

Economics Group

Special Commentary

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Stanford Takes on Southern Cal

Silicon Valley Takes on Hollywood

The second week of the season brings a matchup between the premier private universities in Southern California and Northern California. USC and Stanford are the only private schools in the Pac-12, and their rivalry dates back to 1905. The matchup highlights an interesting contrast between two of California’s most iconic industries, Hollywood and Silicon Valley. The two have become increasingly intertwined during the past decade and have close ties to the two universities.

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USC is one of the all-time great college football programs, with over 800 victories, 11 national titles and seven Heisman Trophy winners, dating back to 1888. The Trojans play in the Los Angeles Memorial Coliseum, which was built in 1921 and has hosted two summer Olympics (and will host a third in 2028), two Super Bowls, a World Series and is once again home—at least until the \$5 billion Los Angeles Stadium in Inglewood is completed—to the NFL’s Los Angeles Rams. Yet things have been a little rocky since the Pete Carroll era ended in 2009. The team has gone through four different head coaches and endured severe NCAA sanctions over improper athlete benefits.

Stanford is not without its own rich history. The Cardinal began play in 1891 and has racked up 650 victories and two national titles, including one in 1926 under the leadership of legendary head coach Glenn “Pop” Warner. Stanford has faced USC 97 times since their first meeting in 1905. The rivalry has turned acrimonious at times, such as in 1972 when USC coach John McKay accused the Cardinal of having “no class,” and said he would have liked to beat them “by 2,000 points.” The *Stanford Daily* student newspaper later featured a cartoon depicting the Trojans having a 1992-0 lead with one second left, while McKay tells USC quarterback and future Athletic Director Pat Haden that they will go for two if they score. And in 1979, in one of the greatest games of the twentieth century, Stanford came back to tie #1 USC 21-21, giving USC its lone blemish of the season and essentially costing them a national title.

Figure 1

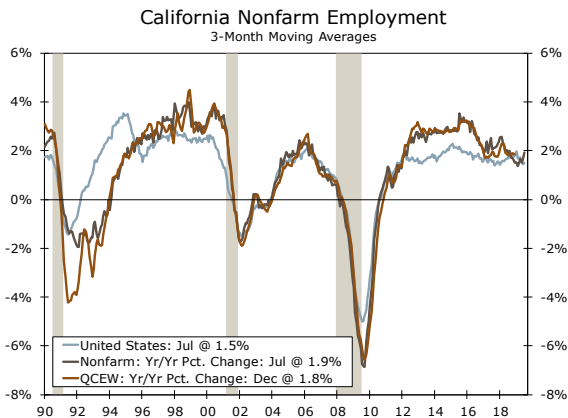
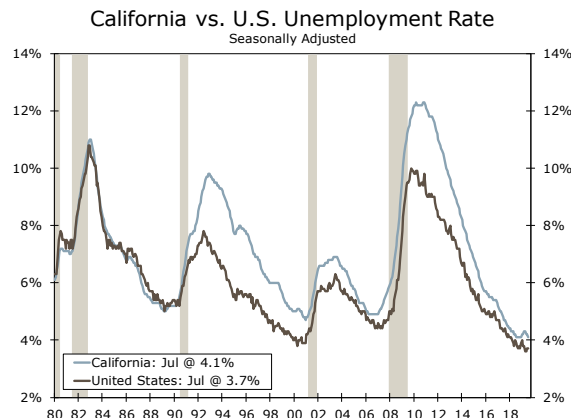


Figure 2



Source: U.S. Department of Labor and Wells Fargo Securities



The series is evenly split over the past 30 matchups.

Despite the Trojans leading the overall series by a healthy margin of 61-33-3, things have been much more competitive recently, with the past 30 matchups evenly split. Perhaps nothing embodies this shift in momentum more than when the 41-point underdog Stanford team, in their first season under Jim Harbaugh, defeated #2 USC 24-23 in 2007. Stanford had not had a winning season in seven years, but scored on fourth & goal with 49 seconds remaining to secure the largest point spread upset in history (at the time), against a USC team riding a 35-game home win streak.

The Harbaugh-Carroll rivalry escalated in 2009, when Stanford decimated USC 55-21 on their home turf in front of over 90,000 fans who expected the Trojans' 28-game November win streak to continue. Instead they watched Stanford score 27 unanswered points in the fourth quarter, which did not deter Harbaugh from adding insult to injury by going for two. Fans were upset and so was Carroll, who asked Harbaugh during an infamously contentious post-game handshake, "What's your deal?" Harbaugh responded simply, "What's *your* deal?"

A Look Inside the New Information Economy

California led the nation and much of the world into the information age. Somewhat surprisingly, employment in the "Information" sector, as defined by the Bureau of Labor Statistics, is in decline throughout much of the country, due to the ongoing disruption from new technologies of how information is created, stored and transferred. The broad *Information* sector includes everything from newspapers and libraries to internet service providers, software publishers, search engines and digital streaming services. Traditional television and movie production is also included in this sector. Given its breadth, the information sector has seen a great deal of disruption. Nationwide, nonfarm employment has risen 39% since 1990, while employment in the information sector rose a mere 5.6%. California's experience has been vastly different, however, with overall employment rising 41%, while employment in CA information sector has risen an even stronger 43%.

California led the nation and much of the world into the information age.

Figure 3

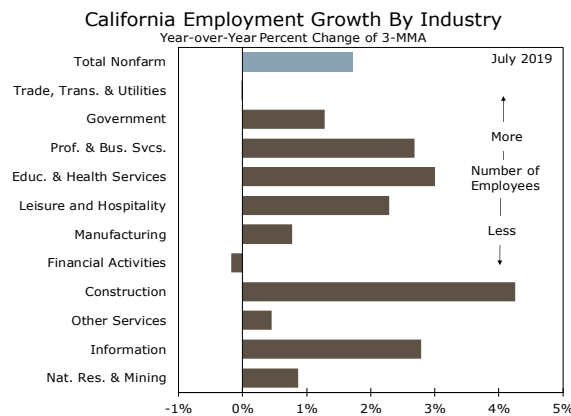
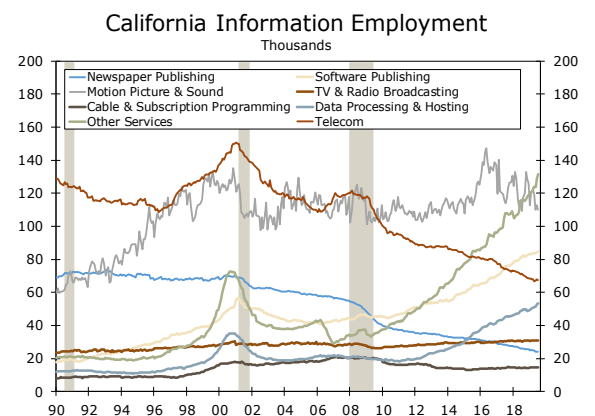


Figure 4



Source: U.S. Department of Labor and Wells Fargo Securities

The overall data mask some interesting trends within the information sector's six sub-sectors. Since 1990, employment at California *newspaper & book publishers* and *telecomm firms* has fallen 65% and 48%, respectively, equating to a net loss of over 100,000 jobs. Employment at what we might call "traditional media"—*motion picture, TV & radio broadcasting* and *cable & subscription programming*—rose 85%, 32% and 88%, respectively. The real growth, however, has been in "new media," much of which took off in Silicon Valley.

The bulk of new media is found in either the *Data Processing, Hosting & Related Services* or *Other Information Services* subsector. The former includes application hosting, web hosting, data storage and video & audio streaming. Employment in this subsector is up 377% since 1990 and picks up jobs at companies such as GoDaddy, Dell EMC, Netflix and Spotify. The *Other Information Services* subsector includes internet publishing and broadcasting as well as web search portals. Employment in this subsector is up a whopping 540% since 1990 and picks up growth at firms such

as Google, Facebook, LinkedIn and Twitter. Employment at *software publishers*, which includes Oracle, Salesforce, Activision Blizzard and Electronic Arts, is up 377% since 1990.

Two Iconic American Industries Collide

This Saturday’s game pitches two schools that are closely tied to two of America’s iconic industries—Hollywood and Silicon Valley. USC is located in South Central Los Angeles, two miles southwest of Downtown, while Hollywood is a neighborhood a few miles to the northwest of Downtown. By the 1910s, Hollywood had become the motion picture capital of the United States, as filmmakers escaped political squabbles in other parts of the country and flocked to Southern California and its near-perfect weather. But there is more to the story than palm trees and sunshine.

By the 1910s, Hollywood had become the motion picture capital of the United States.

In the early days of film, Thomas Edison held a vast majority of motion picture patents and was able to effectively stifle competition. The Motion Picture Patents Company (MPPC) was established in 1908 as a trust that organized the early industry but also restricted any outside or independent filmmaking, through litigation and, reportedly, even some mob hits. In true American fashion, independent filmmakers simply moved out west to California, where they were under the jurisdiction of the Ninth Circuit Court in San Francisco, which was not particularly inclined to enforce patent claims from Eastern courts, and where they could make a dash to the Mexican border, if necessary, keeping their expensive equipment out of the grasps of the American legal system. As that system evolved, the MPPC was eventually dealt a fatal blow in 1918 under the Sherman Anti-Trust Act.

USC’s School of Cinematic Arts—the oldest, largest and most prestigious film school in the country—has been a major pipeline into Hollywood and big screen stardom. Founded in 1929 in collaboration with the Academy of Motion Picture Arts and Sciences, the school has sent a huge roster of its more than 10,000 graduates into motion picture fame—at least one USC alumni has received an Oscar nomination every year since 1973. The school received a major \$175 million donation from legendary alumnus George Lucas in 2006.

Silicon Valley refers mostly to the southern portion of the San Francisco Bay, and includes several cities such as San Jose, Menlo Park, Cupertino, Santa Clara, Mountain View, Sunnyvale and Palo Alto, which is home to Stanford. The university was instrumental in the region’s early development, and which has deep historical roots in technology. University founder Leland Stanford saw that it was essential for California and the West to build its own industrial base, and Stanford’s engineering school developed courses around emerging technologies, such as electronics and integrated circuits, which encouraged further innovation and spawned thousands of startups.

Stanford was instrumental in the development of Silicon Valley.

Figure 5

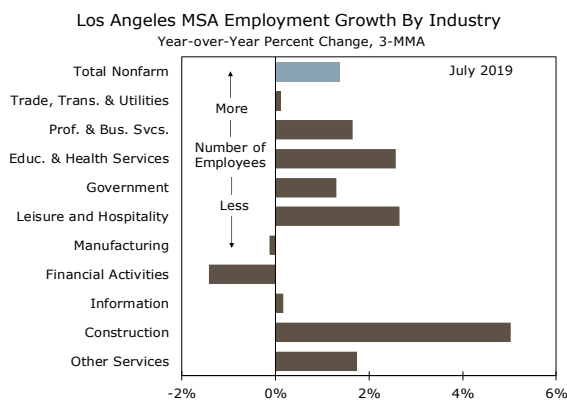
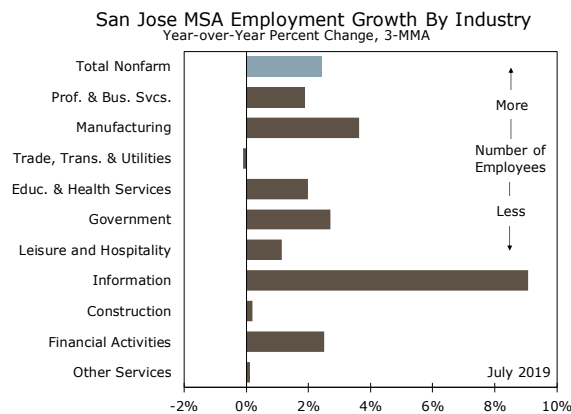


Figure 6



Source: U.S. Department of Labor and Wells Fargo Securities

Stanford remains at the heart of technology today.

Stanford ranks as the highest-rated academic institution among schools with a FBS football program. The University pioneered the model of developing an entrepreneurial ecosystem around a major research institution, with substantial private sector collaboration and the establishment of one of the first university-owned research parks. Frederick Terman, engineering dean and later provost, was intent on incubating new businesses and was a major force in the early development of Hewlett-Packard, earning him the nickname of “the Father of Silicon Valley.” The ecosystem, with Stanford at its heart, was instrumental in the birth of the semiconductor industry and remains at the heart of technology today. Google was one of the more successful firms spawned from research at Stanford, and today the region is home to the headquarters of dozens of major tech companies and thousands of startups that attract roughly one third of all U.S. venture capital (VC) funding.

The latest GDP by metro area data show that the San Jose area, which includes Santa Clara County and Palo Alto, grew faster than any other major metro, with real GDP rising 7.6% in 2017 and averaging 7.0% growth since 2010. Nonfarm employment in San Jose and San Francisco is rising 3.0% and 2.7%, respectively, well above the national rate, while the unemployment rates have fallen to just 2.6% and 2.7%. Years of strong growth and the continuous influx of VC and IPO cash have pushed living costs to exorbitant levels. The median sales price of a single-family home is well over one million dollars and the average one-bedroom apartment rents for well over \$3,000 a month. Home price appreciation has decelerated more recently, as the high costs have encouraged out-migration to more affordable areas. A growing tech backlash over privacy concerns and the threat of antitrust regulation are also fermenting and could create some challenges for the industry.

Hollywood and Silicon Valley have grown increasingly integrated.

Hollywood and Silicon Valley have grown increasingly integrated. Netflix, founded and led by Reed Hastings, who received a Master’s from Stanford, is an interesting case study. Originally a DVD rental company—it recently shipped its fifth billionth DVD—and then a streaming service, it now operates its own production company, churning out massive amounts of original content, and is an prime example of the convergence of tech and entertainment. Expected to spend an astounding \$15 billion on original content this year, the Los Gatos-headquartered firm has become a major force in Southern California. Its film *Roma* became the first originally-for-streaming film to be nominated for Best Picture at the Oscars, validating its new role in the film business.

Figure 7

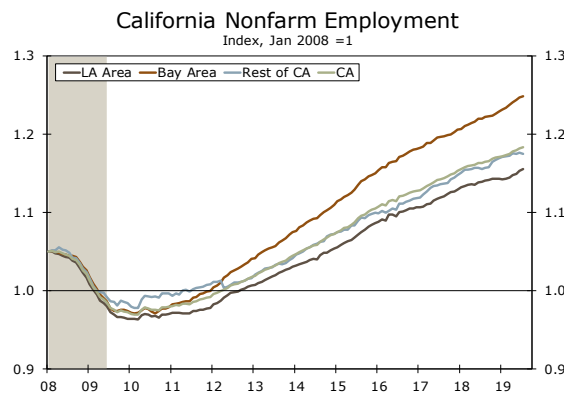


Figure 8



Source: U.S. Department of Labor, U.S. Department of Commerce and Wells Fargo Securities

Southern California’s entertainment industry has historically been limited within the “thirty-mile zone” (TMZ) extending outwards in all directions from the intersection of West Beverly and North La Cinega Boulevards, the former headquarters of the Association of Motion Picture and Television Producers. Filming outside of the zone was considered “on location,” meaning filmmakers had to incur higher labor and operations costs. Today this zone extends as far north as Santa Clarita and south to Orange County.

Studios are running near full capacity, as demand booms as more and more companies—Disney, WarnerMedia and NBCUniversal—get into the streaming wars, furthering the disruption and realignment of traditional media. Netflix now occupies 1.5 million square feet in Hollywood, according to CoStar, making it the largest holder of office space in the neighborhood. All the other major streaming players are also located in the area, including Amazon, Hulu, Apple and YouTube. Hefty demand for studio space has pushed development outside of the TMZ, as old industrial properties and warehouses are increasingly repurposed as studios. Other regions, notably Georgia, New Orleans and Vancouver, have attracted some studios with the help of tax incentives, contributing to “runaway production,” or production outside of Hollywood.

Entertainment has been redefined by tech.

California Outlook

The California economy continues to power ahead, with real GDP rising 3.2% year-over-year in the first quarter. Nonfarm employment has risen 1.8% this past year, pulling the unemployment rate down to a historic low of just 4.1%. California is certainly more globally exposed, rendering it vulnerable to the ongoing slowdown overseas. Tech hardware producers and California’s large agricultural sector have seen overseas demand cool off in recent months, and sales to China have slumped. Foreign investment in residential and commercial real estate has also slowed. The increasing possibility of a crackdown on big tech remains another major risk, as is the ongoing affordability migration away from the high costs and taxes of the Golden State. Still, amid all these challenges, California remains one of the most dynamic and creative regions. Much of that creativity stems from California’s leading universities, including Stanford and USC, and the creativity stimulated there reverberates throughout Silicon Valley and Southern California, driving one of the most innovative economies in the world.

We are looking for economic growth to moderate this year. Real GDP is expected to climb 3.3%, which is just slightly behind the pace seen this past year. Nonfarm employment growth is expected to moderate to around a 1.5% pace, which will translate into 260,000 net new jobs. With job growth continuing to outpace population growth, the unemployment rate should continue to edge lower. We expect California’s unemployment rate to average 4.0% for all of 2019 and move even lower in 2020. Tighter labor markets are pulling more workers into high-skilled and highly compensated sectors, which has strengthened productivity and income growth, but also led to extreme labor shortages in construction and leisure & hospitality.

Saturday’s game between USC and Stanford should be close, and both teams are a little banged up. Stanford comes in ranked #23 in the AP poll, fresh off a victory over Northwestern that saw their injured quarterback sit out the entire second half. The Cardinal’s offense only had a handful of starters return and two of those may not be available on Saturday. Stanford’s defense looks pretty stout, holding Northwestern to just 210 yards of total offense last week. We have Stanford going 8-5 this year, which means their offense will need to perk up. The schedule gets tougher from here, with a trip to #18 Central Florida the following week and then back home against #16 Oregon. The Cardinal will also host Washington in early October and finish the season with #8 Notre Dame at home.

Saturday’s game between USC and Stanford should be close.

USC is in rebuilding mode, coming off a 5-7 season. The Trojans beat Fresno State 31-23 this past week but lost starting quarterback JT Daniel for the season after a tough knee injury. Daniels was replaced by Kedon Slovis, a true freshman, who completed 6 of 8 passes for 57 yards. Most of that yardage came on a 41-yard pass to Tyler Vaughns, which set up a touchdown. USC is an underdog in 5 of their 11 remaining games, but we suspect they may surprise some folks this year. We have them finishing the year 8-5, which means they need to win all the games they are supposed to plus one. The middle part of USC’s schedule features games against #13 Utah at home followed by #14 Washington on the road and then #8 ranked Notre Dame in South Bend following an off week.

California Economic Outlook

	Actual										Forecast		
	2012	2013	2014	2015	2016	2017	2018	2019	2020				
Real Gross Domestic Product by State, \$ Millions	2,144,497	2,220,868	2,309,928	2,426,143	2,498,840	2,587,572	2,677,939	2,766,311	2,852,067				
Annual Rate	2.5%	3.6%	4.0%	5.0%	3.0%	3.6%	3.5%	3.3%	3.1%				
Nominal Personal Income, \$ Millions	1,853,467	1,885,672	2,021,640	2,173,300	2,259,414	2,364,129	2,475,727	2,594,562	2,713,912				
Nominal Personal Income, Percent Change	6.6%	1.7%	7.2%	7.5%	4.0%	4.6%	4.7%	4.8%	4.6%				
Real Median Household Income, \$	60,990	64,078	62,693	65,843	68,070	69,759	72,898	76,135	79,371				
Population, Thousands	37,961	38,281	38,625	38,953	39,209	39,399	39,557	39,700	39,810				
Change in thousands	319	320	344	328	256	190	158	143	110				
Percent Change	0.8%	0.8%	0.9%	0.8%	0.7%	0.5%	0.4%	0.4%	0.3%				
Nonfarm Employment, Thousands	14,762	15,151	15,576	16,052	16,481	16,837	17,175	17,435	17,655				
Change in thousands	327	389	425	476	428	356	338.5	260.0	220.0				
Percent Change	2.3%	2.6%	2.8%	3.1%	2.7%	2.2%	2.0%	1.5%	1.3%				
Unemployment Rate, Annual Average	10.4%	8.9%	7.5%	6.2%	5.5%	4.8%	4.2%	4.0%	3.8%				
Total Housing Permits	58,540	79,028	82,925	95,955	100,265	113,320	117,079	110,000	110,000				
Single-Family Permits	27,361	36,659	38,599	44,452	49,254	58,134	62,236	57,500	59,000				
Multi-Family Permits	31,179	42,369	44,326	51,503	51,011	55,186	54,843	52,500	51,000				
FHFA Home Price Index, Percent Change	0.1%	12.7%	12.3%	7.1%	7.2%	7.8%	8.0%	5.4%	5.0%				
Median Existing Home Price, CAR	\$ 321,100	\$ 406,890	\$ 448,590	\$ 476,610	\$ 501,560	\$ 537,370	\$ 571,070	\$ 585,347	\$ 599,395				
USC Trojans Football Record	7-6	10-4	9-4	8-6	10-3	11-3	5-7	8-5	8-5				
Stanford Cardinal Football Record	12-2	11-3	8-5	12-2	10-3	9-5	9-4	8-5	9-4				

Forecast as of: September 05, 2019

Sources: National Association of Realtors, Federal Housing Finance Authority, U.S. Department of Commerce, California Association of Realtors, U.S. Department of Labor, Moody's Analytics & Wells Fargo Securities

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