying The Course In California And Its Regions

Despite the turbulence created by the Trump Administration's trade wars, the chaos surrounding Brexit, and a slowdown in the global economy, California saw continued economic growth in 2018 and early 2019. Through the first three quarters of last year, California's gross state product grew by 3.5% year-to-date, with nearly all major industries expanding over that period. Significant contributions came from technology, real estate, and manufacturing, while health care, construction, and transportation and warehousing made smaller contributions.

The state and many of its metro areas continue to be at or near record lows in terms of unemployment rates, picking up where they left off last year. The statewide rate was 4.2% in January, coasting just a hair above the all-time low of 4.1% for several months running. Indeed, recent increases in California's labor force have kept the unemployment rate above the four percent threshold. The state's labor force growth has been trending up in recent months, increasing by 1.5% in January 2019, up considerably from 0.6% one year earlier.

CALIFORNIA UNEMPLOYMENT RATE
Source: California Employment Development Department, Analysis by Beacon Economics



California added 246,400 jobs in January compared to one year earlier, equivalent to a 1.4% increase. Job gains occurred across nearly all of the state's industries, led by Health Care with 56,000 jobs added, and followed by Professional, Scientific and Technical Services (+36,400 jobs), Leisure and Hospitality (+33,200 jobs), and Administrative Services (+30,500 jobs). In percentage terms, Transportation, Warehousing, and Utilities led all industries with a 3.6% yearly increase, followed by Mining and Logging (3.5%), Construction (3.4%), and Professional, Scientific and Technical Services (2.9%). for a handful of industries Leisure and Hospitality and Administrative Services both followed with an increase of 2.8%.

JOB GAINS ACROSS NEARLY ALL INDUSTRIES
Source: California Employment Development Department, Analysis by Beacon Economics

Title	Jan-18	Jan-19	YTY	YTY %
Transportation, Warehousing & Utilities	652,200	675,500	23,300	3.6%
Mining and Logging	22,700	23,500	800	3.5%
Construction	841,700	870,200	28,500	3.4%
Professional, Scientific & Technical Services	1,265,300	1,301,700	36,400	2.9%
Administrative & Support & Waste Services	1,114,400	1,144,900	30,500	2.7%
Health Care & Social Assistance	2,324,700	2,380,700	56,000	2.4%
Information	541,700	552,200	10,500	1.9%
Educational Services	372,500	379,100	6,600	1.8%
Leisure & Hospitality	1,972,900	2,006,100	33,200	1.7%
Total Nonfarm	**17,058,800**	**17,305,200**	**246,400**	**1.4%**
Manufacturing	1,317,500	1,333,600	16,100	1.2%
Real Estate & Rental & Leasing	290,900	294,300	3,400	1.2%
Government	2,584,500	2,603,800	19,300	0.7%
Management of Companies & Enterprises	252,900	254,200	1,300	0.5%
Other Services	569,400	572,300	2,900	0.5%
Wholesale Trade	699,700	697,000	-2,700	-0.4%
Retail Trade	1,689,600	1,677,000	-12,600	-0.7%
Finance & Insurance	546,200	539,100	-7,100	-1.3%

Three industries in the state shed jobs in year-to-year terms, for a total of just over 22,000 positions lost. This includes a loss of 12,600 jobs in Retail Trade, which continues to transform itself in response to the realities of a multi-channel marketplace. Still, January's job losses are small relative to California's 17.3 million wage and salary jobs, accounting for 0.1% of all jobs in the state.

Consistent with an unemployment rate that has been low on a sustained basis, paychecks have been on the rise. Average hourly earnings in California rose 4.8% year-to-year in January 2019, following a 5.5% gain in December. By comparison, hourly wages have risen by just over 4% nationally.

In all, job gains in California continue across a wide array of sectors, including external income-generating industries such as technology, transportation, manufacturing, and tourism, each of which also contribute to the state's foreign trade picture. These industries have been challenged over the past year by uncertainty surrounding the Trump Administration's trade policies, as well as a strong dollar, and yet, the state's merchandise exports rose by 3.8% in 2018. Over the same period, imports were little changed (up 0.1%), fueled by income growth that has also supported increases in local population-serving industries such as health care, education, and food and bar establishments.

In the public sector, Government sector jobs continue to grow in number, with most of the 19,300 positions added in January appearing at the Local Government level. The state added jobs as well, but Federal job counts continue to edge down. In Sacramento, the state budget is expected to rack up another surplus in fiscal year 2019 as California's rainy day fund continues to grow.

Looking across the state, every region began the year with increases in wage and salary jobs. In absolute terms and percentage terms, California was led by San Francisco (MD), with a 3.8% year-to-year gain in January 2019, equivalent to 42,600 jobs added. Fresno County (3.2%), Monterey County (2.8%), and Santa Barbara County (2.8%) followed in terms of percentage gains, while large absolute job gains occurred in most Southern California counties, Sacramento, and San Jose.

Housing Requires Both A Sense Of Urgency And Patience

Despite sustained growth in the California economy, the housing market struggled in 2018, with weakness carrying into early 2019. Statewide, existing home sales fell by 12.6% from January 2018 to January 2019 while the median home price increased just 2.1% to $539,000, according to the California Association of Realtors. The sharp drop in sales in January has triggered concern about this year's housing market outlook, but January's closed sales figures reflect conditions in the market in November and December when these sales were initiated. The 30-year fixed mortgage rate hit nearly 5% in mid-November, the highest in years, but has since retreated below 4.5%. Given recent increases in the state's supply of homes, and assuming rates hold steady in the next few months, the peak season of 2019 could be better than many expect.

Looking beyond the near-term performance of the housing market, California's newly elected governor, Gavin Newsom, and the state legislature have focused directly on the state's chronic housing shortage, a problem that has been growing in magnitude for many years. In broad terms, given recent population growth, California should have been building about 200,000 new housing units each year for several years running. However, just 115,000 units were built last year, and even fewer earlier in the decade.

At stake is California's economic future, which is increasingly jeopardized by the high cost of housing. But while Sacramento is searching for solutions to this stubborn problem, it must also face the reality that land use decisions, such as those related to new housing, have historically been under the purview of local officials and local zoning regulations.

According to state law, local jurisdictions are required to plan for their housing needs over time. The so-called Regional Housing Needs Assessment, or RHNA, is a framework for establishing housing needs from the state down to the community. But because there are no enforcement mechanisms behind RHNA, jurisdictions can simply pay lip service to their stated RHNA housing goals or ignore them altogether.

Governor Newsom has taken an aggressive approach to the problem thus far, with a carrot and a stick. On the one hand, he would like to offer incentives to cities to build more housing, while on the other hand, he has threatened to withhold transportation funds from those who do not. He has also sued cities for failing to comply with RNHA requirements.

There is no doubt that California needs more housing – more housing of all types: multi-family as well as single-family, affordable as well as market-rate units. And the urgency to deal with this problem has never been greater. Still, there are good reasons to pursue the situation with both a sense of urgency and a heavy dose of patience.

A truly comprehensive solution to California's housing problem involves more than just finding vacant sites and putting "sticks" in the ground. Residents have deeply-seated and long-held attitudes about their neighborhoods, and very often do not want anyone changing their corner of the world. At the same time, local jurisdictions and their elected officials find themselves in a quandary. Many local leaders want their cities to grow, but the structure of state and local taxes discourages residential development, which adds little to government coffers but imposes public service costs on local government. In California, there are often greater fiscal benefits from other land uses that directly or indirectly generate taxable sales and other revenue streams for a city's general fund. And, at present, building industry constraints pose yet another complication. With California's economy at full employment, construction labor is expensive and limited in availability, while other construction inputs like lumber and so on are likewise scarce and costly to acquire.

It has taken a long time to get to where we are now with the state's housing shortage, and it won't be solved overnight. State and local officials along with other stakeholders must be willing to examine all the dimensions of the housing problem if they want to craft long run solutions that work. This means looking at the tax code, zoning, permitting processes, and even CEQA, while also recognizing that changing residents' attitudes may be the most difficult nut to crack. The sooner stakeholders embark on this path – which requires a thoughtful dialogue on the importance of housing to the state, its residents, and its economy – the better for California's communities.

San Jose State University

Overview

The South Bay can look back on 2018 as fantastic from an economic standpoint. Employment growth was one of the highest not only in the region but throughout California. The unemployment rate has remained in record low territory, despite moderate growth in the labor force — a sign of the large demand for workers in the region. This demand is further reflected in the strong growth in annual average wages that are some of the highest in California.

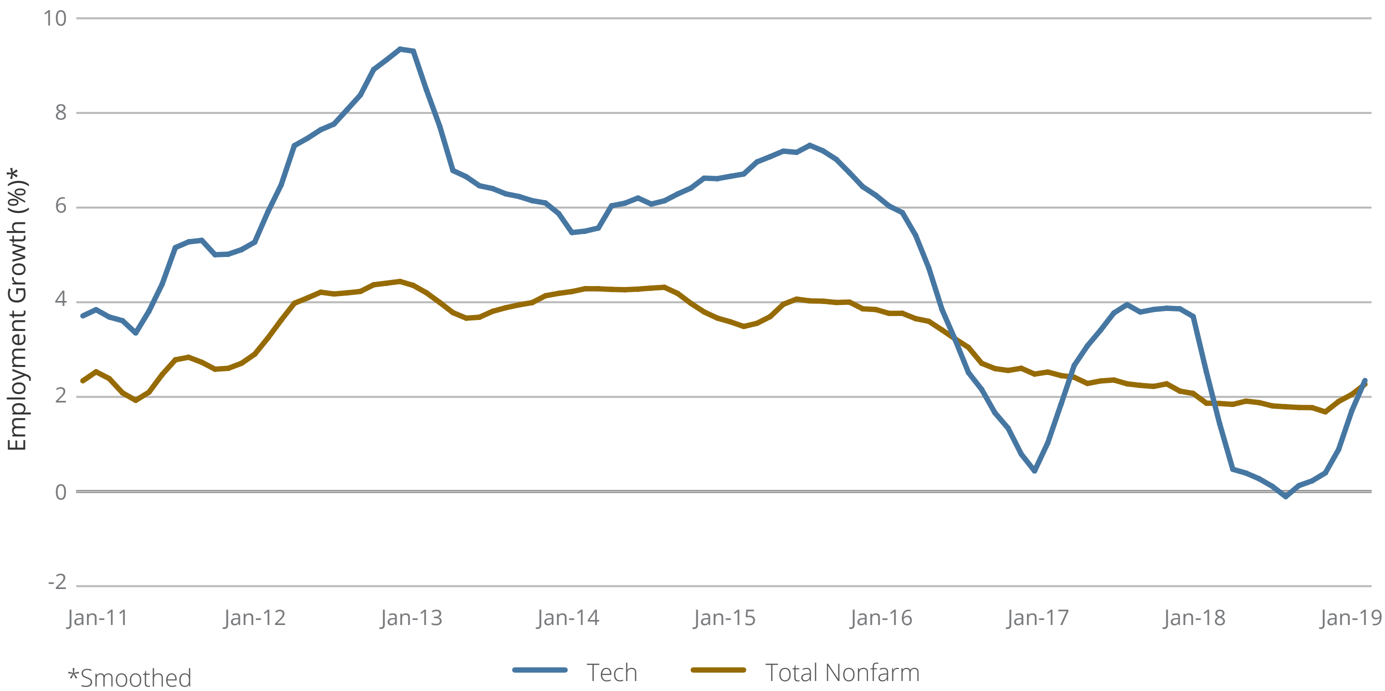
Although the South Bay has plenty to boast about, the region shares some concerns with the vast majority of California. A housing shortage has driven up home prices considerably and made housing unaffordable to many would-be homeowners. These concerns have led many to rely on commuting to work in the South Bay, straining already congested traffic. Because demand for tech workers and high-skilled labor is expected to continue, the region will need to bolster its supply of housing.

Employment

From January 2018 to January 2019, total nonfarm employment in the South Bay grew 2.4%, outpacing every major Southern California metro area, the East Bay (1.3%) and California (1.4%). The 26,200 added jobs helped keep the unemployment rate unchanged on a year-over-year basis at 2.9%. Meanwhile, the South Bay's labor force grew 3.1% in the period, the largest year-over-year increase since October 2014's 3.4%. This suggests that in 2018, the labor market absorbed labor force increases, which wasn't quite the case in other parts of the State. Household employment, the measure of South Bay residents who work there or elsewhere, grew an impressive 3.1% from January 2018 to January 2019. Subdued household employment growth has been the motif of the last few years, but growth accelerated in 2018 amid a slowdown in South Bay home prices and a disproportionate appreciation in housing costs in San Francisco and along the peninsula.

Despite a relatively slow year for Professional, Scientific and Technical Services employment, the industry managed to grow 2.5%, adding 3,900 jobs, year over year. Despite reaching 158,500 total industry jobs, this sector in all but the first two months of 2018 — which did have strong gains — expanded little from the previous year, even declining in July and September. Meanwhile, from January 2018 to January 2019, Professional, Scientific, and Technical Services in the San Francisco Metropolitan Division (MD) grew 7.1% (13,200 jobs). Professional, Scientific, and Technical Services in San Francisco is on the cusp of reaching 200,000 total industry employment, about 17% of total nonfarm payrolls in the region.

TECH VS TOTAL NONFARM PAYROLLS IN THE REGION
South Bay, Jan-2011 to Jan-2019
Source: California Employment Development Department, Analysis by Beacon Economics



Among the strongest-performing sectors in the South Bay has been Information[1]. From January 2018 to January 2019, the sector added 9,100 jobs, a pace of 10.4%. In January 2018, the sector expanded 10.7% from the same month the year before. With its consistent robust growth in all but a few months of the current decade, it is hard to imagine this sector slowing down any time soon. Within Information, as of the third quarter of 2018, the Other Information Services subsector constituted 54.8% of total sector employment. Other Information Services is a broad category that includes Google, online news outlets and internet publishing and broadcasting companies[2]. Recently, non-internet broadcasting and publishing employment in the South Bay has grown robustly; as of the third quarter of 2018, the two Information subsectors were expanding 25.9% and 9.3% respectively, year over year. Also, the Data Processing Services subsector grew 10.4% over the period.

[1] Arts and Entertainment, part of Leisure and Hospitality, grew 18.1%, the most in percentage point terms over the period (January 2018 to January 2019), though this was probably because of odd seasonality and therefore likely to be revised down in the future.
[2] U.S. Bureau of Labor Statistics (2019, March 15): Other Information Services: NAICS 519. Retrieved March 19, 2019

TOTAL INDUSTRY EMPLOYMENT
South Bay, Jan-2019
Source: California Employment Development Department, Analysis by Beacon Economics

Industry	Employment, Jan-2019 (000s)	Percent Change, Jan-2018 to Jan-2019	Absolute Change, Jan-2018 to Jan-2019, (000s)
Total Nonfarm	1,139.2	2.4	26.2
Information	96.6	10.4	9.1
Transport/Warehouse	14.8	9.4	1.3
Financial Activities	38.4	5	1.8
Manufacturing	175.1	3.8	6.4
Non-Durable Goods	13.8	4.4	0.6
Durable Goods	161.3	3.8	5.8
Admin Support	64.4	2.8	1.8
Professional, Scientific and Tech	158.5	2.5	3.9
Health Care	126.2	2.3	2.8
Leisure and Hospitality	106.5	2.3	2.3
Educational Services	47.7	0.9	0.4
Government	96.6	0.7	0.6
Retail Trade	86.6	0.6	0.5
NR/Mining	0.2	-0.8	0
Management	18.9	-0.8	-0.1
Other Services	28.4	-0.9	-0.3
Wholesale Trade	31.4	-3	-1
Construction	47.2	-6.4	-3.2
Utilities	1.6	-11.2	-0.2

Another industry important to the South Bay is Durable Goods Manufacturing. From January 2018 to January 2019, the sector expanded in absolute terms by 5,800 jobs (3.8%) to 155,400 total sector employment, which was considerable growth — second only to Information. As of the third quarter of 2018, the Computer and Electronic Product Manufacturing subsector made up 68.6% of Durable Goods employment, and grew 4.9% from the third quarter of 2017 to the third quarter of 2018.

South Bay's Logistics sector, formally known as Transport/Warehouse, also had significant growth in percentage terms; the sector grew 9.4%, adding 1,300 jobs from January 2018 to January 2019, which is considerable given its small size.

From January 2018 to January 2019, the Utilities and Construction sectors sustained the largest contractions in percentage terms, declining 11.2% (210 job losses) and 6.4% (3,200 losses) respectively. Clearly, however, the South Bay's employment gains made up for the job losses in these industries.

Wages

From the third quarter of 2017 to the third quarter of 2018, the average annual wage in the South Bay increased 6.2%, to $126,700. Among the sectors in the South Bay, Management had the largest growth in wages, increasing 14.0%, to $245,800. The story for the labor market for 2018 was that it was tight, justifying the large wage increases there and in surrounding regions. It was reassuring to observe sizable wage increases in lower-earning sectors like Leisure and Hospitality, where wages grew 8.3%, to $31,700. In Retail Trade and Other Services, average annual wages increased 7.3%, to $48,600, and 6.2%, to $44,600 respectively. Notwithstanding the presumed transitory slowdown in home prices, if the South Bay housing market is going to sustain price increases, wages in lower-earning sectors must increase. Combined, these three sectors make up nearly 20% of the South Bay's employment base, and their operations form the backbone of the local economy. The question is, where are employees in these sectors going to live if they can't make it in the South Bay? Reason would point to their living long distances from the workplace. This could lead to abject commuting patterns and a sharp decline in quality of life. Currently, sectors earning above the average annual wage are Information ($306,800), Management ($245,800), Manufacturing ($193,800), Professional, Scientific and Technical ($182,100), Finance and Insurance ($156,900) and Wholesale Trade ($129,600). Although the concentration of high-skilled workers in the South Bay is a sign of a formidable workforce, the logistics surrounding low-skilled work will need to be addressed at some point.

From the third quarter of 2017 to the third quarter of 2018, Admin Support and Real Estate had the only wage contractions in the South Bay. Unfortunately, the declines were significant; average annual wages in Admin Support fell 9.2%, to $60,586, and wages in Real Estate fell 5.6%, to $80,725.

Local Spending

The expansion of the workforce combined with increases in overall earnings has positively affected consumer and business spending throughout the South Bay. In 2018, the South Bay collected $46.9 billion in taxable sales, an increase of $2.8 billion from 2017 with year-over-year growth of 6.5%. San Jose's growth rate was higher than both California's (5.2%) and San Francisco's (4.3%) growth, but fell slightly short of the East Bay's (7.3%).

Sales tax receipt data from 2017 to 2018 reveal the breakdown in revenue by industry/sector. Sales tax revenue for the San Jose region totaled $463 million in 2018, a 4.7% increase from the previous year. The largest portion of sales tax revenue came from Business and Industry spending, which accounted for $109 million, or 23.5% of total sales tax revenue. However, percentage growth in Business and Industry was the slowest for the South Bay from 2017 to 2018, with a 0.5% increase. Business and Industry growth in sales tax revenue picked up only slightly in 2018 compared with the growth from 2016 to 2017, when yearly totals fell 1.2%.

The largest percentage growth in the region came from Fuel and Service Stations: 11.5% from 2017 to 2018, reaching $25.8 million in sales tax revenue. Autos and Transportations also had a good year, growing 9.3% from 2017 to 2018 to reach $66.5 million. Building and Construction reflected the strong demand for supply in the region, with a growth of 5.4%, to $34.5 million. General Consumer Goods, the South Bay's second-largest category for sales tax revenue, posted moderate 1.4% growth from 2017 to 2018, reaching $78.2 million.

SALES TAX REVENUE BY CATEGORY
South Bay, 2018
Source: HdL, Analysis by Beacon Economics

Category	2018 Annual Sales Tax Revenue (Millions)	Year over Year % Growth
Total	$462.6	4.7
Business & Industry	$108.5	0.5
General Consumer Goods	$78.2	1.4
Autos & Transportation	$66.5	9.3
Restaurants & Hotels	$54.3	2.8
Building & Construction	$34.5	5.4
Fuel & Service Stations	$25.8	11.5
Food & Drugs	$17.5	1.1

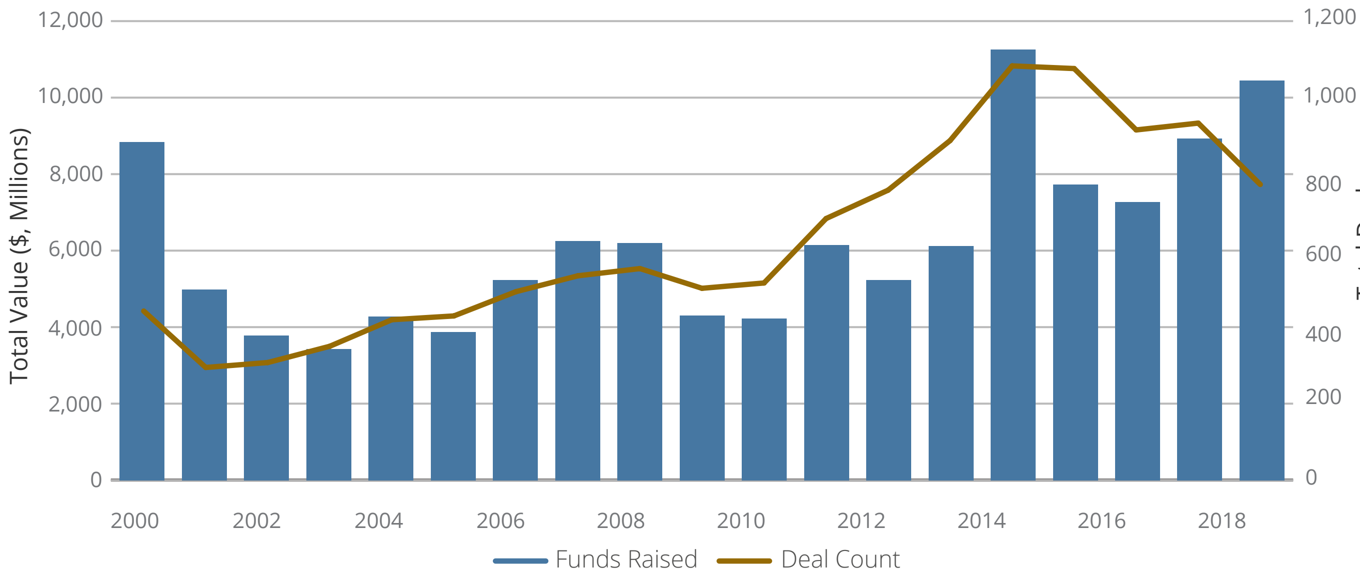
Venture Capital

Venture capital has a rich history in the South Bay. When promising firms have procured the funds needed to operate, they have been able to hire more high-skilled workers, which has in turn attracted more high-skilled work to the region and fueled demand in the entire local economy. There is no doubt that venture capital has had a disproportionate effect in the Bay Area, for it is there that the world is observing a master class in technological innovation and economic prosperity.

Year in Review

Venture capital in the South Bay totaled $10.4 billion in 2018, the most since 2014's $11.2 billion and considerably more than 2017's $8.9 billion. Last year, the South Bay had 19.9% of the Bay Area's total venture capital and 16.5% of California's. For the South Bay, this is a decline, partly due to the immense value and number of deals elsewhere in the Bay Area, primarily San Francisco but also in San Mateo County and the East Bay. San Francisco had the largest deals, as Lyft, Uber and Juul Labs combined to procure over $4.7 billion. In 2018, venture capital funds in San Francisco totaled $24.8 billion, 39.2% of total California venture capital. In San Mateo County, which pulled in over $11.2 billion in venture capital in 2018, the largest deal was valued at $865.0 million, executed by construction technology firm Katerra. Across the Bay, the East Bay's two largest deals on record were in 2018, to CleanTech firm Farasis Energy at $790.0 million, and Healthcare Technology company Zymergen at $406.5 million. The South Bay's largest deals in 2018 went to DNA analysis firm 23 and Me and to Automation Software firm Automation Anywhere, both at $300.0 million. The South Bay's second-largest 2018 deal went to San Jose database software firm Cohesity at $250.0 million. What's interesting about the South Bay is that in 2018, the region had many deals of relatively moderate size; and although the deal count has been trending downward since 2015, venture capital funds have been trending upward, signaling that the region is still at the center of the nation's entrepreneurial spirit and driving the hottest industry.

VENTURE CAPITAL
South Bay, 2000 to 2018
Source: Pitchbook, Analysis by Beacon Economics



TOP 10 VENTURE CAPITAL DEALS
South Bay, 2018
Source: PitchBook, Analysis by Beacon Economics

Company	Date	Deal Size ($, Millions)	Key Vertical	HQ Location
23 and Me	31-Dec	300.0	Life Science	Mountain View
Automation Anywhere	26-Nov	300.0	A.I.	San Jose
Cohesity	11-Jun	250.0	SaaS	San Jose
Automation Anywhere	15-Nov	250.0	A.I.	San Jose
ChargePoint	28-Nov	240.0	CleanTeach	Campbell
CrowdStrike	21-Jun	200.0	A.I.	SunnyVale
Quanergy	30-Oct	175.0	A.I.	SunnyVale
Netskope	13-Nov	167.8	Cybersecurity	Santa Clara
JFrog	4-Oct	165.0	SaaS	SunnyVale
TripActions	8-Nov	154.0	TMT	Palo Alto

More recently, investment activity indicates that 2019 is off to a historic start in the South Bay. The largest deal through February 2019 went to Mountain View automotive/A.I. firm Nuro, valued at an immense $940 million; this is the South Bay's largest deal on record, surpassing the $880 million Palantir Technologies deal from 2016. Nuro is pioneering a self-driving, goods-delivery vehicle , and its pilot program is currently live in Arizona. Another automotive/A.I. firm, Aurora, currently claims the South Bay's second-largest deal of 2019 and the region's seventh-largest deal on record at $530 million. The massive deals of late show that the region's commerce remains the first choice for investors around the world.

TOP 5 VENTURE CAPITAL DEALS
South Bay, Year-to-Date*
Source: PitchBook, Analysis by Beacon Economics

Company	Date	Deal Size ($, Millions)	Key Vertical	HQ Location
Nuro	11-Feb	940.0	A.I.	Mountain View
Aurora (Automotive)	07-Feb	530.0	A.I.	Palo Alto
BridgeBio	23-Jan	299.2	Life Sciences	Palo Alto
Rubrik	15-Jan	261.0	Big Data	Palo Alto
Confluent	23-Jan	125.0	Big Data	Palo Alto

*Through February 2019

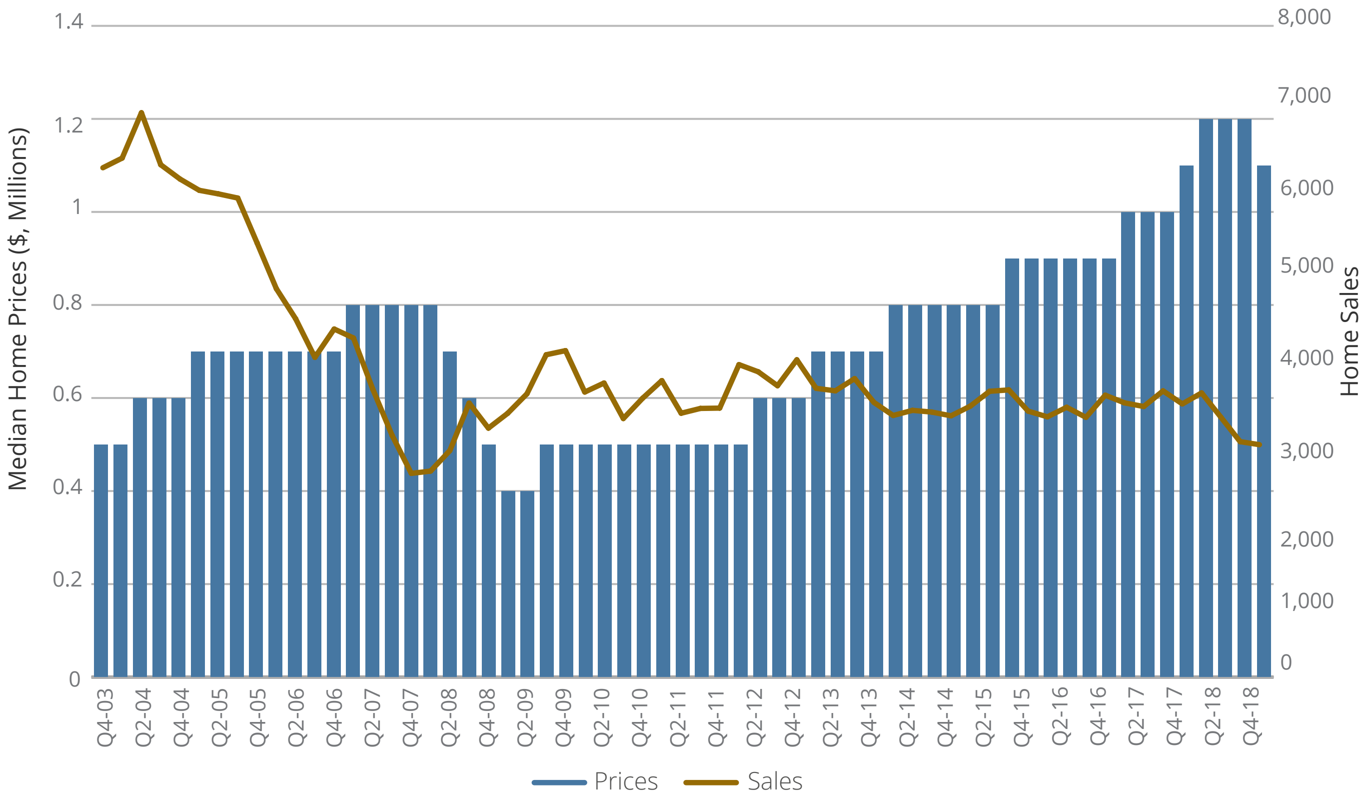
Residential Real Estate

California's housing market has become a cycle of increased demand facing limited supply. Employment and wage increases have increased the desire to buy houses — but lack of adequate supply has suppressed some of that demand. The situation is the same in the South Bay, and with the region constantly topping the lists of most expensive homes in the state, the issue of affordability is notable.

In 2018, the South Bay's home values reached unprecedent levels, with the median price reaching $1.15 million as of the fourth quarter. But growth has slowed considerably. From the fourth quarter of 2017 to the fourth quarter of 2018, the median price grew 0.5%, the lowest rate since 2012. Nonetheless, compared with a decade ago, home prices have accelerated significantly. Current home prices have become almost three times higher than the lowest median home price after the Great Recession. Comparatively, San Francisco's median home price is higher at $1.4 million, but the East Bay's home values remained lower at $733,000. However, both regions' prices grew faster, with San Francisco at 4.7% and Oakland at 4.5%.

[3] https://nuro.ai/product

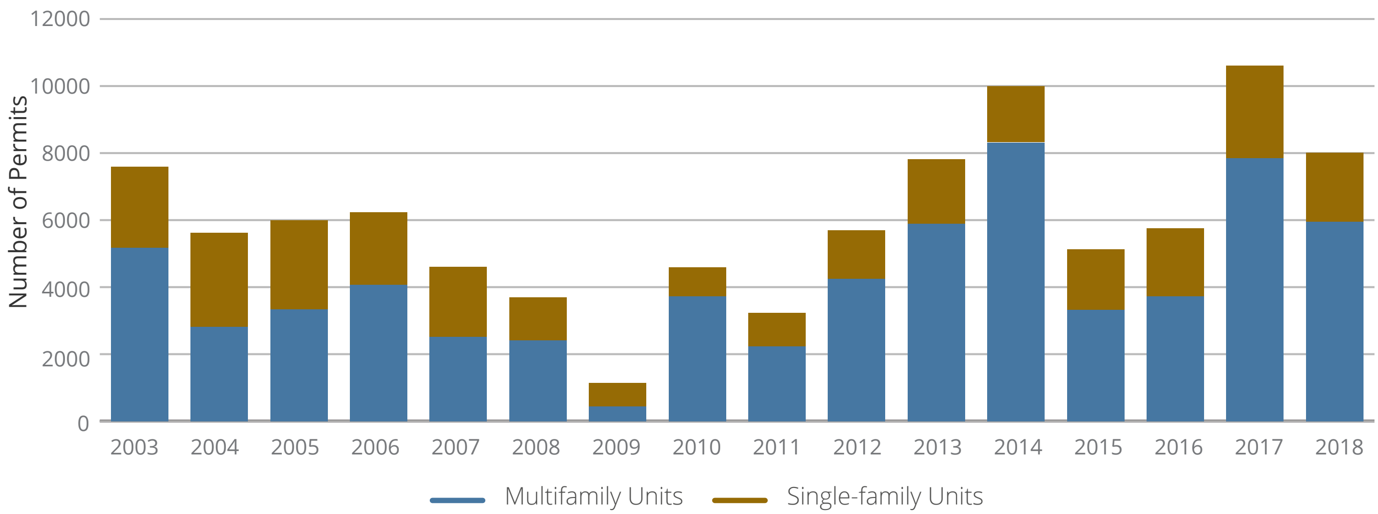
HOME PRICES AND SALES
South Bay, 4Q-2003 to 4Q-2018
Source: DataQuick, Analysis by Beacon Economics



Home sales have been affected noticeably by the record prices in the South Bay. Home sales in 2018 totaled 12,400 in the South Bay, down 8.4% from 2017. Limited supply is the key issue here; inventory is the lowest since 2008. Home sales in the South Bay fell slightly more than in San Francisco and the East Bay, where sales dropped 5.1% and 5.2% respectively from 2017 to 2018.

So, what is slowing home sales and shooting up prices? Simply put, inadequate construction levels Total annual permits dropped 24.5% between 2017 and 2018, affecting both single-family and multifamily housing. Single family, which accounts for almost 75% of total permits, fell from 7,850 to 5,940, a 24.3% drop. Multifamily permitting fell 25% from 2017 to 2018, with around 2,000 permits issued last year. The South Bay fell behind its neighbors considerably in permitting and residential construction. San Francisco MD's total permits increased 6.5% from 2017 to 2018, while the East Bay's rose 7.3%. The East Bay also had more permits issued than the South Bay — 10,945 compared with just over 8,000.

RESIDENTIAL PERMITS
South Bay, 2003 to 2018
Source: CIRB, Analysis by Beacon Economics



The months of housing supply (the amount of time for inventory to be exhausted at the current rate of sales should there be no further construction) has become very low in certain areas of the South Bay. In San Benito County, the rate has dropped to 3.1, lower than the statewide rate of 3.5 months. Santa Clara County's rate of 1.8 reflects one of the lowest inventories in the State.

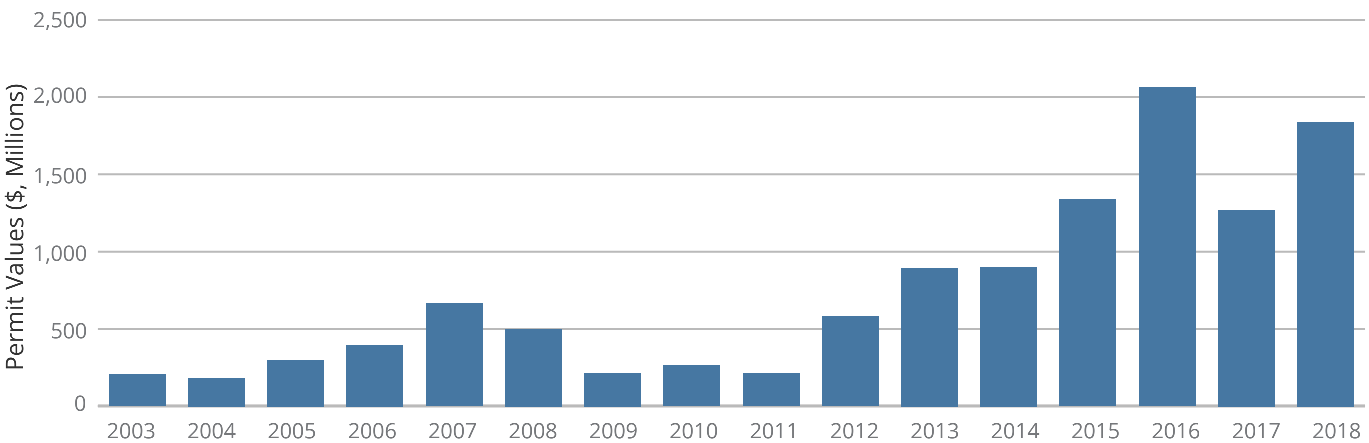
The lack of multifamily permits has exerted pressure on the rental market. Cost of rent in the South Bay increased 4.8% from the fourth quarter of 2017 to the fourth quarter of 2018. Vacancy rates, meanwhile, dropped 0.2 percentage point — an indication that demand remains high despite the increase in cost. The South Bay's cost of rent has grown faster than both the East Bay (4.1%) and San Francisco (2.6%). At a cost of $2,680 per month, the South Bay remains more affordable than rent values in San Francisco ($3,130), but more expensive than the East Bay ($2,250).

Nonresidential Real Estate

Despite the South Bay's residential market's slow year for permits, 2018 was beneficial for nonresidential construction. Office and hotel businesses were booming over the past year. Total commercial permit valuations increased significantly following a slow 2017, while vacancy rates and costs of rent indicated notable demand.

From 2017 to 2018, the value of commercial permits increased to $1.8 billion, a 44.6% increase. Office permits accounted for more than half, at $934 million, growing a whopping 253.7% from 2017. The South Bay's dominance in commercial real estate is noticeable compared with neighboring areas. San Francisco's commercial permits fell 6.9% from 2017, while the East Bay's valuation increased 10.4%. The South Bay falls between the East Bay ($0.6 billion) and San Francisco ($2.0 billion) in terms of actual permit values. Recently, significant sums have paid out for nonresidential space in the South Bay. Roche paid $140.5 million for offices in Central Campus, a massive deal for a five-building complex[4]. Another major transaction was Google's purchase of two large office buildings in northern San Jose for roughly $154.5 million in October 2018[5]. These key developments reaffirm the South Bay's leadership in attracting tech giants and large firms.

COMMERCIAL PERMIT VALUATIONS
South Bay, 2003 to 2018
Source: CIRB, Analysis by Beacon Economics



Commercial and office permits were not the only nonresidential areas of construction to increase in 2018. Hotel permitting valuation has risen considerably in recent years. In 2018, hotel permit values reached $278 million, by far the highest figure on record, surpassing the previous year's value of $144 million. The change in hotel demand and infrastructure is quite remarkable for the South Bay. From 2011 to 2014, the annual average hotel permit valuation was $28.7 million. In contrast, the value of permits rose to $140 million from 2015 to 2018. These developments have made the South Bay one of the highest-rated markets in the country for hotels[6].

Rents and vacancies have responded accordingly to the recent boom in the nonresidential market. From the fourth quarter of 2017 to the fourth quarter of 2018, cost of rent for office space increased from $43.2 to $45.4 per square foot, an increase of 5.0%. Vacancy rates in the South Bay also dropped as a result of increased demand, falling 0.8 percentage point to 17.6%. The South Bay had the highest rent growth of any neighboring region, outpacing both the East Bay (3.4%) and San Francisco (3.2%). Although demand is increasing in the South Bay, vacancy rates remain lower in the East Bay (15.1%) and San Francisco (9.0%). Meanwhile, cost of space for Retail reached $37.8 per square foot in the East Bay, more expensive than the East Bay ($31.5/square foot) and San Francisco ($37.7/square foot). Despite already being more expensive, cost of rent in the South Bay outpaced both San Francisco (2.9%) and the East Bay (1.0%) at 4.1%. Retail in the South Bay remains more constrained, with a vacancy rate of 5.5%, lower than the East Bay's 7.4% but slightly higher than San Francisco's 3.2%.

[4] Avalos, George. "Roche Unit Buys Big Santa Clara Office Campus with Expansion Space." The Mercury News. Feb. 28, 2019.
[5] Bizjournals.com. Oct. 31, 2018. "Google spends $155M on large North San Jose office buildings." Silicon Valley Business Journal.
[6] Ford, JP, Bruce Ford, and Tom O'Gorman. "Lodging Econometrics — The U.S. Hotel Construction Pipeline." Hotel Business. Feb. 12, 2019

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