

Santa Clara County Regional Intelligence Report

Produced by Beacon Economics, LLC

San José State University Economic Summit

THURSDAY, JUNE 2, 2022
VIRTUAL EVENT
8:15 – 10:00am

CONFIRMED PANELISTS

Alan Cohen
Partner, DCVC

Christopher Thornberg
Founding Partner, Beacon Economics

A panel of notable experts will forecast and explore Silicon Valley's economic landscape and discuss how this may impact your business.

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SOUTH BAY REGIONAL INTELLIGENCE REPORT

MAY 2022



ABOUT BEACON ECONOMICS

Founded in 2007, Beacon Economics, an LLC and certified Small Business Enterprise with the state of California, is an independent research and consulting firm dedicated to delivering accurate, insightful, and objectively based economic analysis. Employing unique proprietary models, vast databases, and sophisticated data processing, the company's specialized practice areas include sustainable growth and development, real estate market analysis, economic forecasting, industry analysis, economic policy analysis, and economic impact studies. Beacon Economics equips its clients with the data and analysis required to understand the significance of on-the-ground realities and to make informed business and policy decisions. Learn more at www.BeaconEcon.com

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UNITED STATES OUTLOOK

Spring 2022

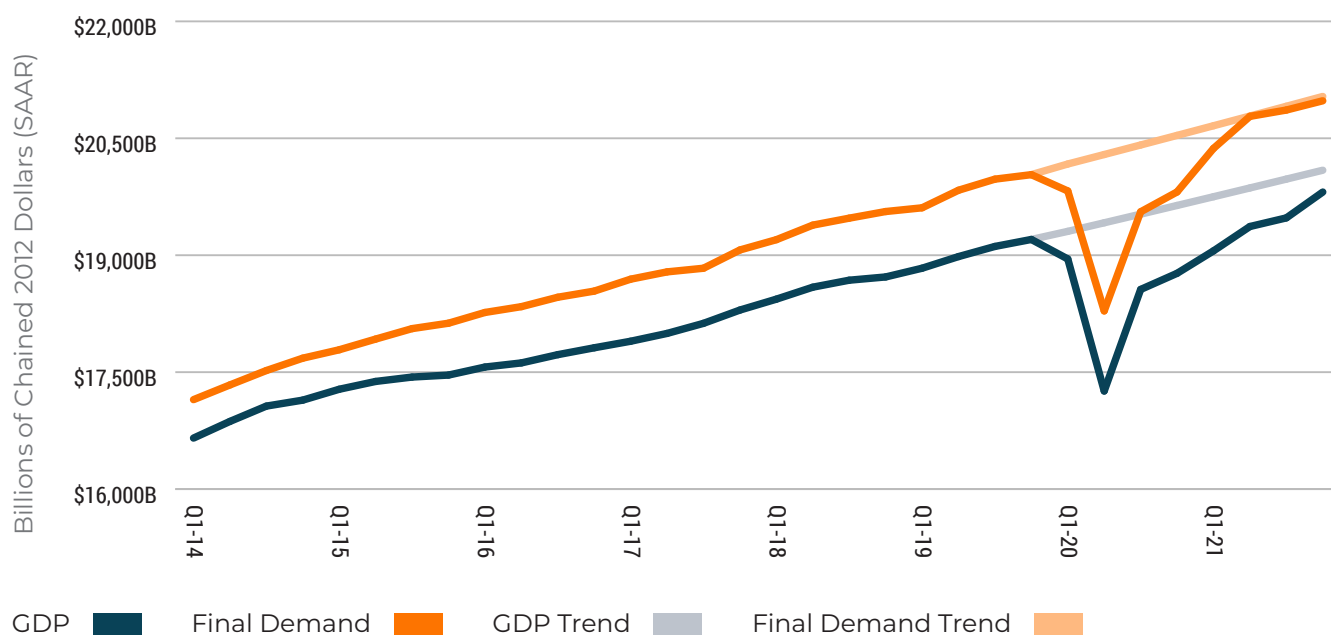
Christopher Thornberg PhD

AN OVERHEATING ECONOMY

The pandemic-driven business cycle ended in the last half of 2021, when levels of aggregate consumption reached long run trend and unemployment dropped below 4% in the United States—all in less than two years (comparatively, the Great Recession took a full nine years from beginning to end). As Beacon Economics anticipated near the beginning of the crisis, it was a ‘V-shaped’ cycle, a deep decline followed by a rapid recovery. And that cycle is now complete.

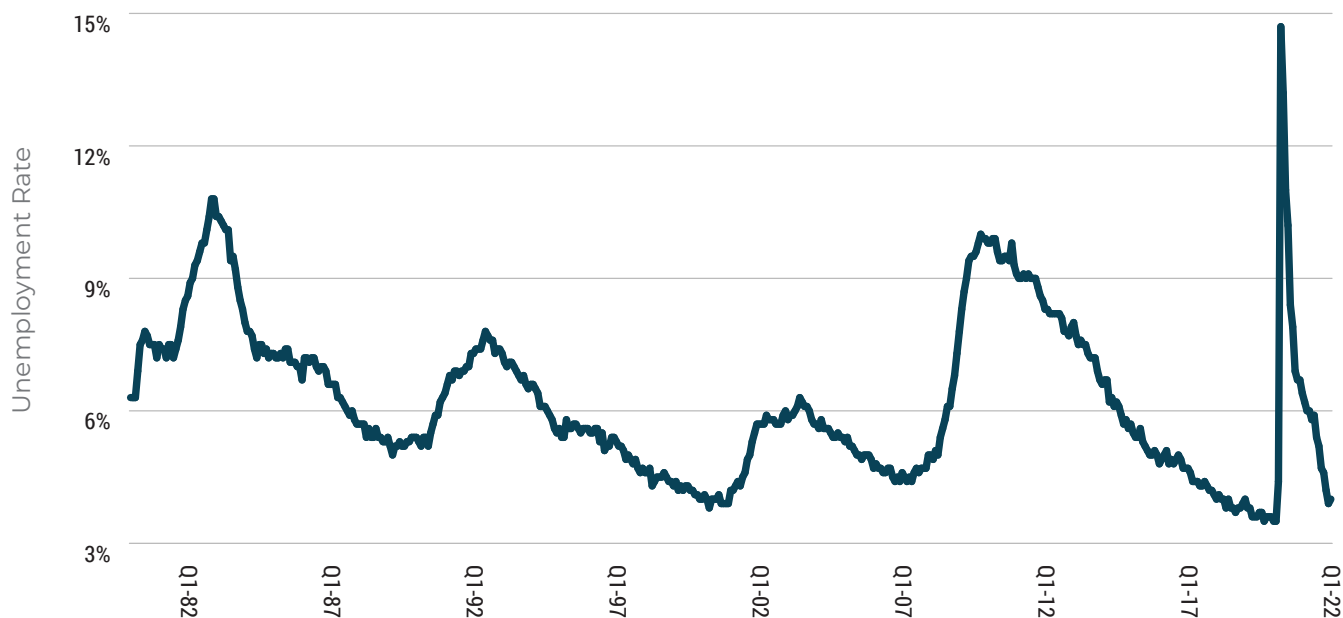
Still, as far as business cycles go, this was truly unique—the recessionary decline was the deepest in U.S. history, and the shortest. The recovery was amazingly fast, with some of the fastest declines in unemployment ever experienced. Why so different? This recession was supply-shock driven, without the typical longer-term consequences that come from, for example, an asset bubble collapse that drives a demand shock, which is what powered the Great Recession. Rather than forcing an economy to reshape itself after years of subprime driven mal-growth, this downturn simply saw a portion of the economy temporarily closed off as the world waited out COVID-19. Moreover, much of the rest of the economy benefitted from the shift in spending away from services affected by the restrictions to other things.

U.S. REAL GDP AND FINAL DEMAND



Source: U.S. Bureau of Economic Analysis; Analysis by Beacon Economics

U.S. UNEMPLOYMENT RATE



Source: US Bureau of Labor Statistics; Analysis by Beacon Economics

Of course, monetary and fiscal stimulus also played a role in the strong recovery, both in guiding the nation through the first few weeks of (clearly unwarranted) financial panic, as well as supporting businesses and workers who were truly hard hit. But the scale of the intervention in the economy was vastly more than what was needed under the circumstances. This is evident by the simple fact that other developed nations have followed similar V-shaped recoveries despite thrusting significantly less stimulus into their economies. Economic growth has now slowed, but most countries had larger economies at the end of 2021 than they did in pre-pandemic 2019, and those that didn't were typically facing issues going into the pandemic. Despite the massive amount of Federal government stimulus, the United States doesn't stand out globally in its rapid V-shaped bounce.

GLOBAL ECONOMIC GROWTH (2017-2021)

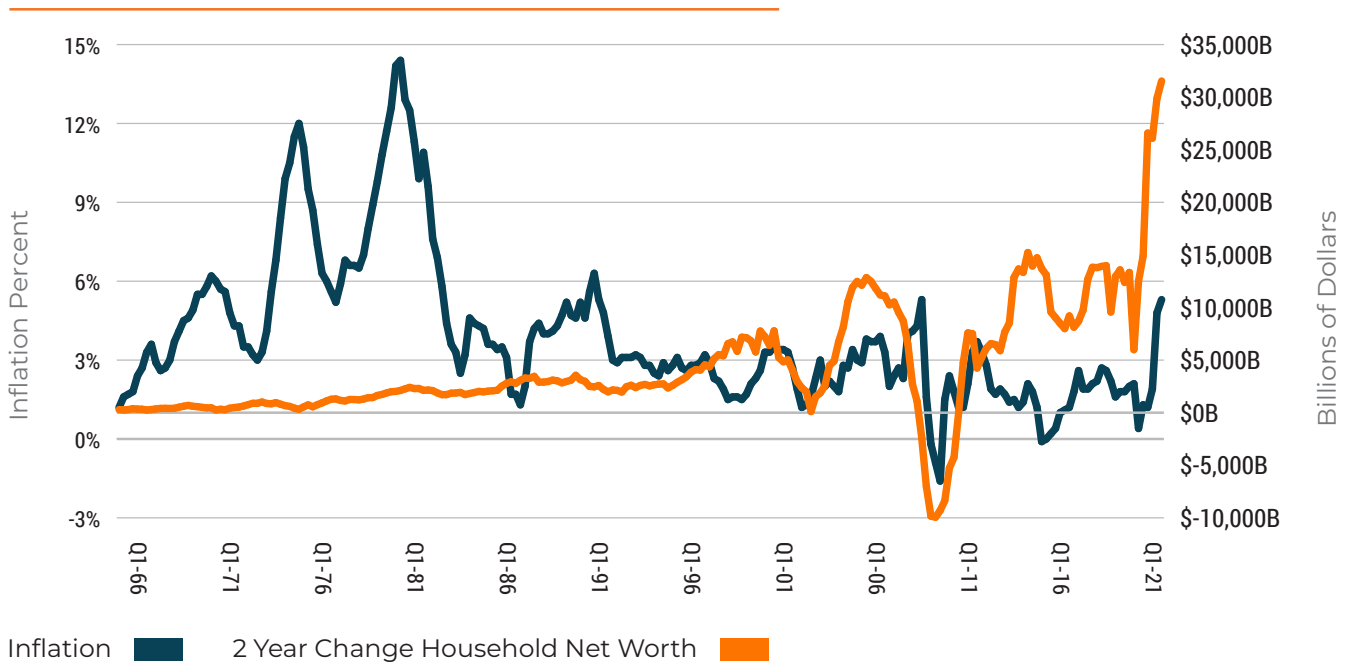
	Real Growth Q4-17—Q4-19	Real Growth Q4-19—Q4-21
Israel	12.3%	8.8%
Colombia	9.1%	6.9%
Lithuania	13.1%	4.6%
Sweden	5.9%	3.9%
United States	6.5%	3.1%
Indonesia	9.2%	2.9%
Korea, Rep. of	7.8%	2.8%
Netherlands	5.7%	2.8%
Saudi Arabia	4.5%	2.7%
Finland	2.8%	2.1%
France	2.6%	0.9%
Romania	9.1%	0.6%
Euro Area	2.1%	0.0%
Japan	-3.6%	-0.2%
United Kingdom	1.6%	-0.4%
Italy	-0.8%	-0.5%
Austria	3.9%	-1.1%
Slovak Rep.	3.9%	-1.2%
Germany	0.2%	-1.5%
Mexico	-2.5%	-1.9%
Spain	-2.2%	-4.0%

Source: International Monetary Fund, International Financial Statistics
(note, only countries with available 4th quarter data are included)

This is because much of the excess stimulus passed straight through the consumer sector and went right into the financial sector. This happened in part because the pandemic's restrictions on activity hampered households' ability to spend the funds they received. If you can't spend it, invest it. A major share of this savings glut poured right into the financial markets. Checking account balances have soared, as have cash reserves in the business sector. The desire to earn returns on this excess cash is driving a bubble – from the stock market to real estate to venture capital to cryptocurrencies. The fundamentals, ranging from cap-rates to P/E ratios to the sheer quantity of VC funding, simply don't make sense.

And all this financial froth is paying rich dividends to U.S. households. According to data from the Federal Reserve's Flow of Funds, U.S. households were \$30 trillion richer at the end of 2021 than they were just two short years earlier. The buildup in wealth would typically drive even greater increases in spending, but these wealth gains are being stymied by supply chain problems and labor shortages. Money that isn't spent is being pushed right back into the financial markets causing asset prices to grow even more. Pent-up consumer demand is at the core of the highest pace of inflation seen in 40 years, currently 7% and likely to climb even higher in the coming months.

CHANGE IN U.S. HOUSEHOLD NET WORTH VS INFLATION, 1965–2021



Source: Board of Governors of the Federal Reserve System, U.S. Bureau of Labor Statistics; Analysis by Beacon Economics

In the meantime, the nation's Federal debt is piling up at a shocking pace—growing to over \$8.4 trillion in the last five years, \$5.5 trillion in just the last two. This is a 60% increase in Federal debt in only five years. At the same time, the debt-to-GDP ratio in the United States has increased from 94% to almost 120%. This rate of expansion would panic debt holders and lead to credit downgrades if it were a private company. And with even more spending increases in recent pending Federal budget acts, coupled with no moves to increase taxes, the nation's structural deficit is likely to approach or exceed \$1.2 trillion next year. With the current account deficit already at \$1 trillion, the so-called twin deficits come to 4% of GDP, which is a big warning sign for an economy. The only other time the United States ran deficits at this level or higher was during the runup to the Great Recession.

While supply chain issues are being blamed for inflation, it's likely that the trade deficit would be that much larger if these issues weren't hampering the pace of imports. But supply follows demand, and Beacon Economics has little doubt that the manufacturers of the world will catch up, implying that consumer spending will continue to grow at an excessive pace throughout most of 2022—fueling an overall economic growth surge. This will feel good in the short term, but eventually consumption will have to fall back in line with output.

Indeed, the standard reaction to news about inflation in the United States has been to worry about the harm being caused to U.S. consumers. In reality, it is excessive consumer demand that is driving inflationary pressures. This doesn't mean that there aren't individuals and families who are being hurt by inflation, there are, but in the reporting of these stories, we need to also explain that while this is true for a small fraction of American households, the average U.S. household is clearly on a spending binge. That demand is evident in the strong growth in overall consumer spending, which has been growing faster than U.S. GDP for 5 years running—with no slowing in sight. Looking at the history of periods when consumer spending grew faster than output, such as before the downturn in the stagflation 1970's and in the lead up to the Great Recession, it's clear that these episodes have always had ugly endings.

U.S. REAL CONSUMER SPENDING GROWTH – REAL GDP GROWTH (5 YEAR CUMULATIVE)

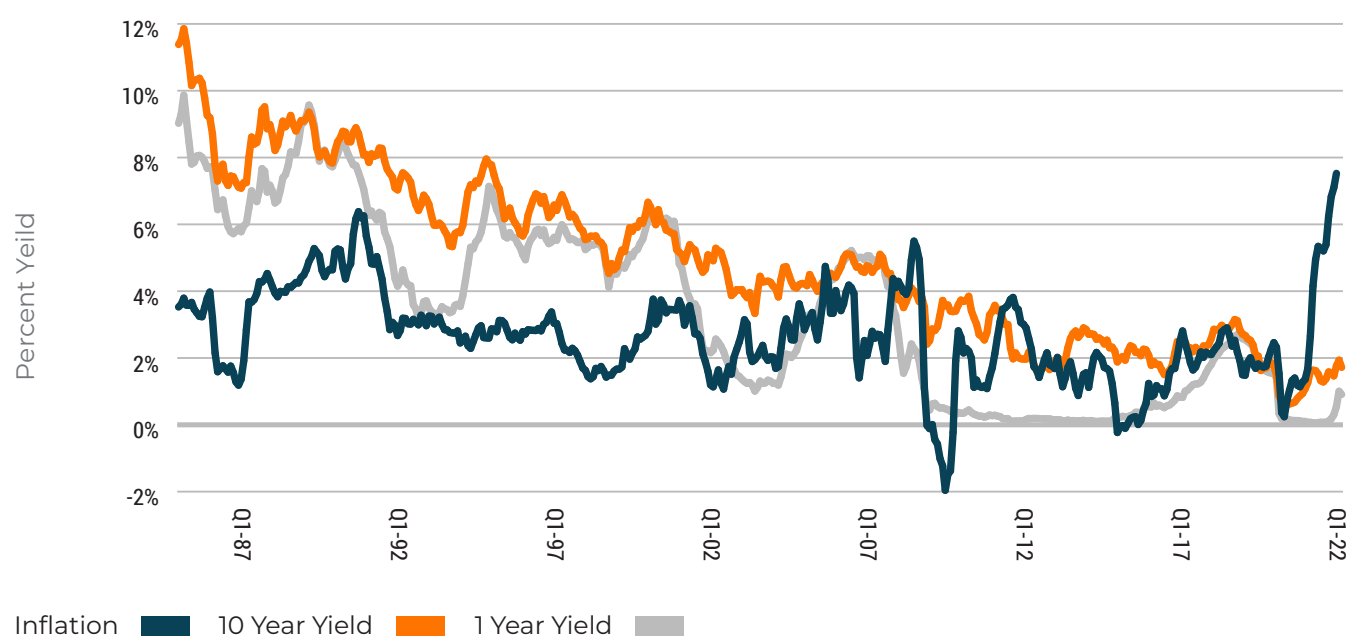


Source: U.S. Bureau of Economic Analysis; Analysis by Beacon Economics

BOND MARKETS UNCONCERNED... FOR NOW

Amazingly, despite all the signals, historic inflation, and a massive increase in public debt, the bond markets seem shockingly unconcerned. Inflation expectations have risen by only a modest amount, and it was only after the Fed signaled a rate hike did interest rates start to inch up. With inflation at 7%, a buyer of a 1-year treasury is clearly going to see a negative real rate of return, yet U.S. treasury auctions are regularly selling out.

U.S. INFLATION AND TREASURY YIELDS, 1965–2021

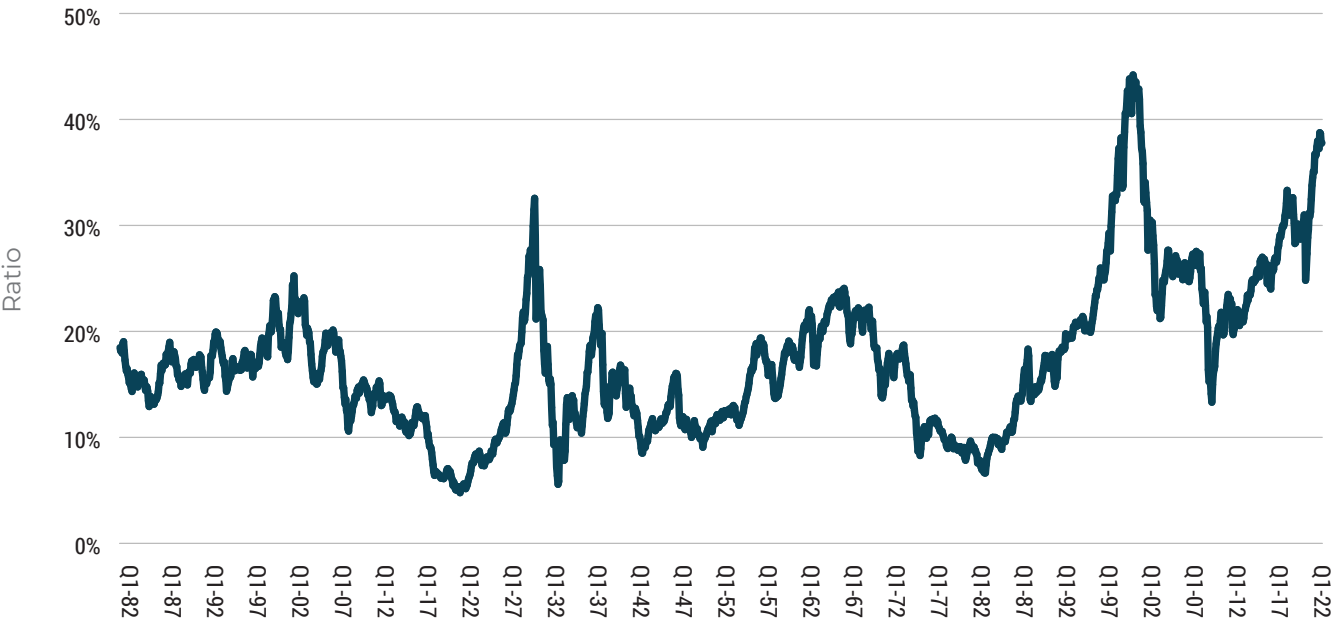


Source: Board of Governors of the Federal Reserve System, U.S. Bureau of Labor Statistics; Analysis by Beacon Economics

None of these trends are sustainable. It's only a matter of time before the markets fully recognize this, and when that happens, there will have to be a painful adjustment—how painful depends on just how warped the fundamentals become in the months, and maybe even years, ahead. For now, private sector debt growth remains steady and credit quality high, bank lending and most bond markets seem similarly restrained (outside of their pricing), and levels of real investment have yet to start growing at a worrisome pace. This market frenzy is being driven by cash, albeit cash created through massive Federal borrowing and a dramatic increase in the money supply.

Still, even without debt, it's clear that the financial world appears to be "frothy" a term Alan Greenspan used in the late 1990's. The P/E ratio of the stock market has been trending ever closer to its 2000 peak and is much higher than it was in 1929. There are stories of crowd sourcing money being used to fund deals in the blood-sport known as commercial real estate, where cap rates continue to fall. The ratio of home prices to asking rents is growing at the same pace seen prior to the Great Recession. The Ponzi scheme referred to as cryptocurrency was saved from its demise as values soared – and even with the big tumble it's taken in recent month is still overvalued by 100% (in our humble opinion). Although these appear to be narrow areas of concern, history has shown how such issues can quickly spread, infecting many corners of the world and potentially leading to a downturn on par with the Great Recession or worse.

SHILLER PRICE/EARNING RATIO



Source: Robert Shiller, <http://www.econ.yale.edu/~shiller/data.htm>; Analysis by Beacon Economics

Beacon Economics believes public policy discussions must quickly focus on this looming crisis. What the next expansion looks like critically depends on what course of action policymakers choose. The more rapidly the Federal government moves to close fiscal deficits and reduce the money supply, the less harm this brewing financial bubble and excessive consumer spending can ultimately cause to the economy.

Unfortunately, the conversation in both parties in Washington DC and in most state capitals and city halls continues to be dominated by populist rhetoric rather than economic realities. This means that most political conversations about the economy today are devoted to finding any sort of flaw, real or perceived, that can be blamed on the other party. This detrimental partisanship is, frustratingly, fueled by much of the media. It feels like the old adage “if it bleeds it leads” has gone to an extreme in this echo chamber world we live in. In terms of the economy, news stories seem to try to explain away any and all signs of prosperity. The crucial conversation we should be having about an overheated economy and the desperate need for fiscal and monetary responsibility by the Federal government, seems far from front and center.

In such an environment there is no room for political discussion about reducing the stimulus that is overheating the U.S. economy—particularly in the runup to what will be another contentious election and the growing global crisis surrounding Russia and its invasion of Ukraine. The longer the bubble is allowed to grow, the worse the crash will be.

THE ECONOMIC IMPACT OF RUSSIA'S INVASION OF UKRAINE

As if all this uncertainty wasn't enough, Russia's decision to invade Ukraine has sent shock waves through global markets. From an economic perspective, it's hard to see how Russia will come out ahead from this unprovoked attack on a sovereign nation and the horrors being inflicted on a civilian population. But then the actions of political leaders—particularly autocrats—are driven by any number of considerations, only one of which is economic. As such we'll leave the geopolitical analysis to the Henry Kissinger's of the world.

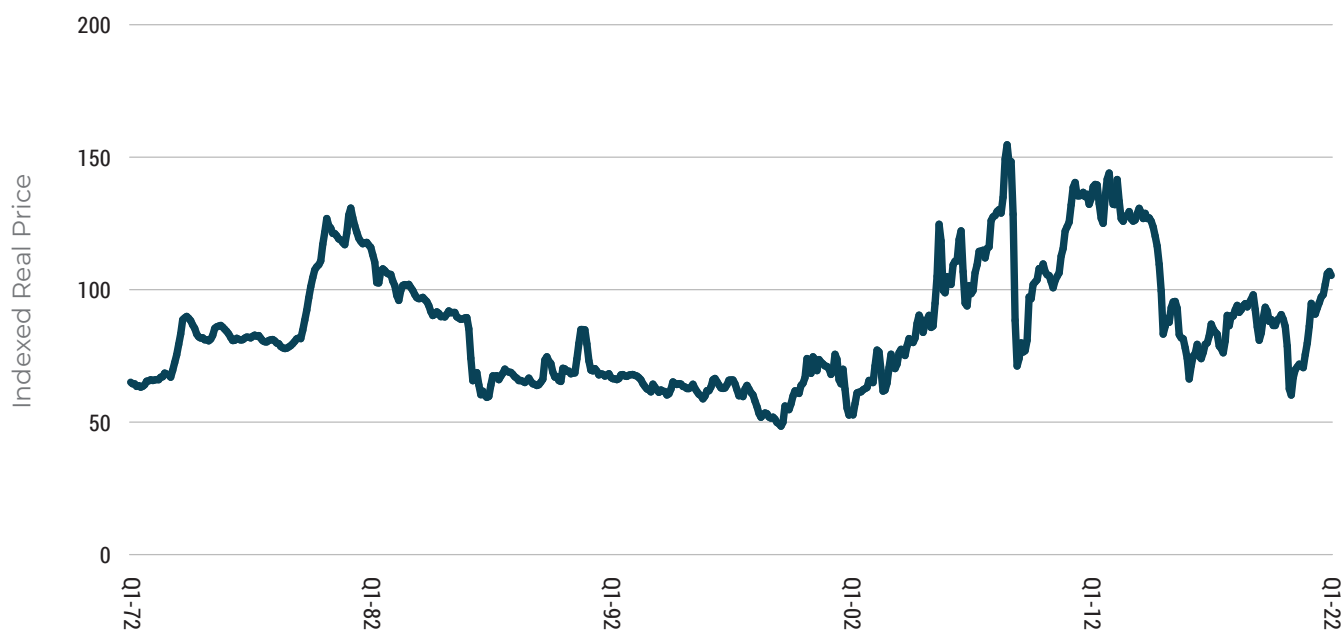
What does this invasion mean for the U.S. economy? The short answer is not that much. While home to over 44 million residents, Ukraine is a small economy still trying to emerge from the shadow of communism. Its exports flow mainly to other European nations and are largely low tech manufactures that can easily be purchased from other countries. Russia is, of course, more formidable with the sixth largest economy in the world on a PPP basis, but it is not a highly developed economy. Its per capita output is just half of Germany's, and it plays little role in global supply chains. Its exports are dominated by resource exports, oil and gas being the largest, and again, the United States is not a major buyer.

To date, the biggest economic impact of the invasion has been on global energy markets where oil prices have shot up to close to \$100 per barrel. This may be one reason why Vladimir Putin feels his nation can weather being an international pariah—after all Russia stands to gain at some level from the surge in energy prices that his actions have caused. Moreover, Europe's dependence on natural gas has led to the bizarre situation where heavy sanctions are being leveled on most parts of the Russian economy, except this critical export. It remains to be seen if the West will eventually cut off this vital source of foreign currency despite the impact it could have on the energy dependent EU states.

The increase in global energy prices, and the potential inflationary impact that could have on U.S. consumers, is the primary economic concern within the United States with regard to the attack. But such concerns are largely misplaced in the aggregate. First, the price of gasoline, the most direct impact on consumers, is not that high today once we account for overall inflation. A real price index of gasoline through January 2022 shows prices were still 30% lower than they were throughout all of 2012.

Second, and more importantly, many consumers in the United States are far less sensitive to the price of gasoline than they used to be due to the broad range of fuel-efficient vehicles, the ability to easily have products delivered, and the current trend among many workers of working from home, which has reduced the costs of commuting. Energy prices are not the real issue. Inflation is affecting a wide variety of consumer spending categories. Unfortunately, blaming inflation on commodity markets is an effective way to distract consumers from the real sources of the problem.

U.S. GASOLINE – INDEXED REAL PRICE



Source: FRED; Analysis by Beacon Economics

PRICE INDEXES, U.S. PERSONAL CONSUMPTION EXPENDITURES BY PRODUCT TYPE (SA)

	Q4-18 : Q4-19	Q4-20 : Q4-21
Personal consumption expenditures (PCE)	1.7%	5.5%
Gasoline and other energy goods	2.7%	48.6%
Motor vehicles and parts	0.2%	20.3%
Furnishings and durable household equipment	-0.7%	7.6%
Transportation services	0.8%	7.2%
Food services and accommodations	2.2%	5.8%
Food and beverages purchased for off-premises consumption	1.0%	5.3%
Clothing and footwear	-1.7%	4.8%
Recreation services	2.2%	4.4%
Housing and utilities	3.0%	4.0%
Financial services and insurance	3.9%	3.6%
Other durable goods	-1.1%	3.2%
Recreational goods and vehicles	-5.3%	2.9%
Other services	1.6%	2.7%
Health care	2.0%	2.5%
Other nondurable goods	1.4%	1.6%

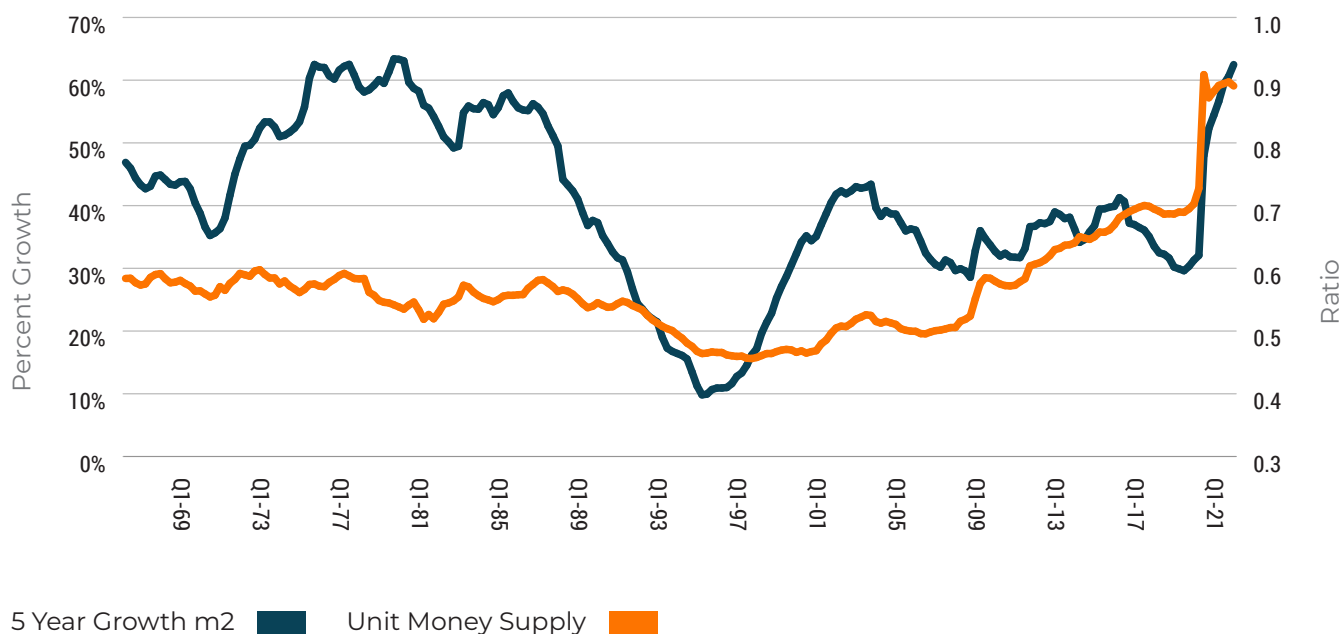
Source: U.S Bureau of Economic Analysis; Analysis by Beacon Economics

INFLATION... THE PRESSURE'S ON

How sustained will inflation be in the United States? The Federal Reserve seems to be suggesting that a few rate hikes and the unsnarling of supply chains will quickly reduce the rate of price growth, and so far, the bond markets appear to be buying it. But a careful empirical analysis of the history of prices suggests that other factors play an important role, including the Federal deficit, wage growth, and of course, the money supply, which lies at the heart of monetary theory. Given the current tightness of U.S. labor markets, the complete lack of conversation about closing the Federal deficit points to continued inflationary pressure. Even more dismaying is the Fed's decision to engage in \$4 trillion in quantitative easing, which has expanded the money supply at a pace not seen since the high inflation 1970's.

One good metric of inflationary pressures in the United States is the Unit Money Supply, a concept as simple as M2 divided by nominal GDP or, basically, available cash per unit of economic transaction. If we consider the 1970's, it's clear that the rapid growth in money supply at that time kept prices growing rapidly, and the Unit Money Supply stayed steady. This time, the dramatic increase in money supply has happened faster than prices have been able to keep up with, and the Unit Money Supply has jumped over 25% since the start of the pandemic. If we are to believe that the Unit Money Supply will converge back to its long run trend, then one of two things has to happen: either the Fed reverses its policy of quantitative easing to pull excess cash out of the economy, or price levels jump an additional 20% to 25% over the next few years. Elected officials are dodging the political bullet called 'interest rate hikes', which would occur under option one, hence, right now, path two seems more likely.

U.S. MEASURES OF MONEY SUPPLY



Source: U.S. Bureau of Economic Analysis; Analysis by Beacon Economics

With so much *potential* inflation in the system, it's difficult to understand why the bond markets remain so placid. One issue is that these markets are made up of people who are likely to buy into social narratives given their lack of personal experience with inflation. In other words, they are accepting the, frankly, Pollyannaish view being put forward by the Fed and its Chair Jerome Powell. For those who don't believe that financial markets can possibly indulge in such delusional group think, consider the almost complete lack of insight surrounding the risks associated with the sub-prime lending bubble less than two decades ago, and the 'new economy' nonsense that preceded that by less than a decade. Market realities will eventually rip off the mask of self-delusion, and when that happens, interest rates will have to rise.

In short, rates have nowhere to go but up. The trillion-dollar question is when and how painful will the increase be. The sooner the better is the only logical answer to the first half of that question. Unfortunately, it's the last thing on most policymakers' minds.

CALIFORNIA OUTLOOK

Spring 2022

Taner Osman PhD

THE BEGINNING OF THE END

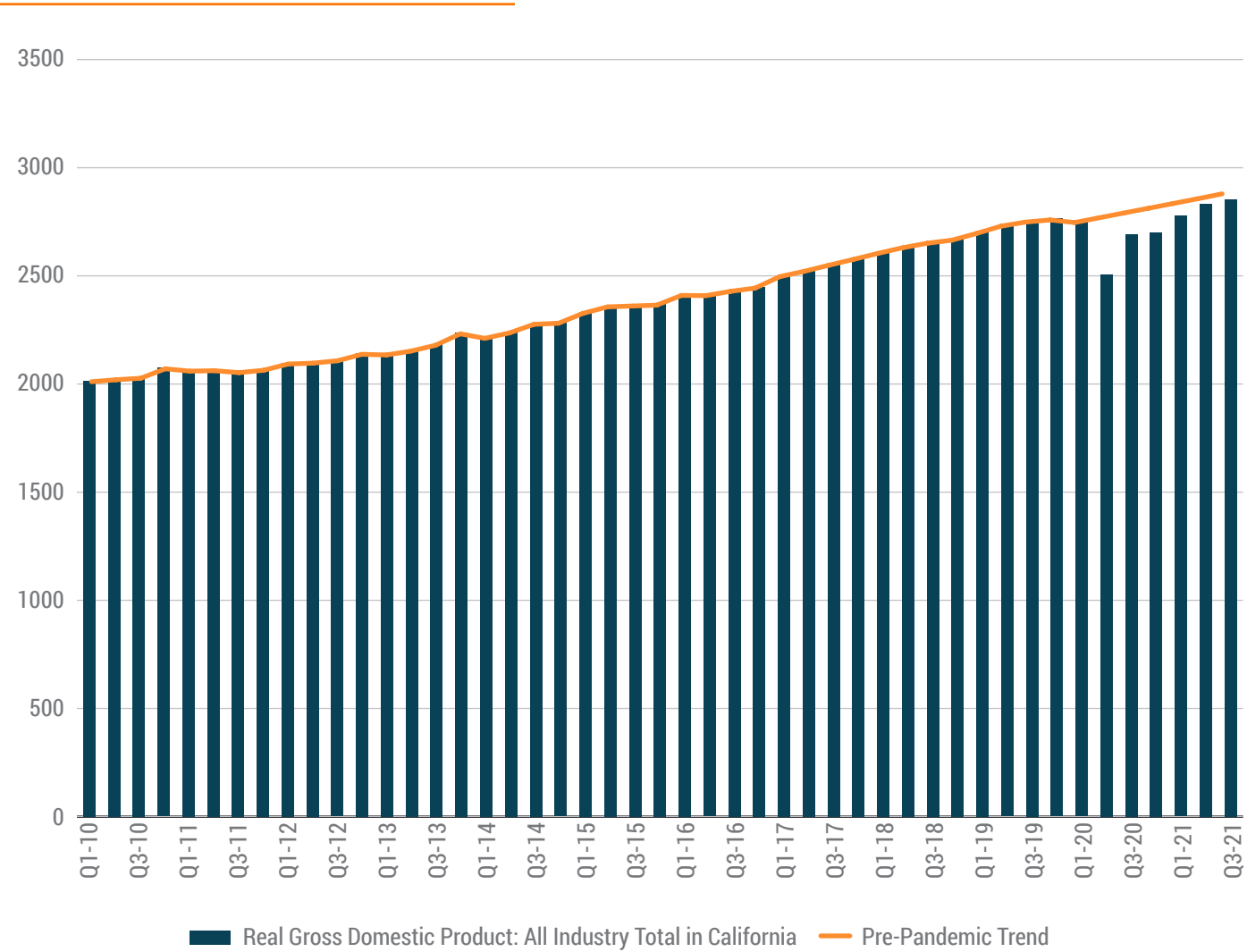
With more than 70% of the state's residents fully vaccinated, and with COVID-19 hospitalizations having fallen precipitously, on February 16th, California announced plans to lift mask mandates in many indoor venues. In the absence of a resurgence, the public health mandates put in place to halt the spread of the virus are beginning to disappear quickly. This, hopefully, is the beginning of the end of a tumultuous two-year period in California's history, marked by tens of thousands of virus-related deaths, great strain on the state's healthcare infrastructure, as well as transformations in venues ranging across education, leisure, and work.

Amidst this turmoil, California's economy has, in many areas, fully recovered from the sudden and dramatic fallout of the pandemic, and some parts of the economy have even exceeded their pre-pandemic trend. This growth has been fueled in part by unprecedented fiscal and monetary stimulus, as well as the unique attributes of the recession (discussed further in the United States outlook). Today, the challenges facing California's economy are very much the same as they were prior to the pandemic. In fact, the pandemic has acted as an accelerant to these long-standing issues. Housing scarcity has pushed median home prices in the state above \$650,000, double the national figure, and the contraction of California's labor force during the pandemic has exacerbated ongoing labor shortages. Interesting questions also surround the extent to which responses to the pandemic – such as the greater tendency for workers to work from home and spikes in non-coastal rental markets – will endure.

RECOVERED: CALIFORNIA'S OUTPUT

While California's output dropped 9% at the outset of the pandemic, as mandates restricting business activity and fear of catching the virus curtailed consumer activity, output in the state was 3% higher in the third quarter of 2021 compared to the first quarter of 2020. California's GDP has effectively returned to its pre-pandemic trend, marking a complete recovery in that metric. In 2022, the state's GDP could push slightly above its pre-pandemic trend, but will soon return to its longer-term average as the excess in savings induced by the pandemic is depleted.

CALIFORNIA GROSS DOMESTIC PRODUCT, 2010-2021



Source: U.S. Bureau of Economic Analysis; Analysis by Beacon Economics

LAGGING: EMPLOYMENT AND UNEMPLOYMENT

California's recovery in total jobs as well as its unemployment rate continue to lag the nation. As of December 2021, the state had recovered just 72% of the jobs lost in March and April 2020, and there were still 768,600 fewer people employed in California compared to February 2020, the onset of the pandemic. Overall, total nonfarm employment in the state has contracted 4.4% since that time compared to a 2.3% drop nationally. However, during 2021, California added jobs at a faster rate than the national economy. Payrolls in the state expanded 6% from December 2020 to December 2021, well above the 4.5% increase in the nation over the same period. California's outperformance last year should continue in 2022. Quite simply, there is more room to grow in the state than there is nationally, so employment in California should continue to converge to the national trend.

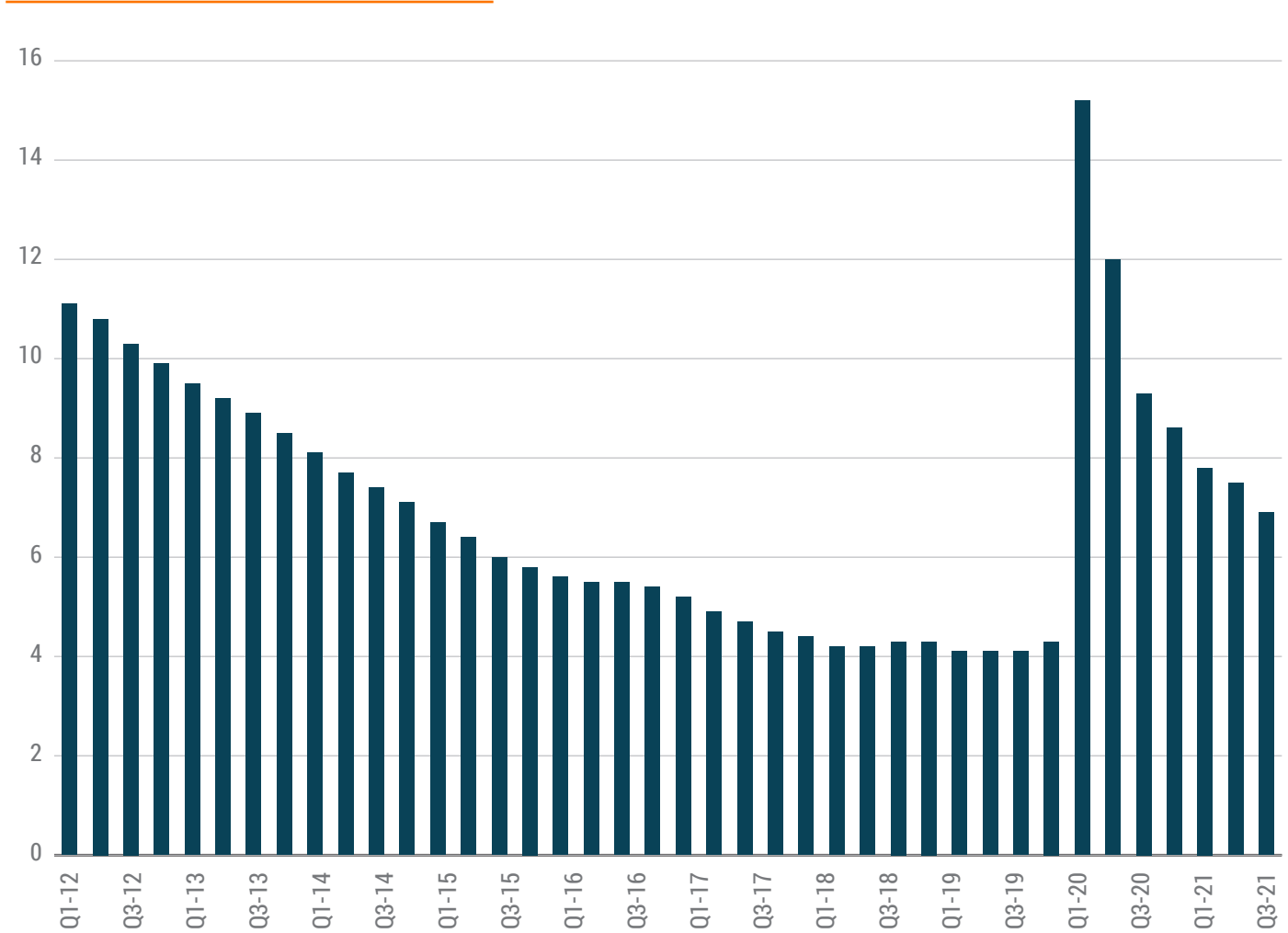
Remarkably, since February 2020, only two sectors have gained jobs in the state: Transportation, Warehousing, and Utilities and Professional, Scientific, and Technical Services. Two of the biggest laggards, Leisure and Hospitality and Other Services, which includes hair and nail salons, should drive employment growth throughout the remainder of this year, as in-person activity continues its return to normalcy.

INDUSTRY EMPLOYMENT CHANGE, FEBRUARY 2020 – DECEMBER 2021

Industry	Dec-21	Change Since Feb-20 (#)	Change Since Feb-20 (%)
Total Nonfarm	16,892,300	-768,600	-4.4
Transportation, Warehousing & Utilities	798,400	66,200	9.0
Professional, Scientific & Technical Services	1,410,400	52,300	3.9
Educational & Health Services	2,823,600	-38,900	-1.4
Finance & Insurance	531,200	-11,600	-2.1
Construction	891,000	-22,300	-2.4
Information	563,600	-17,500	-3.0
Administrative & Support & Waste Services	1,123,100	-35,700	-3.1
Manufacturing	1,274,700	-53,100	-4.0
Retail Trade	1,574,400	-74,100	-4.5
Management of Companies & Enterprises	242,400	-12,000	-4.7
Wholesale Trade	651,500	-34,800	-5.1
Government	2,454,200	-161,100	-6.2
Real Estate & Rental & Leasing	283,300	-22,700	-7.4
Other Services	508,800	-84,500	-14.2
Leisure & Hospitality	1,742,900	-315,300	-15.3
Mining and Logging	18,800	-3,500	-15.7

California’s unemployment rate fell to 6.5% in December, elevated relative to the 3.9% rate in the United States overall. The state’s higher unemployment rate is primarily due to the underperformance of California’s labor market, relative to the national picture. Since February 2020, the state’s labor force has contracted by 358,100 workers, a 1.8% decline. However, higher wages should draw workers back into the labor force, and there is already some evidence of this. Nominal wages in California were up 5% in 2021 as employers paid more in their search for relatively scarce workers. However, real wages in the state barely rose during the year due to inflation.

CALIFORNIA UNEMPLOYMENT RATE, 2012-2021



Source: California Employment Development Department; Analysis by Beacon Economics

CALIFORNIA AVERAGE WAGE, ANNUAL CHANGE

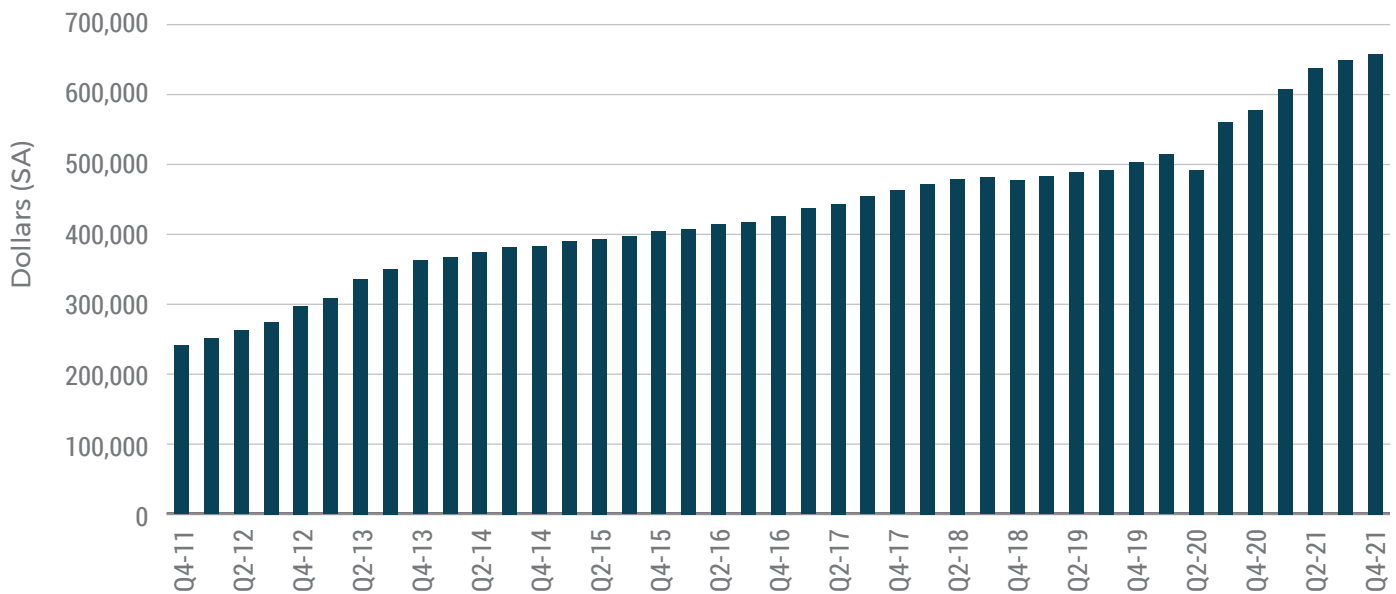
Industry	Q2-21	Year Over Year Change (%)
Total Nonfarm	85,265	7.2
Finance & Insurance	183,470	27.8
Leisure & Hospitality	39,147	19.4
Information	246,387	13.9
Manufacturing	121,299	12.5
Transportation, Warehousing & Utilities	77,633	11.3
Professional, Scientific & Technical Services	149,740	10.6
Management of Companies & Enterprises	163,136	10.5
Real Estate & Rental & Leasing	83,543	10.3
Retail Trade	45,838	9.0
Wholesale Trade	92,384	8.5
Health Care & Social Assistance	59,151	7.2
Construction	78,684	6.5
Administrative & Support & Waste Services	54,504	5.4
Government	80,244	2.3
Mining and Logging	42,714	2.3
Other Services	48,723	-0.8
Educational Services	64,035	-1.5

Source: Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics ; Analysis by Beacon Economics

HOUSING MARKETS STILL ON FIRE

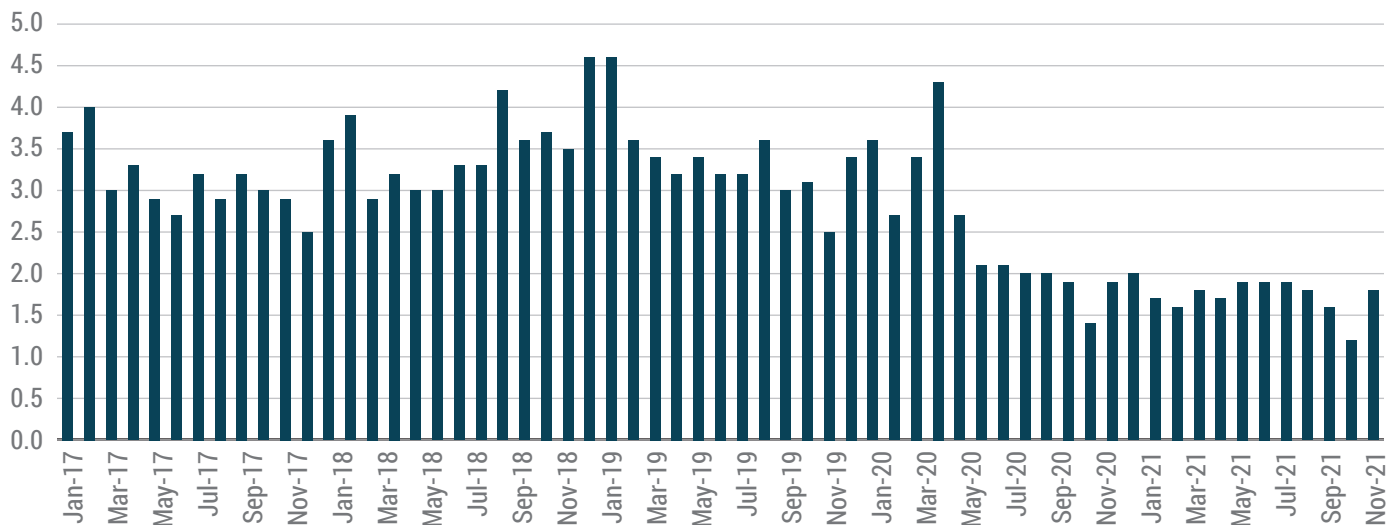
California's housing market continued to see considerable strength in 2021, with median home prices growing 20% over the year, fueled by healthy consumers, low inventory, and low mortgage rates. This rate of price growth was double the already lofty 9% growth rate in 2020. While housing supply remains constrained in the state, the specter of higher interest rates will weigh on price appreciation in 2022.

CALIFORNIA HOME PRICES, 2011-2021



Source: CoreLogic; Analysis by Beacon Economics

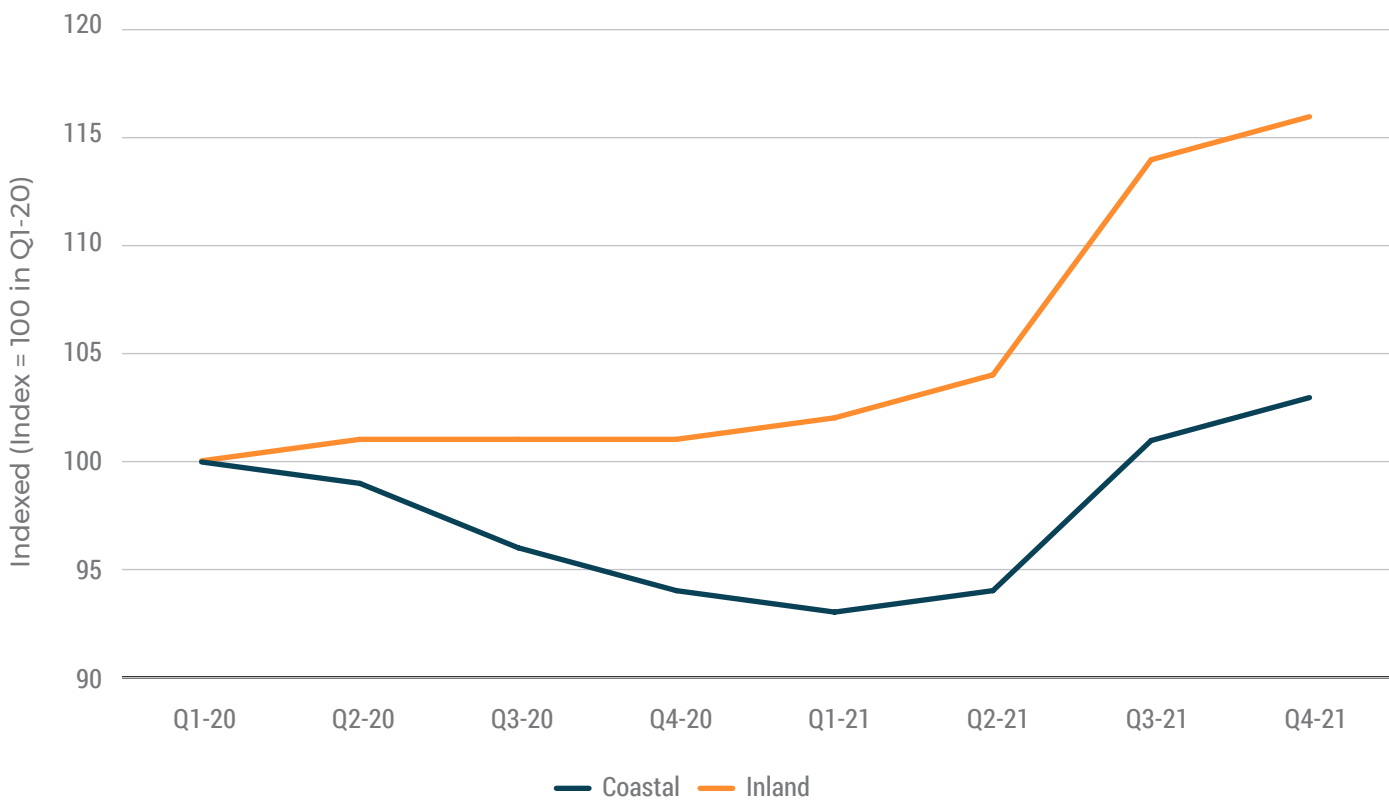
HOUSING INVENTORY IN CALIFORNIA, 2017-2021



Source: California Association of Realtors; Analysis by Beacon Economics

In rental markets, an interesting dichotomy has emerged between coastal and inland apartment rents. While rents in coastal communities fell at the outset of the pandemic, inland rents increased. Coastal rents have fully recovered since the pandemic lows, and have increased by around 3% since the first quarter of 2021. Over the same period, apartment rents in inland communities have increased by 16%. The spike in inland rents is likely being driven by the ability of workers to work remotely during the pandemic and therefore move to more affordable markets. Limited inventory in these markets has led to significant price increases. As workers return to offices, this should place upward pressure on coastal rents in 2022.

CALIFORNIA APARTMENT RENTS, COASTAL VS. INLAND, 2020-2021



Source: REIS; Analysis by Beacon Economics

Overall, 2022 should represent a continued return to normality along many social and economic dimensions in California, from housing to labor markets to business and consumer behavior.

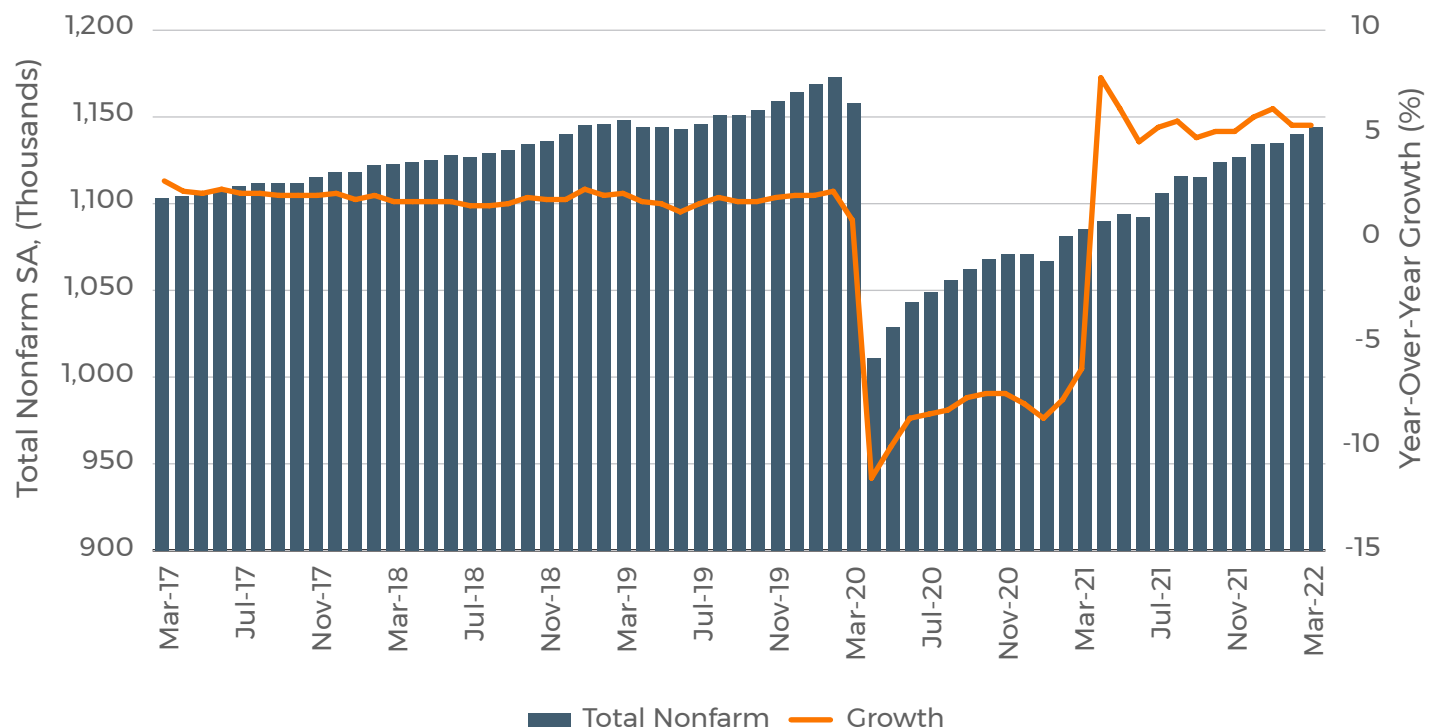
SOUTH BAY REGIONAL INTELLIGENCE REPORT

EMPLOYMENT

The South Bay labor market has continued to steadily recover from the COVID-19 pandemic, adding 132,700 jobs since the lows of April 2020. But even as the South Bay added jobs at a healthy pace in 2021 and early 2022, as of March 2022 the region had recovered 82.4% of the jobs lost in March and April of 2020. There are now 28,400 fewer people employed in South Bay compared to February 2020. This lags behind California's recovery where 89.3% of job losses have been recovered, but it's ahead of San Francisco (MD) where just 73.8% of jobs lost have come back. As of March 2022, total payroll employment in South Bay is -2.4% (or -28,400 jobs) below the pre-pandemic peak, trailing the -1.7% decline in the state over the same period.

Total Nonfarm Employment and Growth

South Bay



Source: California Employment Development Department (EDD); Analysis by Beacon Economics.

The South Bay's unemployment rate has also improved from the lows of 2020. It is now 2.4%, near pre-pandemic lows. The rate in the region remains well below California's 4.9% and the nation's 3.6%.

Although unemployment rates have fallen over the last year in South Bay cities, these declines have been partly driven by a slump in the region's labor force participation. From February 2020 to March 2022, 10,900 workers left the South Bay's labor force, a -1% decline. This decline is less severe relative to the state (-2.1%), yet more substantial relative to the nation (-0.1%).

Industry Employment

South Bay

Sector	Mar-22 Employment (000s)	Change Since Feb-20 (%)	Change Since Feb-20 (000s)
Total Nonfarm	1,144.1	-2.4	-28.4
Transport/Warehouse	15.8	5.5	0.8
Utilities	1.7	5.3	0.1
Prof Sci and Tech	173.0	3.0	5.1
Information	109.5	2.0	2.2
Admin Support	64.1	0.1	0.1
Manufacturing	172.4	0.1	0.1
Education/Health	183.1	-0.4	-0.7
NR/Construction	54.7	-0.6	-0.3
Financial Activities	37.0	-6.6	-2.6
Retail Trade	76.2	-6.6	-5.4
Government	93.6	-6.7	-6.7
Wholesale Trade	28.0	-9.7	-3.0
Management	14.0	-10.2	-1.6
Leisure and Hospitality	96.7	-10.8	-11.7
Other Services	24.2	-16.2	-4.7

Source: California Employment Development Department (EDD); Analysis by Beacon Economics.

Unsurprisingly, the industries most affected by public health mandates have experienced the largest employment declines. From February 2020 to March 2022, Leisure and Hospitality led payroll declines in the South Bay, losing -11,700 jobs (-10.8%). Other sectors posting sizeable declines over the same period were Government (-6,700 jobs or -6.7%); Retail Trade (-5,400 jobs or -6.6%); Other Services (-4,700 jobs or -16.2%); and Wholesale Trade (-3,000 jobs or -9.7%). These are the sectors most impacted by government health mandates and consumer reservations due to COVID-19.

Although local job losses have been widespread, they have been offset in part by gains in other sectors. From February 2020 to March 2022, Professional, Scientific, and Technical Services led payroll gains in the South Bay, adding 5,100 jobs (3.1%). Information also posted sizable gains, adding 2,200 jobs (2.2%). The growth in e-commerce has helped boost payrolls in the region's Transportation, Warehousing, and Utilities sector, growing 5.5% from February 2020 to March 2022, an increase of 800 positions.

WAGES

Average annual wages across the South Bay rose significantly from third-quarter 2020 to third-quarter 2021, growing 15.6% to \$175,200. With inflation on the rise, these nominal wage increases are a welcome sign for residents. Otherwise, their earnings would not have kept up with price increases over the last year.

Despite the top-level average annual wage overstating baseline growth during the last year, wages are up across all sectors in the South Bay. Trade, Transportation, and Utilities has led the way, with average annual wages expanding 32.9%. Other sectors posting strong growth for the year were Financial Activities (24.5%), Manufacturing (19.8%), Information (18.2%), and Professional and Business Services (13.6%). Other sectors such as Leisure and Hospitality (2%) and Other Services (3.4%) have experienced slower growth. However, this is largely due to part-time and lower-earning employees returning to positions in these sectors over the last year. Indeed, many employers in these sectors are offering significantly higher wages and benefits to attract workers.

Annual Average Wage by Industry, Year-To-Date

South Bay, Q3-2021

Industry	Q3-2021 (\$)	1-Year % Growth
Total Nonfarm	175,246	15.6
Trade, Transportation, and Utilities	104,324	32.9
Financial Activities	197,176	24.5
Manufacturing	271,882	19.8
Information	402,973	18.2
Professional/Business	212,269	13.6
NR/Construction	93,342	5.3
Government	90,973	4.1
Education/Health	81,243	4.1
Other Services	53,259	3.4
Leisure & Hospitality	36,172	2.0

Source: Quarterly Census of Employment and Wages; Analysis by Beacon Economics

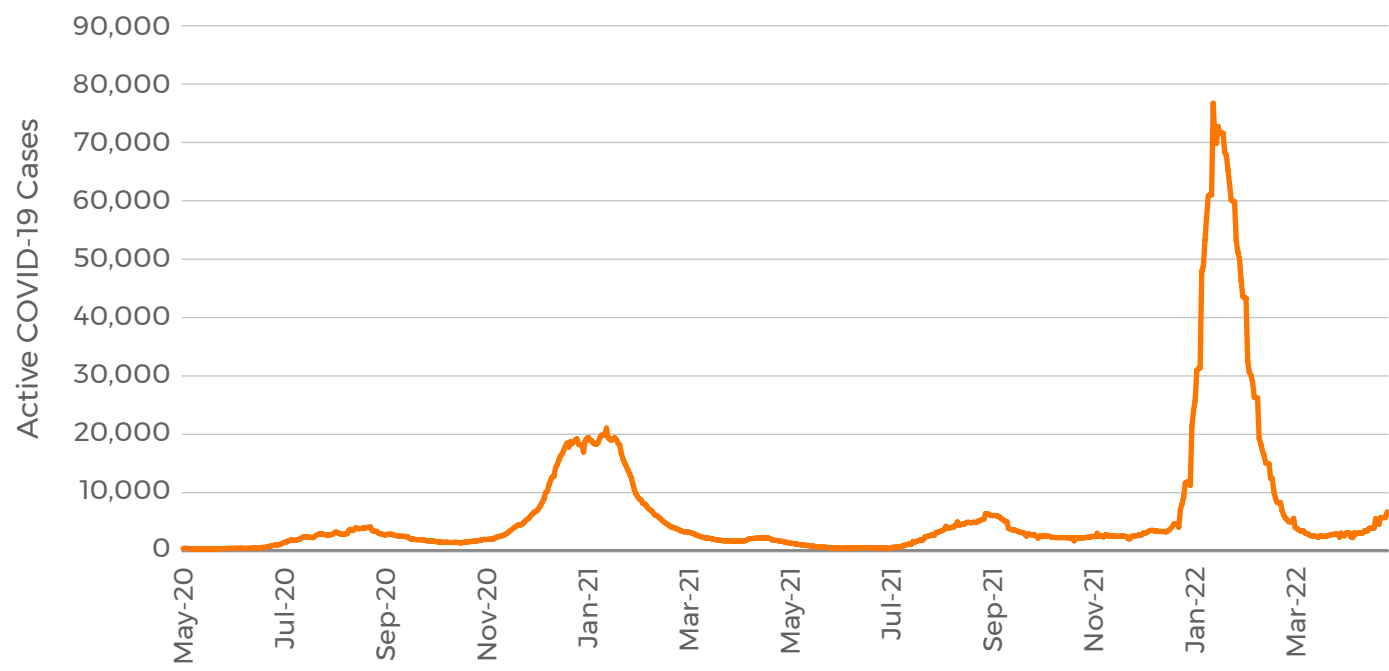


COVID-19 TRENDS AND LOCAL SPENDING

As of this writing, more than 86% of Santa Clara County residents are fully vaccinated, with hospitalizations in steep decline across California. On Feb. 16 the state announced plans to lift mask mandates in many indoor venues. In the absence of a COVID-19 resurgence, the public health mandates put in place to halt the spread of the virus are beginning to disappear. Hopefully this is the beginning of the end of a tumultuous period in California’s history, marked by tens of thousands of virus-related deaths, great strain on the state’s health care infrastructure, and changes to all aspects of everyday life, including education, leisure, and work.

Active COVID-19 Cases

South Bay



Source: Los Angeles Times; California Department of Public Health; Analysis by Beacon Economics.

Sales Tax Receipts by Category

South Bay, Q4 2021

Category	Q4-21 (\$ Thousands)	1-Year Change (%)	3-Year Change (%)
Fuel and Service Stations	6,669	62.4	0.2
Restaurants and Hotels	12,833	53.1	-6.7
General Consumer Goods	18,024	25.6	-4.4
Autos and Transportation	16,494	13.4	-4.6
Business and Industry	43,015	7.3	60.6
Food and Drugs	4,808	3.7	6.1
Building and Construction	9,235	0.1	5.4
County & State Pool	26,055	-4.9	32.2
Total	137,665	11.6	17.8

Source: HdL Companies; Analysis by Beacon Economics.

Consumer spending has also rebounded strongly from the lows of 2020 in San Jose. From fourth-quarter 2020 to fourth-quarter 2021, taxable receipts in the county increased 11.6% and also expanded by 17.8% over the last three years.

With more people traveling for work and leisure, spending at Fuel and Service Stations increased 62.4% over the last year. Rising fuel prices in the first-half of 2022 should ensure this category continues to increase. However, spending levels are up just 0.2% over the last three years.

Restaurants and Hotels also expanded, with spending up 53.1% over the last year. Although one of the hardest hit industries during the pandemic, spending in this category is now approaching pre-pandemic levels.

Other categories posting significant gains over the last year were General Consumer Goods (25.6%) and Autos and Transportation (13.4%). As more people ate out, gains were more modest at Food and Drug Stores, which was up just 3.7%. Similarly, with more consumers buying goods and services from brick-and-mortar retail locations, the County and State Pool (the category for e-commerce sales) fell -4.9%. Despite this decline, the County and State Pool has been one of the fastest growing categories in the county over the last three years, up 32.2%.

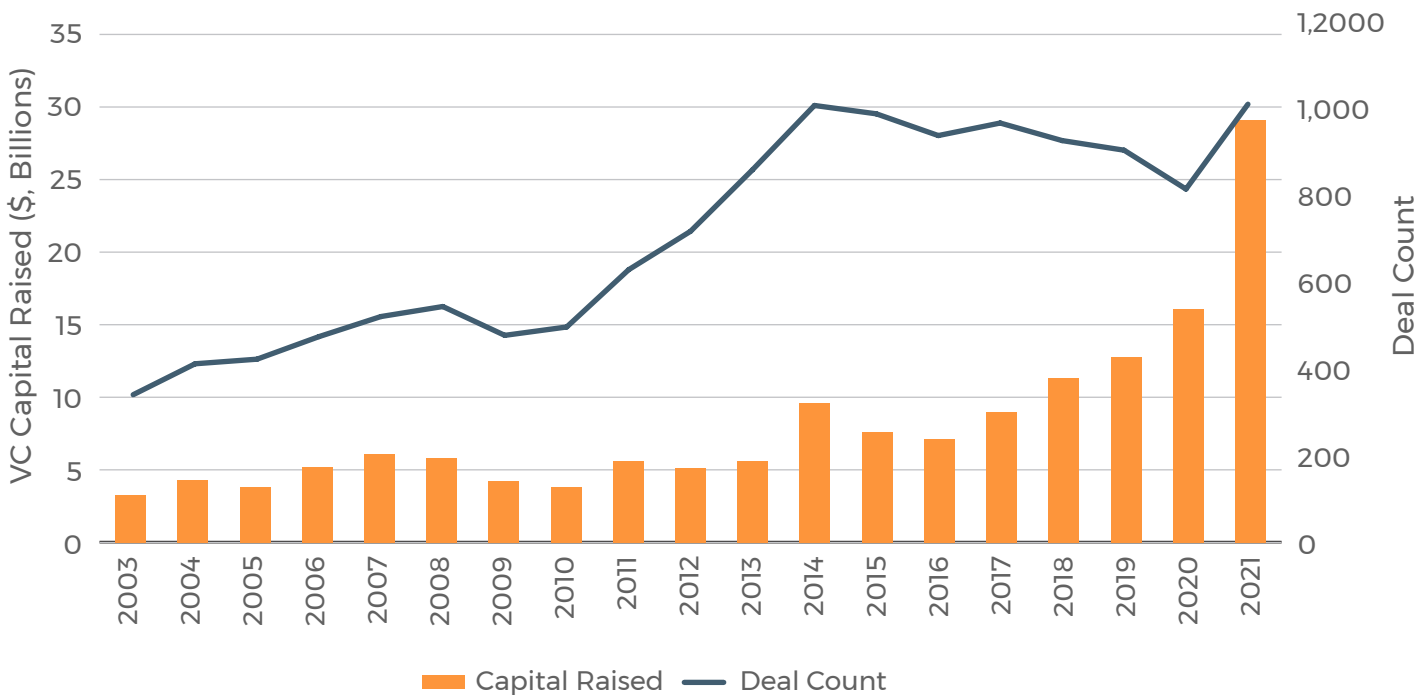
VENTURE CAPITAL

With Silicon Valley home to some of the world’s most prominent technology company headquarters, venture capital (VC) plays a vital role in the South Bay economy. Over the past few years, the region has experienced massive increases in capital raised across various industries and verticals, and 2021 was no exception. From 2020 to 2021, total capital raised in the South Bay increased 80.6% to \$29.06 billion – the largest amount ever raised in the region. Furthermore, year-over-year growth was stronger than in 2020. The total number of deals in 2021 was 1,040, slightly higher than 837 in 2020, and with more capital raised per deal.

Automotive deals had another strong year in 2021. Waymo completed a deal for \$2.5 billion, which accounted for 8.6% of all VC raised in 2021. Other companies receiving a large amount of VC investment deals in 2021 were Lacework (\$1.3 billion), SambaNova Systems (\$678 million), Nuro (\$600 million), Lacework (\$525 million), PatPat (\$510 million) and Nuro (\$500 million).

South Bay Venture Capital: Capital Raised and Deal Count

2003-2021



Source: Pitchbook; Analysis by Beacon Economics.

As we enter the second quarter of 2022, significant deals have already been completed in the South Bay. As of early April, Uniphore, which is involved with artificial intelligence and machine learning, completed a deal for \$400 million. Other companies receiving a large amount of VC investment so far in 2021 were Branch (\$300 million), Drive.ai (\$300 million), Clari (\$225 million), and DNAnexus (\$200 million).

2021's Top 15 Venture Capital Deals

South Bay

Company Name	Deal Date	Deal Size (\$, Millions)	Primary Industry Code	HQ Location
Waymo	Jun-21	2,500.00	Consumer Products and Services (B2C)	Mountain View, CA
Lacework	Nov-21	1,300.00	Information Technology	San Jose, CA
SambaNova Systems	Apr-21	678.00	Information Technology	Palo Alto, CA
Nuro	Oct-21	600.00	Business Products and Services (B2B)	Mountain View, CA
Lacework	Jan-21	525.00	Information Technology	San Jose, CA
PatPat	Jul-21	510.00	Consumer Products and Services (B2C)	Mountain View, CA
Nuro	Mar-21	500.00	Business Products and Services (B2B)	Mountain View, CA
PsiQuantum	Oct-21	450.00	Information Technology	Palo Alto, CA
Rubrik	Mar-21	373.50	Information Technology	Palo Alto, CA
TripActions	Jan-21	362.00	Information Technology	Palo Alto, CA
Medable	Oct-21	304.00	Healthcare	Palo Alto, CA
Ampere Computing	Mar-21	300.00	Information Technology	Santa Clara, CA
Groq	Apr-21	300.00	Information Technology	Mountain View, CA
Netskope	Nov-21	300.00	Information Technology	Santa Clara, CA
Plume	Oct-21	300.00	Information Technology	Palo Alto, CA

Source: Pitchbook; Analysis by Beacon Economics.

Top 15 Venture Capital Deals, 2022 Year-to-Date

South Bay

Company Name	Deal Date	Deal Size (\$, Millions)	Primary Industry Code	HQ Location
Uniphore	Feb-22	400.00	Information Technology	Palo Alto, CA
Branch	Feb-22	300.00	Information Technology	Palo Alto, CA
Drive.ai	Apr-22	300.00	Consumer Products and Services (B2C)	Mountain View, CA
Clari	Jan-22	225.00	Information Technology	Sunnyvale, CA
DNAexus	Mar-22	200.00	Healthcare	Mountain View, CA
Dremio	Jan-22	160.00	Information Technology	Santa Clara, CA
Tarana	Mar-22	160.00	Information Technology	Milpitas, CA
Salt Security	Feb-22	140.00	Information Technology	Palo Alto, CA
Ayar Labs	Apr-22	130.00	Information Technology	Santa Clara, CA
CommerceIQ	Mar-22	115.00	Information Technology	Palo Alto, CA
Veza	Apr-22	110.00	Information Technology	Los Gatos, CA
Voltron Data	Jan-22	110.00	Information Technology	San Francisco, CA
Visby Medical	Mar-22	108.62	Healthcare	San Jose, CA
Brightline (Clinics/ Outpatient Services)	Mar-22	105.00	Healthcare	Palo Alto, CA
Docker	Mar-22	105.00	Information Technology	Palo Alto, CA

Source: Pitchbook; Analysis by Beacon Economics.

RESIDENTIAL REAL ESTATE

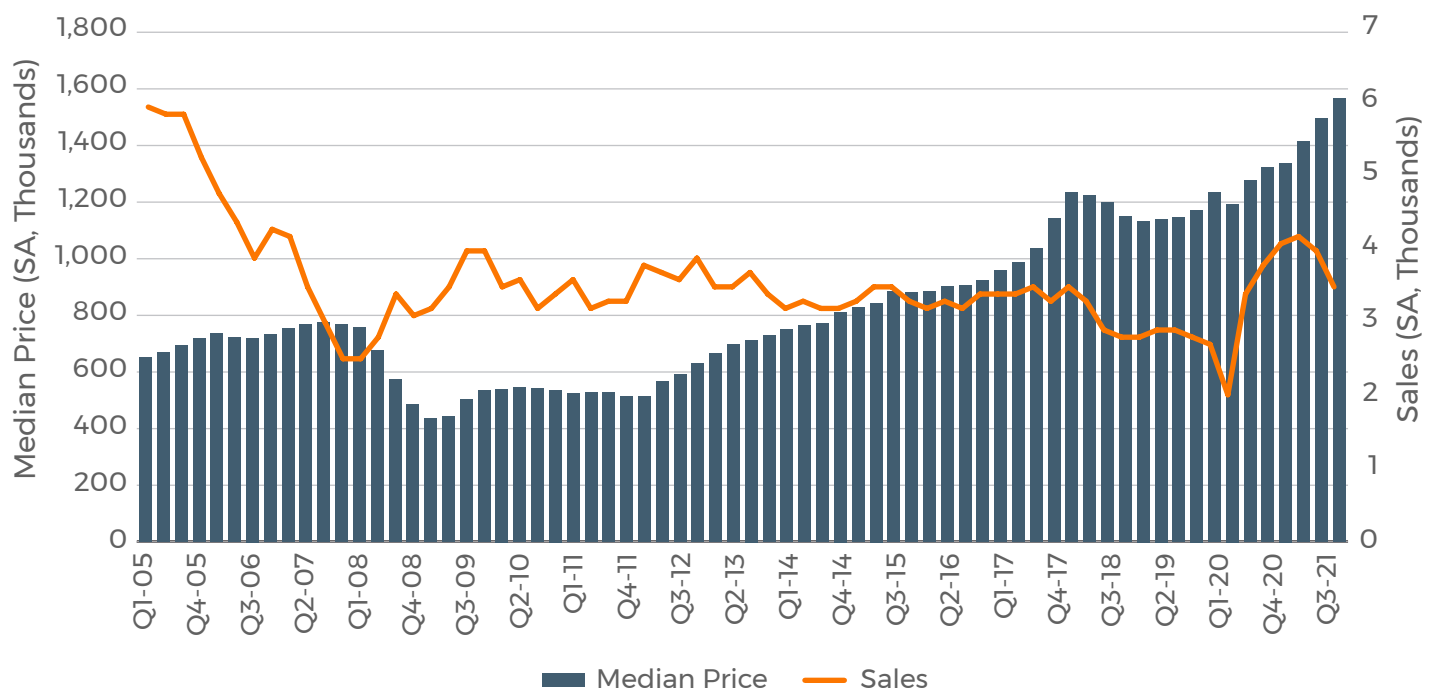
The housing market was by far the brightest spot in San Jose's economy over the last two years. The strong performance was likely driven by three factors. First, typical homebuyers (higher-income earners) have been less affected by the labor market downturn. Second, mortgage rates bottomed out at historically low levels, spurring purchase activity. And third, housing inventories are near historic lows. These factors have pushed purchase offers far over asking prices even as buyers waive inspections and other contingencies to get a leg-up on the competition.

Home prices in the South Bay continue to increase steadily. From fourth-quarter 2020 to fourth-quarter 2021, the median single-family home price rose 18.4%. This was more robust compared to growth in the East Bay (11.5%) and San Francisco (MD) (13.5%).

The median single-family home price in South Bay reached \$1.57 million in the fourth quarter of 2021, which is more affordable compared to San Francisco (MD) (\$1.74 million). Rapid price growth in the Bay Area has kept housing out of reach for many South Bay residents. Just 20% of households can afford to purchase a median-priced, single-family home in the South Bay. This is in line with the broader Bay Area but falls behind California (24%) and the United States (47%). Additional homes will need to be built to ensure South Bay has the necessary housing stock to grow its workforce in the coming years.

Single-Family Homes

South Bay



Source: CoreLogic; Analysis by Beacon Economics.

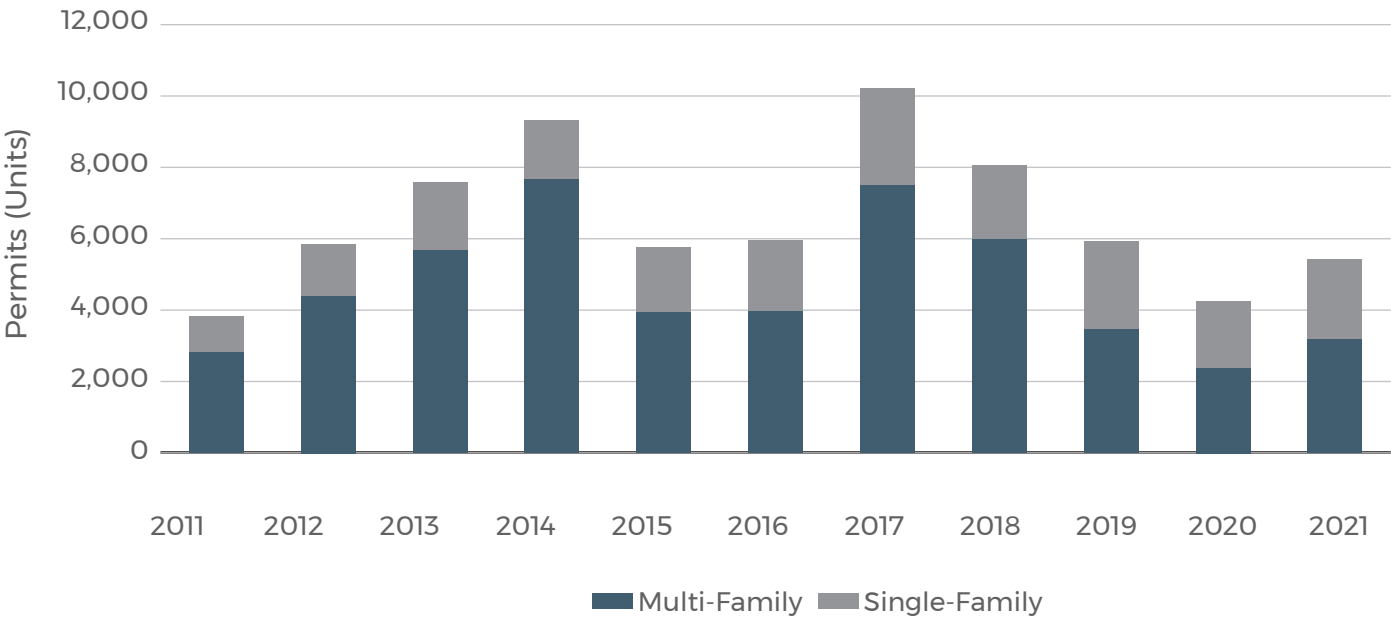
The pandemic-driven economic stimulus from the federal government, combined with low interest rates, has increased demand for housing throughout California. However, supply has not increased to meet demand. In February 2022, there were just 1.4 months of housing supply in Santa Clara County. A balanced market typically equates to 6 – 7 months of supply. A buyer’s market is seven months of supply and above, and a seller’s market is six months of supply and below.¹ Moreover, strong fundamentals at the start of this hot market imply there is still headroom to grow. With inventory so low, it will take years for builders to catch up with high homebuyer demand. If today’s high inflation persists, mortgage rates will take a similar jump and the market could downshift rapidly. But these effects, if they happen at all, are unlikely to occur within the next two years.

The apartment market in the South Bay also had a strong year. Vacancy rates held steady at 5.2% in the first quarter of 2022, unchanged from a year earlier. Asking rents grew a sizeable 9.6% to \$2,712 per-unit per month, but that still keeps the South Bay more affordable than San Francisco (MD) (\$3,081), yet more expensive relative to the East Bay (\$2,525). With more companies allowing tele-commuting, especially those in the tech space, households have been able to move to more affordable regions of California. However, with more companies returning to the office over the last year, demand has increased for apartment units.

In 2021, residential construction in the region remained low. The South Bay issued 3,181 multi-family building permits and 2,251 single-family permits. This is an increase over 2020 but below annual levels from 2016 to 2019. Continuing to add units to South Bay’s housing stock will be essential to sustain economic growth in the coming years.

Residential Permits

South Bay



Source: Construction Industry Research Board (CIRB); Analysis by Beacon Economics.

¹ National Association of Realtors

COMMERCIAL REAL ESTATE

While there has certainly been some economic fallout in the Bay Area's commercial real estate market, the decline is not as severe as news headlines would have you believe. The fundamentals of what will drive long-run growth remain strong, with households experiencing minimal losses in income and employment levels increasing steadily.

Demand for Office properties has declined in the South Bay over the last year. The vacancy rate fell to 19.3% in the first quarter of 2022, down 0.5 percentage-points from a year earlier. The cost of rent grew a modest 0.8% over the last year to an annual rate of \$48.03 per square-foot, keeping Office space in the South Bay more affordable than San Francisco (MD) (\$64.10) but more expensive relative to the East Bay (\$35.11).

Demand for Retail space in the South Bay remains impacted from government mandates and consumer reticence amid the COVID-19 pandemic. The vacancy rate grew to 5.5% in the first quarter of 2022, a 0.3 percentage-point decline from a year earlier. The cost of rent fell -0.1% over the last year to an annual rate of \$37.75 per square-foot, keeping Retail space in the South Bay more affordable than San Francisco (MD) (\$40.84) but more expensive relative to the East Bay (\$31.88).

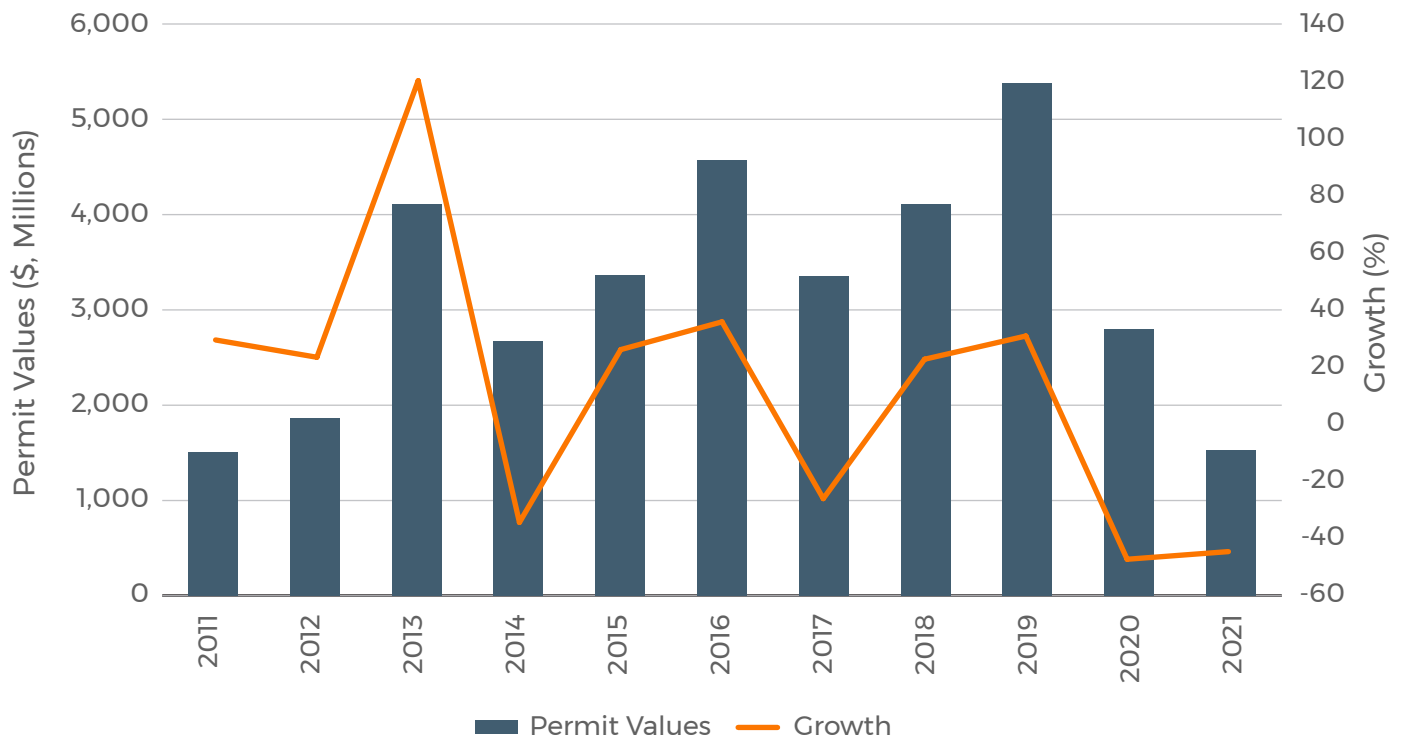
The vacancy rate for Warehouse properties in the South Bay fell to 4.9% in the first quarter of 2022, a 4.5 percentage-point decline from a year earlier. The cost of rent increased 5.6% over the last year to an annual rate of \$9.10 per square-foot, keeping Warehouse space in the South Bay more affordable than San Francisco (MD) (\$10.95) but more expensive relative to the East Bay (\$7.32).

The vacancy rate for Flex/R&D properties in the South Bay fell to 11% in the first quarter of 2022, a 4.1 percentage-point decline from a year earlier. The cost of rent grew 5% over the last year to an annual rate of \$18.79 per square-foot, keeping Flex/R&D space in the South Bay more affordable than San Francisco (MD) (\$17.86) but more expensive relative to the East Bay (\$12.57).

Non-Residential permitting has fallen considerably, declining -45.3% from 2020 to 2021. The largest decline was in commercial permitting, which totaled just \$544 million during 2021, off -57.3% from 2020. Permitting for non-residential alterations and additions totaled just \$796 million, -41.7% lower than in 2020.

Nonresidential Permits

South Bay



Source: Construction Industry Research Board (CIRB); Analysis by Beacon Economics

