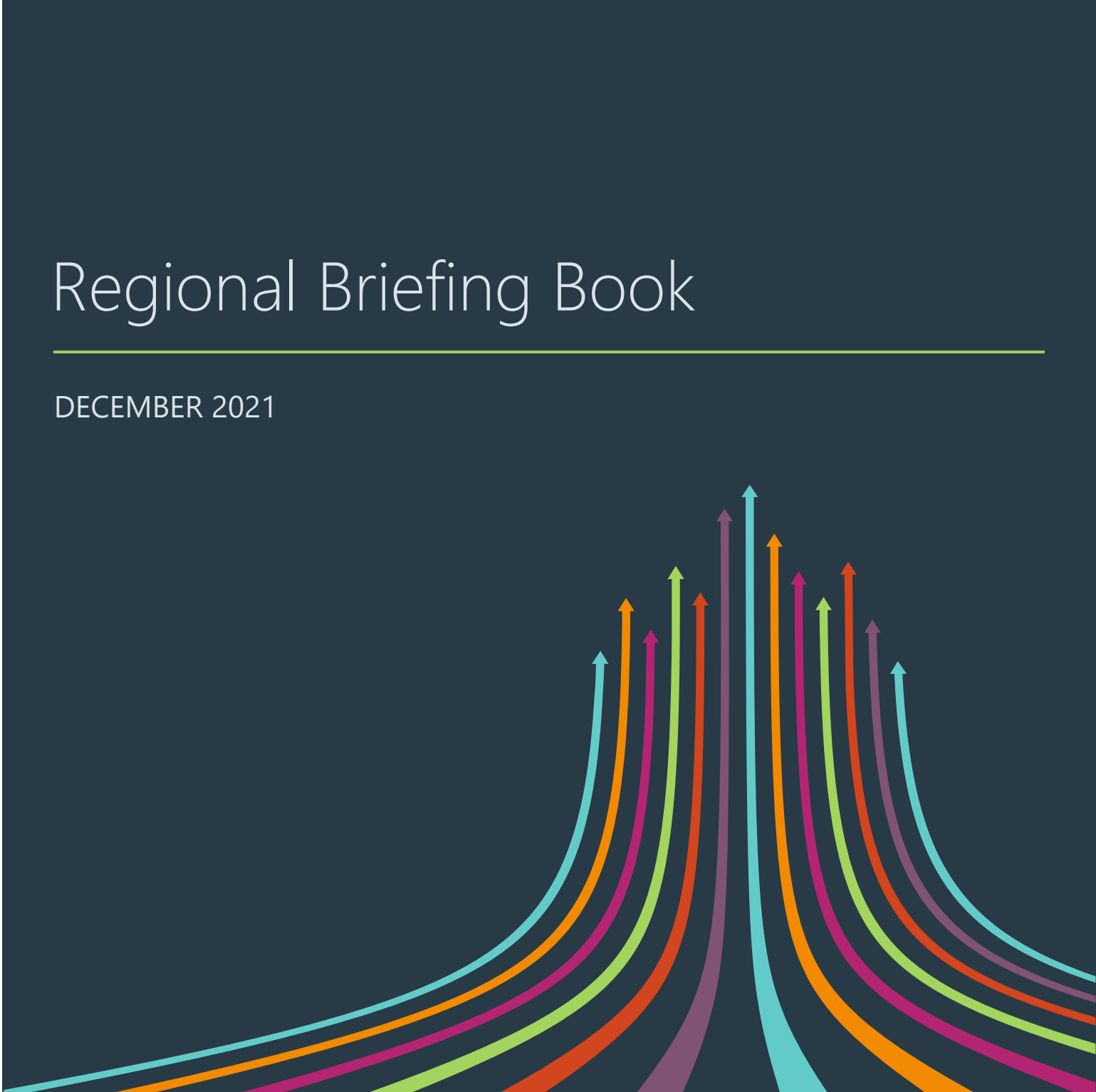




# Regional Briefing Book

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DECEMBER 2021



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# Regional Briefing Book

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## ABOUT SCAG

SCAG is the nation's largest metropolitan planning organization (MPO), representing six counties, 191 cities and more than 19 million residents. SCAG undertakes a variety of planning and policy initiatives to encourage a more sustainable Southern California now and in the future.

## VISION STATEMENT

Southern California's Catalyst for a Brighter Future

## MISSION STATEMENT

To foster innovative regional solutions that improve the lives of Southern Californians through inclusive collaboration, visionary planning, regional advocacy, information sharing, and promoting best practices.

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# Overview

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Now in its 12th year, SCAG's annual Southern California Economic Summit brings together business, local government, and other stakeholders from across Southern California to consider how to expand the region's economic base and determine priorities. The summit has evolved from its initial formulation in response to the Great Recession and assessment of the economic conditions in the region's counties to also address an array of topics driving the economic well-being of Southern Californians.

Most recently, the 2020 Summit assessed the economic impacts of the novel coronavirus (COVID-19) pandemic and began a deeper discussion of institutionalized racial inequity in the region. This work led to the development of SCAG's Inclusive Economic Recovery Strategy (IERS), which was adopted in July 2021. As a follow-up, SCAG was awarded \$3.5 million in one-time grant funding through the May 2021 budget revise and AB 129 to implement several core recommendations developed in the IERS. One of SCAG's tasks as part of this grant is to develop a subregional job quality index for the region, a tool that will inform economic development.

As such, this 2021 edition of the Regional Briefing Book contains:

- An overview of the SCAG region economy today, as well as an outlook for the counties.
- An assessment and discussion on incorporating equity in SCAG's long-term planning.
- Preliminary research into what drives good jobs in U.S. regions to help develop measures and strategies to promote good jobs in Southern California.

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## ***A Note on Data Availability***

At the time of publication of this report, the 2020 American Community Survey was not published as expected. According to a recent announcement by the U.S. Census Bureau, it does not plan to release its standard 2020 American Community Survey (ACS) 1-year estimates due to the impacts of the COVID-19 pandemic on data collection. Experimental estimates developed from 2020 ACS 1-year data, however, will be available by Nov. 30, 2021.

## Executive Summary

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As 2021 draws to a close, the SCAG region, composed of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties, continues to demonstrate an economic resilience that has allowed it to weather the COVID-19 pandemic. It will likely face further challenges in the coming months, such as potential new COVID-19 variants, vaccine hesitancy, sociopolitical polarization, labor shortages, supply chain disruptions, and inflation. While significant federal stimulus helped millions of Americans stay afloat during the pandemic, this influx of cash along with a rapid increase in consumer spending has contributed to inflationary pressures. Moreover, the social inequities exacerbated and more plainly exposed by the pandemic can no longer be ignored. The region's continued economic recovery depends on a more equitable future.

Despite these concerns, the SCAG region continues to make impressive strides. In the past year alone, the SCAG region has added over 700,000 jobs and decreased the regional unemployment rate from 11.8 percent in September 2020 to 7.2 percent in September 2021. Regional unemployment remains above U.S. unemployment due to the regional importance of the Leisure and Hospitality, Education, and Other Services sectors, which were significantly disrupted during the pandemic and have not recovered all jobs lost during the pandemic. Continued concern about new COVID-19 variants, vaccine hesitancy, and cost-of-living increases – exacerbated by inflation – could slow the recovery.

What many employers are describing as a labor shortage may be workers strategically timing their reentry into the workforce to secure higher pay consistent with cost-of-living increases that continue to erode affordability, especially in more expensive, coastal regions. With the added inflationary pressure, measured at a 13-year high of 5.4 percent in September 2021, employers who fail to provide a mirrored increase in wages are effectively giving workers a pay cut at a time when rent and housing prices continue to hit new highs. With lower- and middle-income households seeing an outsized impact from the pandemic while simultaneously grappling with rapidly rising costs of living, it is imperative that policymakers and stakeholders recognize these hardships and design strategies and policies aimed at better supporting these residents.

The goal of this Regional Briefing Book is to not only provide a comprehensive understanding of the economic landscape and environment within the SCAG region, but also to highlight strategies on how to best leverage regional competitive advantages to further accelerate inclusive economic growth and recovery. Chapter 2 of this Regional Briefing Book evaluates how SCAG uses equity indicators in its Connect SoCal long-range transportation plan and proposes ways in which SCAG can improve its long-term planning through more effective use of equity indicators. To inform SCAG's forthcoming work on a subregional jobs quality index, Chapter 3 presents an exploratory model of "good jobs" and the factors that contribute to their growth in metropolitan regions across the country. Finally, this Briefing Book includes snapshots of all six SCAG counties, analyzing each county's economic performance and regional experts' outlooks for each county.

Overall, the SCAG region encompasses some of the most diverse populations, innovative businesses, and strongest industry clusters in the country. With the individual competitive advantages of counties working together, the SCAG region will not only return to pre-pandemic highs, but surpass them as markets, businesses, and residents continue to innovate and evolve. Over the next year, SCAG will continue to engage with its regional partners to strategize and create inclusive and equitable recovery strategies to not only drive economic activity across the region, but to help lift the most vulnerable communities so that all residents in the region can benefit.

# 1 | State of the SCAG Region Economy & Outlook

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For well over a decade, SCAG's team of independent economists have collaborated to produce analyses of the key trends impacting the region, pooling their expertise, and reporting on a broad range of economic issues from housing affordability and availability to continued economic growth and job creation. While the SCAG region faces persistent economic challenges as it continues to recover from the COVID-19 pandemic, Southern California remains an economic engine for the state as a whole and will play a major role in the broader national economic recovery.

The University of California, Los Angeles (UCLA) Anderson School of Management Forecast's initial outlook in March 2021 for the year predicted "robust growth for the U.S. and California" fueled by pent-up demand (UCLA, 2021). UCLA's recent update is slightly more conservative, but still optimistic. In the words of UCLA Anderson Senior Economist Leo Feler:

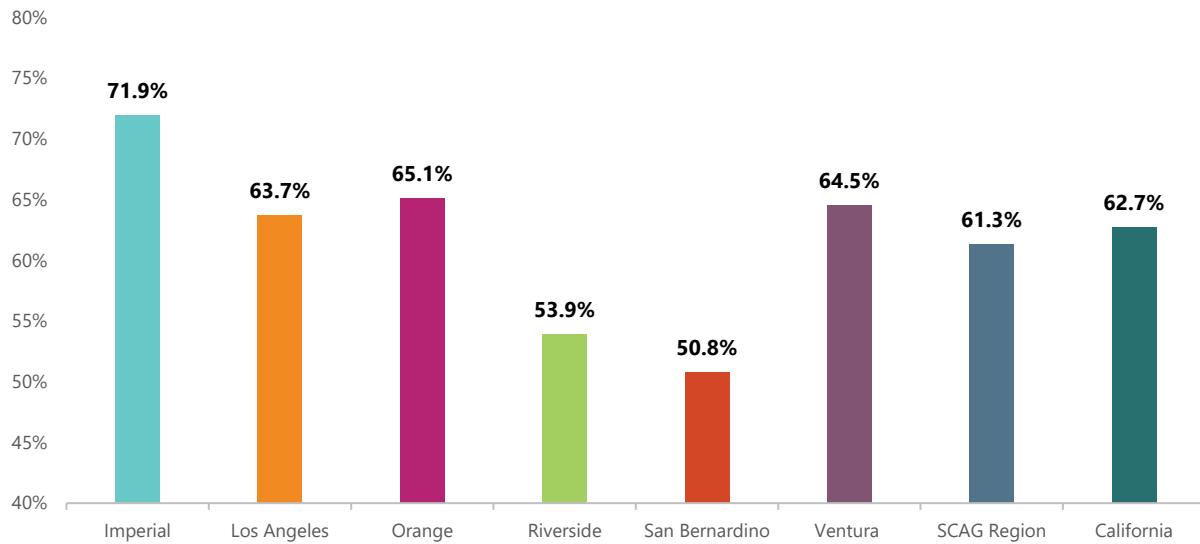
*"The faster growth in services consumption reflects a release of pent-up demand for leisure and hospitality, recreation and deferred health care, and a return to prior trends in education and social services."*

Of course, there are caveats to our outlook, which assumes that the COVID-19 public health crisis improves and enables economic recovery. As of Oct. 1, 2021, U.S. case counts averaged 103,422 (7-day moving average), compared to 191,655 a month earlier. While new case counts have declined in recent weeks, cold weather could contribute to a new wave. According to the Centers for Disease Control (CDC), approximately 59 percent of the U.S. population was fully vaccinated as of Nov. 7, 2021, with 68 percent having received at least one dose. In California, the vaccination rate is higher, with 62.7 percent of its population fully vaccinated and an additional 6.4 percent partially vaccinated. Exhibit 1.1 compares vaccination rates for each SCAG county. High vaccination rates likely contributed to the Delta variant having less severe consequences for Southern California compared to many other places in the United States – the region's Delta variant spike did not come close to reaching its earlier peak. In fact, four of the six SCAG counties were among the state's most vaccinated counties, indicating that the region is ahead of most of the rest of the state in this regard. Nevertheless, vaccine hesitancy continues to pose a risk to the region's economic recovery.

The SCAG region had an overall unemployment rate of 7.2 percent in September 2021, its lowest rate since March 2020. Orange County had the region's lowest unemployment rate (5.0 percent), followed by Ventura County (5.3 percent), and were the only two counties in the region with lower unemployment rates than the September 2021 state rate of 6.4 percent. No SCAG county beat the national unemployment rate of 4.6 percent for the same period (see Exhibits 1.2 and 1.3).

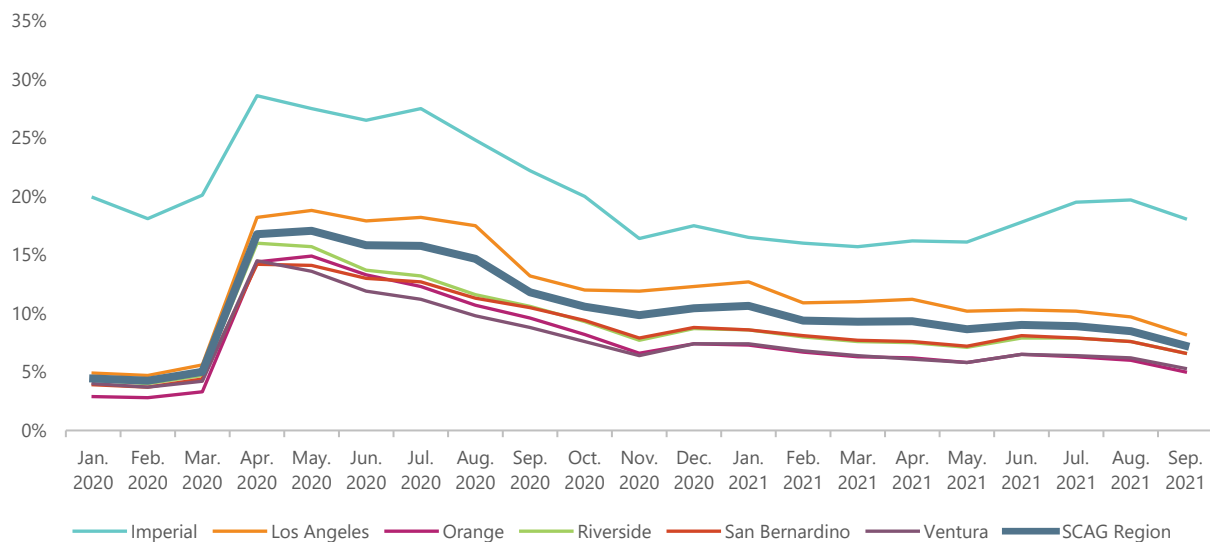


### Exhibit 1.1: Percent of Population Fully Vaccinated (through Nov. 7, 2021)



Source: Los Angeles Times, California Department of Public Health

### Exhibit 1.2: SCAG Region Unemployment Rates (Feb. 2020 – Sept. 2021) Percentage of total employment, not seasonally adjusted



Source: California Employment Development Department (EDD)

The SCAG region’s September 2021 unemployment rate was still 2.9 percentage points above its pre-pandemic level, as shown in Exhibit 1.3. Los Angeles County had the largest point difference (3.5 percentage points) while Imperial County has regained its pre-pandemic unemployment rate of 18.1 percent.

### Exhibit 1.3: SCAG Region Unemployment Rates (Feb. 2020 vs. Sept. 2021)

	February 2020	September 2021	Difference
Imperial	18.1%	18.1%	0.0%
Los Angeles	4.7%	8.2%	3.5%
Orange	2.8%	5.0%	2.2%
Riverside	4.0%	6.6%	2.6%
San Bernardino	3.7%	6.6%	2.9%
Ventura	3.7%	5.3%	1.6%
<b>SCAG Region</b>	<b>4.3%</b>	<b>7.2%</b>	<b>2.9%</b>

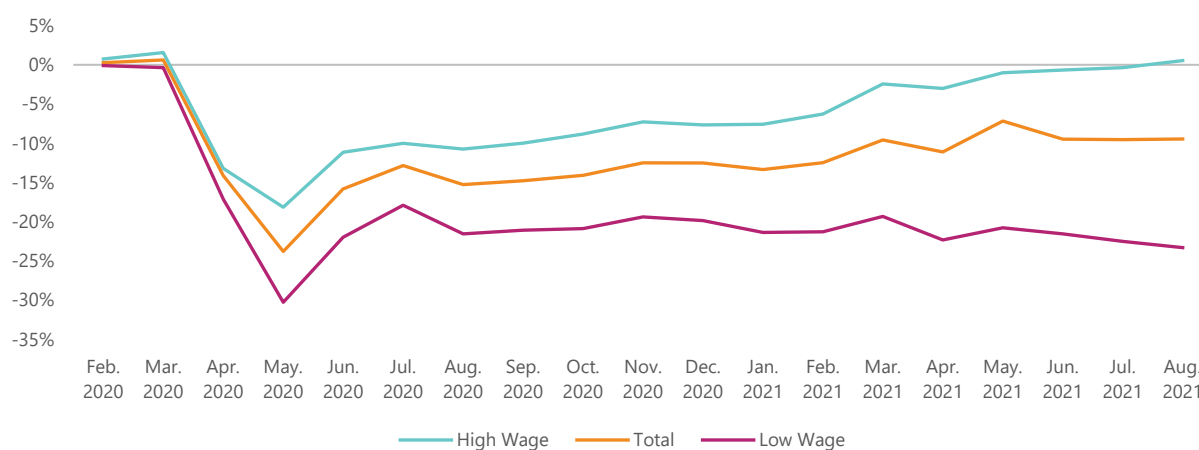
Source: CA EDD

## An Uneven Recovery

While the regional recovery has made significant progress thus far, low-skill, low-wage positions have seen a much slower recovery even as many employers struggle to find enough workers and have raised wages to fill a significant and growing number of open positions. Women and people of color are disproportionately represented in low-wage positions, exacerbating the inequitable impacts of the pandemic (Stevenson 2021, Equity Baseline Conditions 2021).

Opportunity Insights defines “low-wage” workers as those earning below the median annual wages of \$37,000 and “high-wage” workers as those earning above the median. Based on Opportunity Insights data, Exhibit 1.4 shows low-wage employment in the SCAG region remains 23.3 percent below January 2020 totals. Employment in the high-wage group on the other hand, has already exceeded January 2020 totals as of August 2021. Total regional employment remains 9.5 percent below January 2020 totals.

**Exhibit 1.4: Percent Change in SCAG Region Employment Relative to Jan. 2020 by Income Segment (Feb. 2020 – Aug. 2021)**



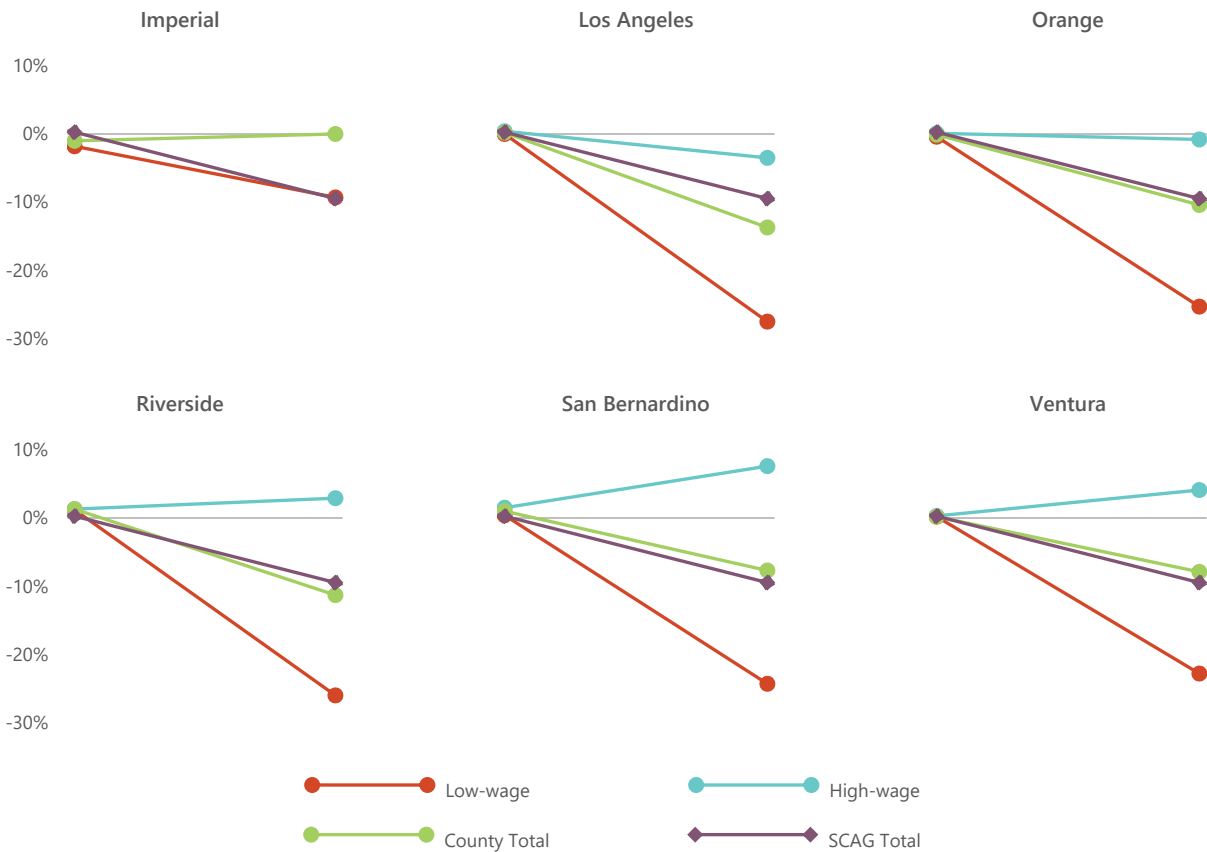
Note: Data for Imperial County was unavailable for the “low-wage” and “high-wage” income segments, therefore, is not included in those averages yet was included in the “Total” segment.

Source: Opportunity Insights

Low-wage workers in the SCAG region already faced significant challenges before the pandemic, especially regarding rising housing costs. While federal support and stimulus checks helped sustain many families during the pandemic, this temporary support is being phased out. California’s eviction moratorium, for instance, ended on Sept. 30, 2021. While some cities and counties have ongoing protections, however, many tenants are at risk of losing their homes. As of Oct. 1, 2020, a total of 724,000 California households were behind on rent with a total of \$2.46 billion in rent debt (National Equity Atlas).

Exhibit 1.5 compares the percent change in employment in August 2021 to pre-pandemic employment in February 2020 for low-wage, high-wage, and all workers in each SCAG county. During the pandemic, low-wage workers in each of the SCAG counties saw the largest job losses and have since seen the slowest recovery. In all five counties with available data, employment among low-wage workers has remained below the pre-pandemic level (i.e., below the 0 percent line in Exhibit 1.5). This disparity in job recovery in this group is significantly below SCAG overall in all counties except Imperial. As of August 2021, low-wage employment was 27.5 percent below pre-pandemic levels in Los Angeles County, the largest disparity in the SCAG region. In contrast, employment among high-wage workers has reached or exceeded pre-pandemic levels (i.e., at or above 0 percent line in Exhibit 1.5) for Orange, Riverside, San Bernardino, and Ventura Counties. In Los Angeles County, high-wage employment remains 3.5 percent below the pre-pandemic level.

### Exhibit 1.5: Percent Change in SCAG County Employment Relative to Pre-Pandemic Employment (Feb. 2020 vs. Aug. 2021)



Note: Data for Imperial County was unavailable for “high-wage” workers and is not included in this figure. The 0 percent line indicates employment at the same level as in February 2020 before the pandemic.  
 Source: Opportunity Insights

## Risks to the Region’s Recovery

The current economic recovery in the SCAG region will depend on the broader macroeconomic conditions in the state, the nation, and the world. While there are persistent concerns about COVID-19 variants, vaccine hesitancy, and subsequent impacts on the labor market and job growth potential, additional concern has materialized around inflation rates in recent months. Exhibit 1.6 summarizes four major inflation forecasts. Most forecasters have elevated inflation as a major downside risk to the economy (e.g., Anderson Forecast 2021, Oxford Economics US 2021). The California State University, Fullerton (CSUF) Woods Center forecast expects inflation to be more persistent.

CSUF Woods Center expects the Consumer Price Index to jump to 4.6 in 2021 and 4.3 in 2022. This contrasts with the other inflation forecasts listed in Exhibit 1.6. The Federal Reserve Open Market Committee forecasts inflation at 4.2 percent for 2021 and down to 2.2 percent in 2022 and 2023. The UCLA Anderson Forecast and Oxford Economics forecast inflation in line with the Federal Reserve in 2021 at 4.3 percent, but higher in 2022 at 3.3 percent and 3.1 percent, respectively. Moreover, the UCLA Anderson Forecast expects inflation to decline, but average prices to continue to increase at a slower rate (Anderson Forecast 2021).

The CSUF Woods Center forecasters believe that current inflation will persist and argue that current inflation is fueled by both demand and supply side shocks, where pent-up demand and spending from consumers was supported by rising home equity and above-average savings rates. They write, “Our view is more sanguine than the grim prognosis of the ‘stagflationary’ crowd though less cheerful than the Goldilocks economy (high growth/low inflation) that some economists and most policymakers are penciling in” (Puri & Farka). In contrast, experts with the South Bay Economic

Forecast explain, “These price increases are not expected to continue as industries will adjust to new supply chain flows and businesses will expand to meet market demands” (South Bay Economics Institute, 2021). Nevertheless, continued inflation could dampen economic growth in the region.

### Exhibit 1.6: U.S. Inflation Forecasts

Forecast	Forecast Date	Projected U.S. Inflation			Outlook
		2021	2022	2023	
Federal Reserve Open Market Committee	Sept. 22, 2021	4.2%	2.2%	2.2%	“These bottleneck effects have been larger and longer-lasting than anticipated... While these supply effects are prominent for now, they will abate. And as they do, inflation is expected to drop back toward our longer-run goal.”
UCLA Anderson September 2021 Economic Forecast	Sept. 21, 2021	4.3%	3.3%	2.3%	“We expect the rate of inflation to abate, we do not expect price levels, on average, to come down.”
Oxford Economics Country Economic Forecast	Oct. 11, 2021	4.3%	3.1%	2.4%	“Inflation will cool in short-run, but remain higher than it’s been since the 1990s.”
Cal State Fullerton Woods Center 2022 Economic Forecast	Oct. 20, 2021	4.6%	4.3%	3.5%	“But the most pressing and longer-lasting concern is inflation...will likely become endemic and pervasive...”

Sources: Federal Reserve Open Market Committee (2021), Anderson Forecast (2021), Oxford Economic Forecast (2021)

## Supply Chain Disruptions a Significant Issue for Southern California

According to the National Federation of Independent Businesses “Supply chain disruptions and the staffing shortage have become substantial issues for small businesses across the county... Small employers are making business operation and hiring adjustments in order to compensate for both issues” (NFIB 2021). Overall, half of small business owners reported that supply chain disruptions were worse than three months ago, with 86 percent anticipating that supply chain disruptions will continue for at least the next five months or more.

## LONG-TERM COVID-19 IMPACTS

While initial vaccination rates were promising, they have since slowed as vaccine hesitancy and general social and political unease continues. California Governor Gavin Newsom announced a vaccination mandate for children 12 and older to attend school or in-person instruction as of Oct. 1, 2021. California businesses, however, will be able to draw on well over a year of experience in dealing with any future pandemic-related disruptions.

Remote, more flexible work became a reality for many workers during the pandemic, however, remote work was mostly limited to white-collar workers who already made above-average incomes and had a relatively easy transition to working from their homes. Lower-income service and blue-collar workers, on the other hand, often could not perform their work activities from home, leading them to lose their jobs at a much higher rate. As noted earlier, many of these lower-income residents – disproportionately residents of color and women – faced significant economic challenges prior to the pandemic due to rising home prices.

COVID-19 has had a significant human impact on the region. As of Nov. 2, 2021, the SCAG region lost 1 out of every 400 residents to COVID-19. In the U.S., 140,000 children lost a primary caregiver and another 22,000 lost a secondary caregiver during the first 15 months of the pandemic, a burden that has fallen disproportionately on children of color (Hillis et al, 2021). California is among the three states (along with Texas and New York) with the largest number of children who lost caregivers due to COVID-19 (De la Cruz 2021), which presents a new challenge for policymakers.

The pandemic accelerated already developing labor market trends, fueling adaptation and innovation. Advances in communication technologies have enabled remote working options for many workers, with little impact on operational efficiency. Remote work in these settings may offer reduced overhead for employers and better work-life balance for some employees. Women continue to bear a disproportionate childcare burden as well as risk of job loss even with added work-from-home flexibility.

Delivery services and fulfillment centers, such as Amazon, saw significant demand growth as residents opted for online shopping in lieu of in-person shopping, accelerating the already rapid rise of e-commerce and decline of brick-and-mortar retail. Restaurants faced similar challenges, though delivery services such as Uber Eats, DoorDash, and Postmates provided a new avenue to reach customers.

Distance learning programs, while an imperfect substitute for in-person education and often a burden on working parents, enabled schooling to continue for families with broadband. The burden of on-line schooling for lower income families raised awareness about broadband as essential infrastructure for building resilient communities. Nevertheless, innovations in educational technology adopted during the pandemic provided a framework for increased access and democratization in learning, especially for post-secondary education.

## Impacts & Recovery Outlook – Imperial County

Imperial County's economy has stabilized over the past year. Unemployment is at 19.4 percent, which is near the 10-year average. The population of Imperial County declined by about 2,400 persons year-over-year, while the labor force has declined by 11,000 since 2011. Median household income stands at \$51,149, which is an all-time high. Median home prices are also at a record high at \$281,000.

Agriculture production reached \$2.1 billion in 2020, the fourth highest on record. Vegetables and melons accounted for \$896 million while livestock (mostly cattle) totaled \$445 million.

The region continues to see significant investment in solar production, and most recently, battery storage. Over 3,400 megawatts (MW) of electric generation is operating (power for 1.1 million homes) with another 960 MW of solar production and 1,260 MW of battery storage in the permitting process.

The region faces headwinds relative to labor availability and cost (needed in both agriculture and solar construction), as well as ongoing concerns regarding water availability. Livestock producers have immediate concerns regarding the lack of competition for processing, creating substantial losses to the producer.

Investment is imminent in rare-earth mineral mining as the region is rich in lithium, which is needed for battery-powered vehicles and mobile communication equipment.

## SCAG Regional Economic Indicators

### EMPLOYMENT

As noted earlier, the SCAG region's September 2021 unemployment rate of 7.2 percent is a significant improvement over its pandemic peak (17.1 percent), but remains 2.9 percentage points above February 2020 levels. The six SCAG counties employed 8,523,700 workers in September, with total unemployment of 664,800. The region has added 1.2 million jobs since April 2020, reducing unemployment by over 800,000.

At the state level, California's September 2021 unemployment rate of 6.4 percent was less than half of its pandemic peak (16.0 percent in April 2020), but remains 2.1 percentage points above what it was in February 2020. The state has made significant progress, adding more than 2.3 million jobs since April 2020. The SCAG region's higher than state average unemployment rate is likely due to the importance of its hard-hit tourism and hospitality sector. The UCLA Anderson Forecast reports that 70 percent of the job deficit in California relative to February 2020 was in Leisure & Hospitality, Education, and Other Services (Anderson 2021). More than half of the job deficit in these three sectors were in the SCAG region (EDD). Moreover, these three sectors made up 21 percent of all jobs in the SCAG region in 2019 (EDD). Because of the importance of these sectors in the SCAG region, their relatively slow recovery makes it likely that SCAG regional unemployment rates will likely lag the state and nation for several more months.

## Impacts & Recovery Outlook – Ventura County

Prior to the onset of the pandemic, Ventura County was experiencing a prolonged period of economic weakness. From 2007-2018, County GDP shrank by \$8.6 billion, a 15.4 percent decline in economic activity. Net domestic migration was negative for 10 years. The county's population and labor force experienced sustained contraction.

The pre-pandemic peak of economic activity was in February 2020. The pandemic caused an unprecedented contraction, the impacts of which are not evenly distributed. Jobs in Retail, Leisure and Personal Services, with an average salary of \$31,000, dropped by 30.5 percent and are still down nearly 11 percent. Jobs in Construction, Manufacturing, and White-collar roles, with an average salary of \$80,000, declined by 9.5 percent and are now only 1.5 percent below the pre-pandemic peak.

Ventura County's pre-pandemic housing market was faltering. Price appreciation slowed for six consecutive years, and prices declined in 2019. Pandemic-related desire for additional housing and neighborhood types has reversed this. Median single-family home price increased 28.1 percent in 13 months. While rapid appreciation may be welcome to incumbent owners, it bodes ominously for housing affordability and economic inclusion.

Ventura County was the last county in Southern California to recover from the Great Recession. Given the county's pre-existing economic weakness, it is expected that the current recovery will be slower than in neighboring counties.

While the SCAG region suffered significant employment losses in the first few months of 2020, it has added 1.21 million jobs since April 2020, lowering unemployment by 808,400 as of September 2021. Total regional employment, however, remains 507,000 jobs below February 2020 totals. The hardest hit sectors include Information, Other Services, Leisure and Hospitality, and Mining and Logging. Employment in the Information sector is 19.7 percent below the pre-pandemic employment. The employment deficits for Other Services, Leisure and Hospitality, and Mining and Logging are at 16.6 percent, 14.6 percent, and 10.9 percent, respectively.

To paint a picture of where the SCAG region is currently compared to pre-pandemic, the table below (Exhibit 1.7) provides employment changes in the SCAG region by industry between February 2020 and September 2021.

## Impacts & Recovery Outlook – Los Angeles County

The next five years represent a period of economic recovery and transition for Los Angeles County. Though it has faced major challenges, with the COVID-19 pandemic posing severe problems for the economy in 2020 and into 2021, forecasts show resumed growth on the horizon. There will, however, be further complications including lingering impacts of the pandemic, an ongoing housing crisis, high unemployment rates combined with a workforce with a transformed vision of the modern workplace, and deep socioeconomic inequities that have been brought to the forefront by the public health crisis.

Navigating these issues will prove difficult, but the county has unique strengths that will aid recovery including industries with key competitive advantages. Los Angeles County employment is projected to grow by 457,000 jobs from 2020 to 2025 with Healthcare and Social Assistance, Accommodation and Food services, and Transportation and Warehousing expected to add the most jobs. The unemployment rate rose as high as 18.8 percent in May 2020 but fell to 9.7 percent as of August 2021.

Both median household and per capita incomes have been rising while the individual poverty rate decreased to 13.4 percent in 2019. Housing demand skyrocketed during the pandemic due to a combination of limited supply, low interest rates, and more, which translated into pent-up demand in 2021 that has pushed prices even higher. Housing affordability has accordingly hit a low point in Los Angeles County, which will pose future challenges.

**Exhibit 1.7: SCAG Region Employment Change (Feb. 2020 – Sept. 2021)**

	February 2020	September 2021	Absolute Change	Percent Change
Mining and Logging	4,600	4,100	-500	-10.9%
Construction	388,100	375,600	-12,500	-3.2%
Durable Goods	402,500	375,000	-27,500	-6.8%
Nondurable Goods	222,300	206,200	-16,100	-7.2%
Wholesale Trade	380,000	358,100	-21,900	-5.8%
Retail Trade	783,700	745,500	-38,200	-4.9%
Transportation, Warehousing, and Utilities	409,100	458,500	49,400	12.1%
Information	281,500	226,000	-55,500	-19.7%
Financial Activities	405,900	380,900	-25,000	-6.2%
Professional and Business Services	1,187,200	1,138,600	-48,600	-4.1%
Educational and Health Services	1,423,700	1,391,600	-32,100	-2.3%
Leisure and Hospitality	995,500	849,700	-145,800	-14.6%
Other Services	276,200	230,300	-45,900	-16.6%
Government	1,099,400	1,015,700	-83,700	-7.6%

Source: CA EDD

No SCAG industries saw employment decline between September 2020 and September 2021. Industries with the highest employment growth over the past year include Leisure and Hospitality, with an increase of 28.5 percent, Other Services with an increase of 11.7 percent, and Information with an increase of 9.6 percent.

**Exhibit 1.8: SCAG Region Employment Change (Sept. 2020 – Sept. 2021)**

	February 2020	September 2021	Absolute Change	Percent Change
Mining and Logging	4,100	4,100	0	0.0%
Construction	369,000	375,600	6,600	1.8%
Durable Goods	370,900	375,000	4,100	1.1%
Nondurable Goods	202,500	206,200	3,700	1.8%
Wholesale Trade	347,900	358,100	10,200	2.9%
Retail Trade	721,000	745,500	24,500	3.4%
Transportation, Warehousing, and Utilities	424,400	458,500	34,100	8.0%
Information	206,200	226,000	19,800	9.6%
Financial Activities	380,500	380,900	400	0.1%
Professional and Business Services	1,078,600	1,138,600	60,000	5.6%
Educational and Health Services	1,339,900	1,391,600	51,700	3.9%
Leisure and Hospitality	661,400	849,700	188,300	28.5%
Other Services	206,200	230,300	24,100	11.7%
Government	1,006,000	1,015,700	9,700	1.0%

Source: CA EDD

**INCOME**

As shown in Exhibit 1.9, real household income in the SCAG region increased by 12 percent between 2009 and 2019. Since 2019, however, real household income has declined by 3 percent. Real income fell 3.3 percent in the decade 1989-1999 and fell 2.8 percent in the decade 1999-2009. The growth in real household income between 2009 and 2019 is attributed to the region's focused industry clusters, strong regional labor markets, and improvements in educational attainment. Over the past two years, the pandemic has dramatically reduced employment and real wages have declined, with loss of purchasing power exacerbated by increasing housing costs and overall cost of living.

**Exhibit 1.9: Change in SCAG Region Real Median Household Income (1990-2021)**

In 2021\$

	1979	1989	1999	2009	2019	2021
Real Median Household Income	\$63,548	\$76,660	\$74,164	\$72,123	\$80,832	\$78,416
Percent Change Over Previous Decade		20.6%	-3.3%	-2.8%	12.1%	-3.0%
Average Annual Percent Growth Rate		1.9%	-0.3%	-0.3%	1.1%	-1.5%

Source: 2019 and prior data are Decennial Census and American Community Survey accessed through Social Explorer and Census API. Inflation adjustment uses 2021 Q1-Q3 consumer price indices from BLS accessed through FRED. 2021 income estimates are from Esri.

## HOUSING

Despite the worldwide economic downturn, housing prices throughout the U.S. increased 18.6 percent between June 2020 and June 2021 (Friedman 2021). The median sales price for all homes in the SCAG region jumped from \$528,000 in 2019 to \$582,000 in 2020 to \$664,000 in the first nine months of 2021 – a figure which was only \$291,000 in 2010. This emphasizes the need for affordable housing. SCAG region home prices have increased by 17.9 percent over the past year, led by Ventura (+21.2 percent), Orange (+19.3 percent), and Riverside (+18.3 percent) counties. Rental rates across the SCAG region were uneven over the past year, with declines recorded in Los Angeles and Orange Counties while rents for apartments in Riverside and San Bernardino Counties have increased. There is concern that rent burden may increase in the near-term as COVID-based protections expire and the impact of high sales prices spill into the rental market.

For 28 of the last 30 years, the SCAG region has lost more population to other states and regions than it has gained, though this is usually balanced by a strong influx of immigration (CA DOF 2020). In the last several years, this trend has increased, with net losses to other states and regions increasing from 73,000 in 2012 to 107,000 in 2019 (the most recent year for which comprehensive data are available). Migration occurs for several reasons, but the region's high cost of living is considered a major factor. In 2019 the top migration flow within the SCAG region was from Los Angeles to San Bernardino County (25,400 people) and illustrates this dynamic, but in that same year 23,000 more people moved from Los Angeles to Orange County than vice-versa and another 23,000 more people moved to Riverside County from coastal counties than vice-versa (ACS PUMS 2012 and 2019).

While the notion of a pandemic-induced and telework-enabled exodus from the region has been discussed, comprehensive migration data are not yet available. A University of California study using credit reporting data suggests that there was a slight increase in departures from some California counties in 2020 compared to 2019, but a more noticeable drop in new arrivals from elsewhere. This was particularly pronounced in urban San Francisco County and to a lesser extent in Los Angeles and Orange Counties; however, consistent with the trend over the last several years, new arrivals to Riverside County increased (Holmes 2021). This trend is consistent with greater telework and the desire for additional housing and neighborhood types due to the pandemic, as well as ageing of the large millennial age cohort which have also been associated with the rapid increase in home sale prices. While this may suggest a slight acceleration of the historical trend of people leaving the SCAG region since the beginning of the pandemic, it is consistent with the historical trend of cost-based domestic out-migration.

## SCAG Region Economic Outlook

The SCAG region's continued recovery will depend on supporting three types of economic sectors. First, the region must support high multiplier sectors such as Manufacturing, Construction, and Utilities that create additional economic growth through employment multipliers, generating ripple effects throughout the regional economy. Supporting the hardest hit sectors such as Restaurants and Leisure and Hospitality will be equally important. Leisure and Hospitality, for instance, brings money into the region and generates a constant supply of entry-level jobs that often serve as gateways into the workforce for students and recent graduates.



## Impacts & Recovery Outlook – Riverside & San Bernardino Counties

Fundamentally, the behavior of three forces molded the economy in Riverside and San Bernardino Counties during the COVID-19 pandemic and afterwards.

First are the service sectors, which includes Restaurants, Retail Stores, Personal Services, Entertainment Venues, and Hotels. These sectors were closed for much of 2020 and in early 2021. They are slowly recovering but the Delta variant has inhibited them due to a continuing need for masks and people's fears. Second is the residential market where rising demand has been driven by low interest rates plus aging millennials and buyers from outside the area seeking affordable homes. This unmet demand is exacerbated by homeowners unwilling to sell and developers handicapped by staffing and materials issues. Together, this imbalance has driven home prices to unheard of levels. Third, the rapidly expanding Logistics sector (Trucking, Warehousing, Wholesale Trade) where the area has a competitive advantage due to its huge infrastructure of e-commerce facilities, warehouses, railyards, and airports. Where the other two forces have inhibited employment, logistics jobs have soared, mitigating the impact of the COVID-19 downturn on the region.

In 2022, the region's economic health should improve as the service sectors and housing markets heal while logistics benefits from high e-commerce demand and import levels.

Finally, the SCAG region must support new and emerging sectors which focus on cutting edge innovation and entrepreneurship such as Artificial Intelligence (AI), Computer Gaming, and Cybersecurity. These growing sectors typically employ highly educated, technically proficient workers who earn above-average wages that contribute to economic growth across the economy. Supporting these industries will require building new, innovative talent pipelines that supply and attract employers.

Workforce talent pipelines in general will be key to the regional recovery, especially in the wake of significant disruptions to the educational system. The SCAG region has long trailed the Bay Area in educational attainment. While Orange County, Ventura County, and parts of the overall SCAG region can boast relatively high education attainment rates, its educational system is recovering from a once-in-a-lifetime shock that radically changed the region's overall educational landscape. Therefore, regional stakeholders need to focus on supporting educational institutions such as K-12, community colleges, and universities that in turn support the overall economy via a supply of well-qualified graduates.

## Impacts & Recovery Outlook – Orange County

Orange County's unemployment rate in September 2021 was the lowest in the SCAG region at 5.0 percent. Over the past year, total employment in the region has increased by 126,700 or by 9.2 percent while the number of unemployed workers shrunk by 66,300 or by 45 percent. With the reopening of restaurants, entertainment and various attractions around the county, Tourism employment has begun to rapidly increase, growing by 62,200 or 43.5 percent in the past year alone. Only one sector, Financial Services, saw slight employment declines over the past year.

Looking forward, economic growth and job creation in Orange County will likely consistently grow, especially as elevated consumer confidence is leading to pent-up spending demand that ripples positively throughout the economy. Additionally, with a perceived labor shortage, industry and occupational wages are likely to see additional near-term increases as employers increasingly compete for qualified workers. Increasing wage growth to at least match inflation rates will help to reduce the growing affordability concerns in the region helping the region to both attract and retain workers and residents, rather than losing them to lower-cost, neighboring regions. Overall, similar to economic performance after the Great Recession of 2008, Orange County has, and will likely continue to, recover faster than the state and its regional neighbors.

The UCLA Anderson Forecast projects national gross domestic product (GDP) growth of 5.6 percent in 2021, 4.1 percent in 2022, and 3.1 percent by 2023 (Anderson Forecast 2021). The UCLA Anderson Forecast also expects productivity to rise over the next several years to match recent wage increases attributed to the pandemic-related labor shortage. Further, UCLA estimates that home prices will increase by a staggering 16.1 percent in 2021, followed by growth of 8.5 percent in 2022, and 5.1 percent in 2023. According to Senior Economist Leo Feler, “The faster growth in services consumption reflects a release of pent-up demand for leisure and hospitality, recreation and deferred health care, and a return to prior trends in education and social services” (UCLA Newsroom 2021). Slower consumption of goods, on the other hand, indicates potential market saturation after a year of above-average goods purchased and housing spending (UCLA Newsroom 2021).

While these growth rates are expected to benefit from the year-end holiday season, global supply chain disruptions could dramatically hinder economic growth. As of the end of September 2021, a record 70 cargo container ships were parked outside of the Los Angeles and Long Beach ports (CBSLA Staff, 2021). One silver lining is that this development clearly indicates that consumer demand appears to be outpacing normal pre-pandemic levels. As mentioned above, inflationary risks and lower purchasing power may jeopardize recent gains.

Considering current projections (Exhibit 1.10), the SCAG region unemployment rate is expected to average 9.2 percent by the end of 2021, approximately 3.3 percentage points below the 2020 average. At the same time, the national and state unemployment rates are expected to decline to 6.0 percent and 8.1 percent, respectively, indicating that the SCAG region is likely to lag national and state employment growth – again reflecting the region’s concentration in the slower-to-recover Leisure and Hospitality industries.

The most significant employment declines in 2021 are expected in State Government (-5.1 percent), Federal Government (-4.0 percent), and Information (-3.2 percent). The largest improvements in employment are expected in Transportation, Warehousing and Utilities (+6.5 percent), Leisure and Hospitality (+3.2 percent), and Trade, Transportation, and Utilities (+2.9 percent).

### Exhibit 1.10: Projected National, State & SCAG Region Labor Market Trends (2020-2021)

	United States		California		SCAG Region	
	2020	2021*	2020	2021*	2020	2021*
Civilian Labor Force	160,742	160,925	18,821,200	18,938,125	9,027,200	9,190,863
Civilian Employment	147,795	151,306	16,913,100	17,404,750	8,008,800	8,344,175
Civilian Unemployment	12,948	9,619	1,908,100	1,533,375	1,018,400	846,675
Civilian Unemployment Rate	8.1%	6.0%	10.1%	8.1%	12.5%	9.2%
Total (All Industries)	141,935	144,520	16,547,900	16,655,613	7,555,300	7,604,563

Note: \*2021 is average from January to August.

Source: U.S. – BLS (total nonfarm, not seasonally adjusted); CA, SCAG – CA EDD (total wage and salary employment, not seasonally adjusted).

## Impacts & Recovery Outlook – SCAG Region

Over the past year, the SCAG region added over 700,000 jobs while reducing the number of unemployed workers by 380,300, helping to shrink the regional unemployment rate from 11.8 percent in September 2020 to 7.2 percent in September 2021. Driving employment growth over the past year was Leisure and Hospitality which added 188,300 jobs, an increase of 28.5 percent (from a significantly lower base).

*“The outlook for the SCAG region is dependent on the hard-hit Tourism industry continuing to recover. Sectors such as Scientific and Technical Services and Information Technology are likely to recover much faster due in part to pandemic-related technical innovations.” (UCLA Newsroom 2021)*

Recovery will come earlier in the Business, Scientific, and Technical services, as well as in the Information sector, because of the demand for new technologies that power the new ways we are working and socializing. Recovery will also occur faster in Residential Construction, as California's chronic shortage of housing relative to demand drives new construction.

As indicated by Opportunity Insights data, lower-income residents and communities in the SCAG region are still well behind in their recovery compared to occupations which provide above-average wages. Service occupations have faced multiple challenges, which means that already disadvantaged residents are disproportionately likely to feel lingering pandemic impacts.

As vaccination rates continue to increase, the labor market is expected to continue to steadily recover as well, supported by pent-up demand for goods and services. While current supply chain disruptions have complicated the recovery due to congestion at regional ports – resulting in a delay of products and services – additional strategies have been put in place to accelerate offloading at ports including the recent announcement by President Biden to keep the Port of Los Angeles operating 24 hours a day, seven days a week to help clear supply chain disruptions currently threatening the holiday shopping season. While forecasting remains a challenge, the SCAG region is likely to follow broader state and nationwide trends in its recovery.

**Exhibit 1.11: Projected Changes in Wage & Salary Employment in the SCAG Region**

	2020	2021 (8-Month Average, Jan. – Aug.)	Percent Change
Civilian Labor Force	9,027,217	9,190,850	1.8%
Civilian Employment	8,008,908	8,344,188	4.2%
Civilian Unemployment	1,018,300	846,688	-16.9%
Civilian Unemployment Rate	11.4%	9.2%	-19.0%
<b>Total, All Industries</b>	<b>7,555,200</b>	<b>7,604,563</b>	<b>0.7%</b>
Total Farm	55,467	56,988	2.7%
Total Nonfarm	7,499,733	7,547,575	0.6%
Total Private	6,466,017	6,545,225	1.2%
Goods Producing	959,500	951,863	-0.8%
Mining, Logging and Construction	375,100	380,125	1.3%
Manufacturing	584,400	571,738	-2.2%
Durable Goods	379,292	369,400	-2.6%
Nondurable Goods	205,108	202,338	-1.4%
Service Providing	6,540,233	6,595,713	0.8%
Private Service Providing	5,506,517	5,593,363	1.6%
Trade, Transportation, and Utilities	1,497,358	1,541,425	2.9%
Wholesale Trade	353,850	356,975	0.9%
Retail Trade	726,742	740,650	1.9%
Transportation, Warehousing, and Utilities	416,767	443,800	6.5%
Information	223,500	216,450	-3.2%
Financial Activities	387,317	382,775	-1.2%
Professional and Business Services	1,099,533	1,113,575	1.3%
Educational and Health Services	1,350,758	1,371,613	1.5%
Leisure and Hospitality	728,392	751,650	3.2%
Other Services	219,658	215,875	-1.7%
Government	1,033,717	1,002,350	-3.0%
Federal Government	94,000	90,275	-4.0%
State and Local Government	939,717	912,075	-2.9%
State Government	154,300	146,400	-5.1%
Local Government	785,417	765,675	-2.5%
Local Government Excluding Education	361,567	357,425	-1.1%

Source: CA EDD March 2019 Benchmark, SCAG

**SCAG REGIONAL STRATEGIES BY INDUSTRY**

Location quotients (LQs) can be used to determine key regional industries. An LQ of 1 indicates that an industry is as concentrated in that region as it is in the nation while an LQ of 10 means that that industry is 10 times more concentrated in that region than compared to the nation. Industries with high location quotients also typically have higher levels of exports and bring new, fresh capital into a region. This provides a significantly higher benefit than industries which recirculate capital into the economy, such as Retail or Restaurants.

In the SCAG region, Women's, Girls' and Infant's Cut and Sew Apparel Manufacturing had the highest LQs – largely due to the region's Fashion and Retail sectors – followed by Teleproduction and Other Postproduction Services. Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures came in third place due to Los Angeles' world-leading entertainment industry.

A job multiplier of 5 means that every new job in a particular sector supports the creation of 4 other jobs in other parts of the economy. Therefore, supporting and investing in industries with high job multipliers will help accelerate overall job growth in the region. The table below (Exhibit 1.12) provides the SCAG region's top industries by LQ and job multipliers.

**Exhibit 1.12: Top Industries by Location Quotient in the SCAG Region (2021)**

	Location Quotient	Employment	Jobs Multiplier
Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing	9.99	8,262	1.99
Teleproduction and Other Postproduction Services	9.24	7,575	4.10
Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	8.79	11,334	3.97
Motion Picture and Video Production	8.61	85,814	5.56
Cut and Sew Apparel Contractors	7.06	9,184	1.58
Geothermal Electric Power Generation	6.93	409	5.16
Motion Picture and Video Distribution	6.56	2,689	7.74
Independent Artists, Writers, and Performers	5.34	12,433	1.56
Nonferrous Forging	5.13	2,029	3.30
Music Publishers	4.72	1,278	4.50
HMO Medical Centers	4.60	50,602	3.64
Women's, Children's, and Infants' Clothing and Accessories Merchant Wholesalers	4.50	14,918	3.27
Steam and Air-Conditioning Supply	4.46	375	3.18
Sound Recording Studios	4.39	1,010	3.01
Record Production and Distribution	4.18	1,417	4.77
Marine Cargo Handling	4.13	12,660	4.16
Other Apparel Knitting Mills	4.13	548	1.96
Hazardous Waste Collection	4.11	2,502	3.01
Piece Goods, Notions and Other Dry Goods Merchant Wholesalers	3.99	4,617	3.26
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	3.94	1,525	3.84

Source: Economic Modeling Specialists International

Location quotients and employment multipliers help highlight high impact industries that local stakeholders should prioritize. In the SCAG region, manufacturing, the arts, entertainment, utilities, and related industries stand to generate significant economic activity, providing a clear path to economic recovery.

## Final Thoughts

Like California, and the United States as a whole, the SCAG region had a bumpy 2021 and is unlikely to see a complete recovery in 2022. While high vaccination rates and expertise gained during the pandemic will help the regional economy weather any new COVID-19 variants, issues such as disrupted supply chains, inflation, and labor shortages may likely limit economic growth. While household incomes have increased over the last decade, recently, they have often been well below the levels required to purchase a home in the region. Employers have begun to increase wages to match inflation, however, a significant lack of affordable housing continues to push families out of higher-cost areas, impacting overall population and employment growth.

Nonetheless, the SCAG region's recovery is well underway and is expected to continue through 2022. Job gains in the Leisure and Hospitality sector will boost the recovery, making significant progress toward returning to the "old normal."

With increasing vaccination rates and decreased COVID-19 risks going forward, most economists expect that the region will continue to grow in 2022 and regain pandemic employment losses by mid-2023. A variety of factors will determine the speed of growth, including potential new COVID-19 variants, employers' ability to fill job openings, potential raw material shortages, potential increases in shipping costs and continued supply chain disruptions such as long delays caused by bottlenecks at ports, and the persistence of inflation.

Despite these remaining challenges, Southern California's fundamentally strong economy and diverse, skilled workforce will help it weather these challenges.

The next chapter introduces SCAG's work to focus racial equity across its work program as a means to begin the work of crafting an inclusive economic recovery.

## 2 | Incorporating Equity in SCAG's Long-Term Planning

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What is equity, why is it important to economic growth, and what can SCAG do to improve the collection, analysis, and dissemination of data that advances equity and strengthens regional planning? In collaboration with the University of California, Riverside (UCR) Center for Social Innovation, this chapter provides answers to these questions by introducing key terms and concepts, providing a brief overview of prior research, analyzing the use of equity indicators in existing SCAG planning documents, and providing recommendations on improving data analysis, paired with regional narratives and strategic action that builds stronger and more equitable communities.

### Background & Context

In July 2020, SCAG's Regional Council adopted [Resolution 20-623-2](#), affirming its commitment to advancing justice, equity, diversity, and inclusion throughout Southern California. The resolution called for the formation of an ad hoc [Special Committee on Equity & Social Justice](#) to further develop SCAG's response to advancing equity. The Committee met on a quarterly basis starting in September 2020 and concluding in March 2021, culminating in the development of an early action plan.

On May 6, 2021, SCAG's Regional Council adopted the [Racial Equity Early Action Plan](#), which will guide and sustain SCAG's regional leadership in service of equity and social justice over the years to come. The Early Action Plan includes a working definition of racial equity developed in collaboration with various stakeholder groups: "As central to SCAG's work, racial equity describes the actions, policies, and practices that eliminate bias and barriers that have historically and systemically marginalized communities of color, to ensure all people can be healthy, prosperous, and participate fully in civic life" (SCAG 2021, p. 7). It also establishes goals, strategies, and a set of "early actions" to advance racial equity through SCAG's policies, practices, and activities.

Efforts to advance equity in economic and regional development also need to take into account equality and inclusion, which are distinct but related to equity. Put most simply, equity is fair treatment, while equality means equal treatment. Equity tends to focus on disparities in outcomes faced by historically marginalized populations, while equality tends to focus on uniformity in opportunities made available to everyone. Inclusion, by contrast, signifies the extent to which stakeholders are recognized, engaged, and granted influence over economic decision-making.

Equality in treatment can be fair when affected populations and communities are on an even playing field, meaning that they start off with the same level of inherited advantage and setback. When equal treatment is applied to communities that are already in a place of disadvantage, however, those disparities persist and often get even worse. Thus, equitable strategies are corrective actions that help create a more level playing field. Finally, equitable strategies that include a significant degree of community inclusion – as measured by the breadth and depth of cross-sector commitment – tend to be more enduring than initiatives for equity that are top-down or confined to a limited set of leaders (Edenhofer et al., 2021).

Equity has long been a major concern in Southern California, one of the most racially diverse regions in the country with a long history of segregation and racial disparities in life chances. The COVID-19 pandemic worsened inequity's destructive power by drawing on these pre-existing economic and social conditions. Many who were already among the most vulnerable communities faced disproportionate economic losses, employment insecurity, housing insecurity, and adverse health outcomes. As the SCAG region works to recover from the most devastating impacts of the pandemic, jurisdictions can recover in ways that build stronger communities with equity and inclusion as core priorities and competencies.

### Why are Equity & Inclusion Essential for Economic Growth?

From a practical standpoint, equity and inclusion make for strong economic development policy. Earlier this year, McKinsey published a report based on analysis of the 2016 Federal Reserve Board survey of consumer finances and found that closing the racial wealth gap in the United States would boost domestic investment and consumption by an additional \$2-\$3 trillion (Chui, Prince, and Steward 2021). Years of academic and applied research also support the

notion that growing inequity threatens sustained economic growth and prosperity. Era Dabla-Norris and colleagues (2015), writing for the International Monetary Fund, point to consistent empirical findings that link economic inequality to dampened economic growth, and summarize academic literature that offers several possible drivers, including adverse health outcomes in lower-income households as well as lower human and physical capital accumulation, growing economic and political instability, and demands for greater protectionism. Similarly, Federico Cingano (2014) analyzes original survey data from the Organization for Economic Co-operation and Development (OECD) which suggests a depressing effect of growing inequality on educational investments at the lower end of the economic distribution. Conversely, Chris Benner and Manuel Pastor (2015, 2021) point to examples where a greater focus on inclusion and equity lead to improved long-term economic outcomes by generating stronger ideas, proposals, and projects that spread economic benefits among workers and investors alike.

The importance of inclusive and equitable strategies are particularly pressing for Southern California as it emerges from the pandemic, as low-income communities and workers of color that have borne the brunt of adverse impacts related to health risks from providing essential services, living in crowded and precarious housing, experiencing food insecurity, and being the target of hate incidents and excessive use of force (Andrasfay and Goldman, 2021; McLaughlin et al. 2021; Rogers et al. 2021; AAPI Data and SurveyMonkey 2021). National evidence from the Current Population Survey also indicates that small businesses owned by women, Black, Latinx, and Asian Americans were hit disproportionately hard during the pandemic (Fairlie, 2020), and women have been disproportionately displaced from the labor force because of disruptions in childcare and primary education (Albanesi and Kim 2021).

The UCR Center for Social Innovation recently released a report on post-COVID recovery and good jobs (defined in terms of full-time, year-round work, earnings that support families' cost of living, and the provision of health benefits), and finds a bifurcated recovery in Southern California where workers with college degrees were less likely to lose jobs in the first place and were more likely to get re-hired at an earlier stage of the recovery. Some of this gap is likely due to the slow post-pandemic recovery in Retail and Hospitality. However, even prior to the pandemic, those without four-year college degrees suffered from limited economic mobility.

A racial equity analysis of post-pandemic recovery on local labor markets is challenging, however, since current labor market data at the local level – whether from the Current Population Survey, California's Employment Development Department (EDD), or current job listings from Burning Glass Technologies – do not allow for disaggregated analyses by race and gender for most SCAG jurisdictions. At the same time, SCAG and its member jurisdictions have access to various types of administrative and survey data at the local level that can be analyzed and improved upon, with an eye to lay a more solid foundation for economic decision-making that builds a stronger economic future for all.

## Evaluation & Analysis of SCAG's Equity Indicators

Disaggregated data by race and ethnicity are essential to good economic decision-making for two main reasons. First, population averages within most cities and counties are likely to paint a misleading picture about how particular subgroups are faring within each jurisdiction. Additionally, lack of detailed data by race and ethnicity and gender at the local level makes it challenging to craft effective solutions that are tailored to the particular needs, barriers, and facilitators of mobility in communities of color. Disaggregated data is particularly important in the SCAG region, where Hispanic/Latinx are nearly a majority of the resident population (47 percent), and where a diverse array of Asian American and Black populations are a plurality in many cities.

Our evaluation and analysis of regional planning data centered on SCAG's Connect SoCal long-range transportation plan and associated materials, documents, and technical reports. By their very nature, metropolitan planning organization (MPO) plans are meant to be long-term roadmaps for a substantial portion of the population, so it is important to understand the extent to which they intentionally include considerations of racial equity. Until recently, SCAG's inclusion of racial equity as an analytic throughline has been limited to its Environmental Justice Analysis reports and its March 2021 [Racial Equity Baseline Conditions Report](#). Our scoring considered the role of MPOs in regional planning, the specific topical information presented in each of the technical reports, and the realities of what the policy impacts may actually be for diverse communities in the SCAG region. We recommend that future assessment efforts build on our pilot evaluation effort, and to include a larger, more diverse set of evaluators to ensure greater scoring validity.



The Connect SoCal plan provides a good baseline for understanding long-term planning impacts on community, though in general all indicators could benefit from a racial/ethnicity breakdown to better understand conditions of equity and inequity. Exhibit 2.1 illustrates an evaluation of SCAG’s use of equity indicators. Exhibit 2.1 first considers criteria for inclusion of equity indicators based on our assessment of the impact of equity on planning, growth, and communities. We also consider the availability of data about equity indicators. Thus, SCAG should give highest priority to policy areas where equity has the greatest impact and for which data are available. The next priority would be policy areas where data may not be readily available but where new measures of equity would have a high impact. The second component of the scoring in Exhibit 2.1 is an evaluation of existing inclusion of equity indicators. Having equity indicators included in Connect SoCal is necessary but not sufficient, as data must also be usable by SCAG stakeholders. Accordingly, we also evaluate the accessibility and usability of equity metrics included in Connect SoCal.

Exhibit 2.1 also provides a summary of the scoring criteria for each of the inclusion criteria and the evaluation of SCAG’s use of equity indicators. We base our inclusion criteria on the level of impact: small (1), moderate (2), and high (3) impact. We then evaluate the availability of equity indicators data relevant to each policy area to highlight areas where data gaps need to be addressed. Finally, we evaluate SCAG’s use of equity indicators based on the extent to which they are incorporated into SCAG’s planning and how well they are communicated.

The majority of the Connect SoCal technical reports that break down metrics by race or ethnicity were those that utilized standard population counts (e.g., total population, household size, fertility rates, death rates). A notable exception was active transportation mode share (which included bike share by race, walk share by race). A significant portion of the technical reports are centered on topics such as transportation and goods movement for which racial data are difficult to obtain. There are some technical reports in which racial data are available, however, but were not included in the analysis for Connect SoCal.

**Exhibit 2.1: Scoring of Connect SoCal Plan and Use of Equity Indicators**

Connect SoCal Policy Area	Criteria for Inclusion				Evaluation of SCAG’s Use of Equity Indicators	
	Planning	Equity Impact On		Data Availability	Inclusion of Equity Indicators	Accessibility of Include Indicators
		Growth	Communities			
Active Transportation	2	1	3	2	2	2
Aviation and Airport Ground Access	2	3	1	1	1	1
Congestion Management	3	2	2	1	1	1
Demographics and Growth Forecast	3	3	2	3	2	3
Economic and Job Creation Analysis	2	3	3	3	1	2
Emerging Technology	1	2	1	1	1	2
Environmental Justice	3	3	3	3	3	3
Goods Movement	2	3	2	2	1	3
Highways and Arterials	3	3	2	2	1	3
Natural and Farm Lands Conservation	2	3	1	1	1	3
Passenger Rail	2	3	2	1	1	3
Public Health	3	3	3	3	1	3
Public Participation and Consultation	3	3	3	3	2	2
Sustainable Communities Strategy	3	3	2	1	1	2
Transit	3	3	3	2	1	2
Transportation Conformity Analysis	3	3	2	1	1	2
Transportation Finance	2	3	2	1	1	3
Transportation Safety and Security	2	2	3	1	1	3

Metric	Score & Definition		
	1	2	3
Planning Impact of Equity	Small Impact	Moderate Impact	High Impact
Growth Impact of Equity	Small Impact	Moderate Impact	High Impact
Communities Impact of Equity	Small Impact	Moderate Impact	High Impact
Data Availability	Data not currently available and geographic and temporal scope necessary for RTP.	Some data available, may not break down groups or be updated regularly or available at necessary geographic scope.	Data readily available at necessary geographic and temporal scope, comprehensive race/ethnic/income categories.
Inclusion of Indicators in RTP/SCS	No Equity Measures	Limited Equity Measures	Extensive Equity Measures
Data Accessibility	Data provided but not usable, actionable.	Data provided is somewhat usable, actionable.	Data presented in a useful policy-actionable way.



All the Connect SoCal policy areas bear direct or indirect implications for racial equity. Thus, even if there are no standard equity metrics that are readily available (such as for the Transportation Finance technical report and the Sustainable Communities Strategy, which are most specifically geared to understanding policy), SCAG and its members could still examine spatial impacts and spatial mismatches in the financing, construction, and implementation of projects and programs in environmental justice areas (EJAs), disadvantaged communities (DAC), communities of concern (COC), and other environmental justice-related communities. Other aspects such as adoption of emerging technology pose similar difficulties with respect to local utilization data by race and income, although one can better understand regional and racial inequities by joining and analyzing locational information on investments from one dataset with information on racial disparities from another dataset, such as [Cal EnviroScreen](#) and the CDC's [Social Vulnerability Index](#).

Finally, while technical appendices allow for data to be spliced out in a more detailed fashion, there are still opportunities to present this data in ways that are accessible and legible. For instance, while extensive tables may be appropriate for certain sections, graphical representations and summary index measures of racial disparities can help provide the simplicity and clarity needed for better decision-making (see Exhibit 2.2 for an illustrative example).

## Recommendations for Data Collection

The Connect SoCal plan is a great starting point for equity data, particularly when taken in conjunction with SCAG's Racial Equity Baseline Conditions Report. By incorporating racial equity into all appendices, SCAG can become a national leader among MPOs in terms of collecting and reporting on data in a way that drives regional narratives and strategic action. Specific suggestions include:

- **Break out as many indicators as possible by race and gender.** Incorporating racial data would be critical for the following technical reports: Public Health, Economic and Job Creation Analysis, Goods Movement, Sustainable Communities Strategy, and Transportation Safety and Security. Data sources like the California Health Interview Survey and the American Community Survey include equity indicators at varying levels of geography and should be incorporated into the next plan on as many issues as possible. For other issues, like goods movement, sophisticated use of spatial analysis and mixed methods (such as scientific surveys and interviews of relevant agencies and affected populations) can help overcome gaps in existing data collections.
- **Present county-level data in addition to data for the entire SCAG region.** The SCAG region covers an incredible array of people, places, and patterns of development. Breaking out equity data by county would allow SCAG members to have a better sense of patterns and trends across jurisdictions. As we indicate in our illustrative example (Exhibit 2.2), there are important county-level variations in racial and gender disparities in homeownership, poverty, and educational attainment. More granular data by geography will improve decision-making through more targeted investments and policies.
- **Disaggregate AAPI data.** Asian Americans and Pacific Islanders are an incredibly diverse and varied community. Past research shows significant differences between Asian Americans and Pacific Islanders (which are two separate racial categories) on measures ranging from poverty and income to educational attainment, housing, and transportation. The same is often true for different Asian American detailed-origin groups. Better understanding the differences between groups that are traditionally lumped together will be key to identifying problems in a more targeted manner, and thereby improving the design and implementation of various programs.

## Recommendations on Presenting Data & Engaging Community

Data need to be presented in a compelling way that inspires investments and improvements in decision-making. The Center for Social Innovation at UCR developed the Data, Narrative, Action – or DNA – method that encourages stakeholders to make their case more credible through Data, more meaningful and memorable through Narrative, and more impactful through concerted and strategic Action. One important way that SCAG can be more impactful in its use of data and research is to take a complex set of data and make it as simple and accessible as possible.

One way to make data more accessible is to improve data visualization. This means that indicators should, whenever possible, utilize line charts to convey time trend data, and horizontal bar charts to make comparisons across geographies, indicators, or key populations. Pie charts should be utilized only when the wedges are large enough to be legible and meaningful. Vertical bar charts should be used sparingly, as they tend to be more difficult for readers to make quick cross-group comparisons, often force smaller text labels where there are multiple variables or categories.

In addition to improving data visualization, racial equity indicators can also benefit from greater use of index measures as detailed tables tend to produce an enormous array of data by race and geography. We recommend using the Hoover Index of inequality – with 0 representing no racial disparity and 1 representing the maximum theoretical level of racial disparity – because it produces standardized measures of racial inequity that work across geographies. The Hoover Index also has the virtue of having the same 0 to 1 scale regardless of the issue or indicator, since it involves comparing a group's share on a particular outcome with the same group's share of the baseline population. Other index measures of relative group difference, like the Index of Disparity utilized by PolicyLink, can vary dramatically in range depending on the indicator (for example, racial differences in infant mortality tend to produce higher scores, given the relative rarity of the phenomenon, when compared to disparities in life expectancy).

Consider homeownership as an example. As Exhibit 2.2 indicates, there are significant racial homeownership disparities for each county in the SCAG region. From glancing at the data, however, it is difficult to know which county has a greater degree of racial inequity than another. However, when we convert these racial data indicators to an index measure of disparity, using the Hoover Index (Exhibit 2.3), we can more easily compare across counties. We can see that Orange County has the greatest level of homeownership disparity. Importantly, using a standardized index of disparity also enables decisionmakers and stakeholders to compare disparities across outcomes, and across social categories. Thus, for example, we can see that racial disparities in poverty are even greater than racial disparities in homeownership, and that racial disparities are worse than gender disparities on each of these measures. Thus, by using a standardized measure of disparity, we can condense information from four tables (racial and gender disparities in homeownership and poverty) into two figures that allow for easier comparisons across groups, indicators, and regions, with new insights that can have powerful implications for decision-making.

## Exhibit 2.2: Homeownership Rates by Race and County in the SCAG Region (2019)

### Percent of group living in owner-occupied housing

Group	Imperial	Los Angeles	Orange	Riverside	San Bernardino	Ventura	SCAG Region
White	74%	57%	66%	73%	66%	71%	<b>63%</b>
Black	19%	37%	35%	49%	36%	52%	<b>39%</b>
Native American	40%	45%	52%	56%	49%	53%	<b>49%</b>
Asian	61%	57%	64%	74%	71%	76%	<b>61%</b>
Pacific Islander	27%	39%	42%	69%	36%	52%	<b>44%</b>
Other	39%	50%	61%	61%	51%	60%	<b>54%</b>
Latino	55%	41%	39%	60%	55%	48%	<b>46%</b>
<b>Overall</b>	<b>56%</b>	<b>47%</b>	<b>56%</b>	<b>65%</b>	<b>58%</b>	<b>61%</b>	<b>53%</b>

Source: Analysis of American Community Survey 5-Year data via IPUMS USA

### Exhibit 2.3: Racial and Gender Disparities in Homeownership and Poverty in the SCAG Region (2019)

Hoover Disparity Index based on American Community Survey data



Source: Analysis of American Community Survey 5-Year data via IPUMS USA

To summarize, SCAG has the opportunity to make considerable improvements in data that make meaningful advances in equitable regional planning and economic development. Some of the improvements entail analyzing existing data after conducting a more comprehensive accounting of available sources at the national, state, and local level, while other improvements include conducting new data collections employing a variety of quantitative and qualitative methods. Perhaps most easily, however, SCAG can improve the ways that it presents data to decisionmakers and stakeholders alike, with improved data visualization and the use of index measures of racial and gender disparities across a range of outcomes.

## 3 | What Drives Good Job Growth?

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Over the past year, SCAG developed the Inclusive Economic Recovery Strategies (IERS), adopted by the SCAG Regional Council on July 1, 2021. The IERS highlighted the economic disparities in the region and recommended strategies to give everyone in Southern California the opportunity for a brighter future with equitable economic opportunity and mobility (SCAG, 2021). With the support of Senator Susan Rubio, SCAG was awarded \$3.5 million in one-time grant funding through the May 2021 budget revise and AB 129 to implement several core recommendations developed in the IERS. One of SCAG's tasks as part of this grant is to develop a subregional job quality index for the region, a tool that will inform economic development.

As we move forward towards this endeavor, we must ask the following questions: What makes a good, high-quality job and what drives the growth of good jobs? This chapter explores these questions from the lens of Southern California's economic competitiveness. We propose a definition of a "good job" and assess factors that drive growth in good jobs across regions in the U.S. By looking at our region in the context of the rest of the nation, we can reflect on how Southern California compares to the rest of the U.S., and hopefully learn from our urban counterparts outside the region.

Using data from 254 of the largest metropolitan areas in the U.S., we identify two key factors that are strongly associated with the growth of good jobs: education and wage income inequality. We find that between 2013 and 2019, U.S. metropolitan areas with higher shares of college-educated residents, and those with high share of residents with science, technology, engineering, and mathematics (STEM) degrees saw significantly greater growth of good jobs. We also learned that for "mega-metros" (regions with populations over 2.5 million), higher wage inequality was significantly associated with a significant decrease in good jobs. In this chapter, SCAG's research team shares an exploratory data analysis to illustrate some of the relationships between a region's characteristics and the growth in good jobs during the last decade.

### Defining Good Jobs

While there is not a consensus about what quality make up a "good job," common themes among the treatises of good jobs include jobs that pay enough to support a "middle-class" quality of life (Rodrik & Sabel 2019; Acemoglu 2001), provide stability (Center for Social Innovation 2021), and provide safe working conditions (Rodrik & Sabel 2019, Center for Social Innovation 2021). This report focuses on the measurable qualities of a job and identifies a good job as a job in an industry sector that supports above-median wages and full-time employment. Other analysts have also included the criteria that a good job offers health insurance. The majority (68 percent) of all U.S. jobs offer health insurance (Bureau of Labor Statistics 2021) and large employers are mandated to offer health insurance to full-time employees under the Affordable Care Act. Therefore, the health insurance criterion is embedded in the full-time employment criteria for U.S. jobs. This study identifies good jobs based on industry sectors. Specifically, we identify good jobs as jobs in sectors where at least half of the full-time employees earn at least the U.S. median full-time worker pay.

For this analysis we rely on data from the American Community Survey (ACS) 1-year samples for 2013-2019 compiled and harmonized by iPUMS USA (Ruggles et al 2021). The ACS reports individual survey responses for a 1 percent sample of U.S. residents about their demographic characteristics, employment and occupation, education, income, family structure, and geographic location. For each industry sector and each year, we computed the median salary and wage income among all U.S. survey respondents who reported working full-time in the last year. Before computing the median pay for each sector, we adjusted the reported income to account for cost-of-living differences across metropolitan areas using the Bureau of Economic Analysis's metropolitan statistical area (MSA)-level Regional Price Parity Index (U.S. Bureau of Economic Analysis 2021). To facilitate comparisons over time, we also adjusted wage and salary income for inflation using the Consumer Price Index for all urban consumers from the Bureau of Labor Statistics (BLS) (U.S. Bureau of the Census, 2021).

Out of 99 three-digit NAICS code sectors, 37 have historically supported good jobs in the U.S., listed in Exhibit 3.1. The sectors with the highest number of good jobs between 2013-2019 were Professional, Scientific, and Technical Services (NAICS 541), Educational Services (611), Hospitals (622), Finance and Insurance, and Public Administration

(NAICS 92). The industries with the highest wages during this period were in mining and resource extraction sectors, such as Petroleum and Coal Products Manufacturing (NAICS 324), Oil and Gas Extraction (NAICS 211), and Pipeline Transportation (NAICS 486), reflecting the risk premiums paid in these industries. Between 2013 and 2019, the average annual growth of good jobs in the 37 sectors varied dramatically. As a percent of total employment, the Electrical Equipment, Appliance, and Component Manufacturing (NAICS 335) sector lost an average of 3.7 percent good jobs per year. At the other extreme, Management of Companies and Enterprises (NAICS 55) added an average of 15.3 percent good jobs among all jobs in the sector.

**Exhibit 3.1: Industry Sectors that have Historically Supported Good Jobs (2013 vs. 2019)**  
Sorted by number of good jobs, sectors with largest annual change in jobs shown in bold

NAICS Code	Sector	Average Monthly Salary (2021\$)		Number of Good Jobs		Average Annual Change in Jobs
		2013	2019	2013	2019	2013-2019
541	Professional, Scientific, and Technical	6,472	6,860	4,462	5,738	4.8%
611	Education Services	4,554	4,656	3,603	3,960	1.7%
622	Hospitals	4,976	5,245	2,096	2,153	0.5%
52	Finance and Insurance	5,884	6,904	1,498	1,686	2.1%
92	Public Administration	5,692	5,973	1,554	1,630	0.8%
524	Insurance Carriers and Related Activities	5,258	5,769	1,050	1,191	2.2%
336	Transportation Equipment Manufacturing	5,922	6,136	956	1,075	2.1%
928	National Security and International Affairs	4,817	5,047	837	846	0.2%
423	Merchant Wholesalers, Durable Goods	4,550	4,853	677	723	1.1%
325	Chemical Manufacturing	6,448	6,840	623	681	1.5%
334	Computer and Electronic Product Manufacturing	6,926	7,190	729	640	-2.0%
22	Utilities	6,488	6,972	606	609	0.1%
522	Credit Intermediation and Related Activities	4,771	5,660	426	586	6.3%
921	Executive, Legislative, and Other General Government Support	4,929	5,125	516	563	1.5%
333	Machinery Manufacturing	5,018	5,300	450	445	-0.2%
517	Telecommunications	6,386	6,497	522	442	-2.6%
923	Administration of Human Resource Programs	4,926	5,027	279	345	4.0%
491	Postal Service	5,104	4,970	315	269	-2.5%
481	Air Transportation	4,836	5,574	186	251	5.8%
511	Publishing Industries (except Internet)	5,464	6,364	252	215	-2.5%
515	Broadcasting (except Internet)	4,864	5,424	245	204	-2.8%
519	Other Information Services	5,265	6,904	110	195	12.9%
331	Primary Metal Manufacturing	4,909	5,307	185	172	-1.2%
512	Motion Picture and Sound Recording Industries	4,851	5,162	126	171	5.9%
213	Support Activities for Mining	6,856	7,441	214	166	-3.7%
335	Electrical Equipment, Appliance, and Component Manufacturing	4,774	5,065	157	149	-0.8%
55	Management of Companies and Enterprises	6,526	6,471	65	125	15.3%
322	Paper Manufacturing	4,677	5,053	113	125	1.8%
482	Rail Transportation	6,075	6,628	118	121	0.5%
324	Petroleum and Coal Products Manufacturing	7,486	8,259	111	114	0.5%
312	Beverage and Tobacco Product Manufacturing	4,912	4,863	90	111	3.7%
518	Data Processing, Hosting, and Related Services	5,977	6,836	54	77	7.0%
211	Oil and Gas Extraction	8,529	9,386	47	69	7.9%
53	Real Estate and Rental and Leasing	5,243	5,835	44	60	6.4%
212	Mining (except Oil and Gas)	6,007	6,425	50	46	-1.2%
483	Water Transportation	5,114	5,438	31	32	0.7%
486	Pipeline Transportation	7,392	8,241	25	27	1.1%

Source: SCAG analysis of ACS PUMS 1-year samples 2013-2019.

After identifying the industry sectors that support good jobs, we measure the number of good jobs in the largest 255 metropolitan areas in the U.S., based on the 2013 U.S. Office of Management and Budget (OMB) MSA delineations. Consistent with Plane, Henrie, and Perry (2005), we categorize the metropolitan areas as “mega-metros” if the population exceeds 2.5 million, “major metro” if the MSA population is between 1 million and 2.5 million, and “mid-sized metro” if the population is less than 1 million. Excluded from the analysis are areas outside metropolitan areas or for which the metropolitan status cannot be determined.

The SCAG region is unique in that it consists of four distinct metropolitan areas, yet these four MSAs share substantial functional integration. Exhibit 3.2 highlights SCAG region MSAs. The share of all jobs that were “good jobs” in 2019 in the SCAG region MSAs ranged from a low of 25.4 percent in El Centro to a high of 35.8 percent. Compared to the 254 U.S. metropolitan areas in our sample, the SCAG region MSAs ranked in the bottom for the share of all jobs that are good jobs.



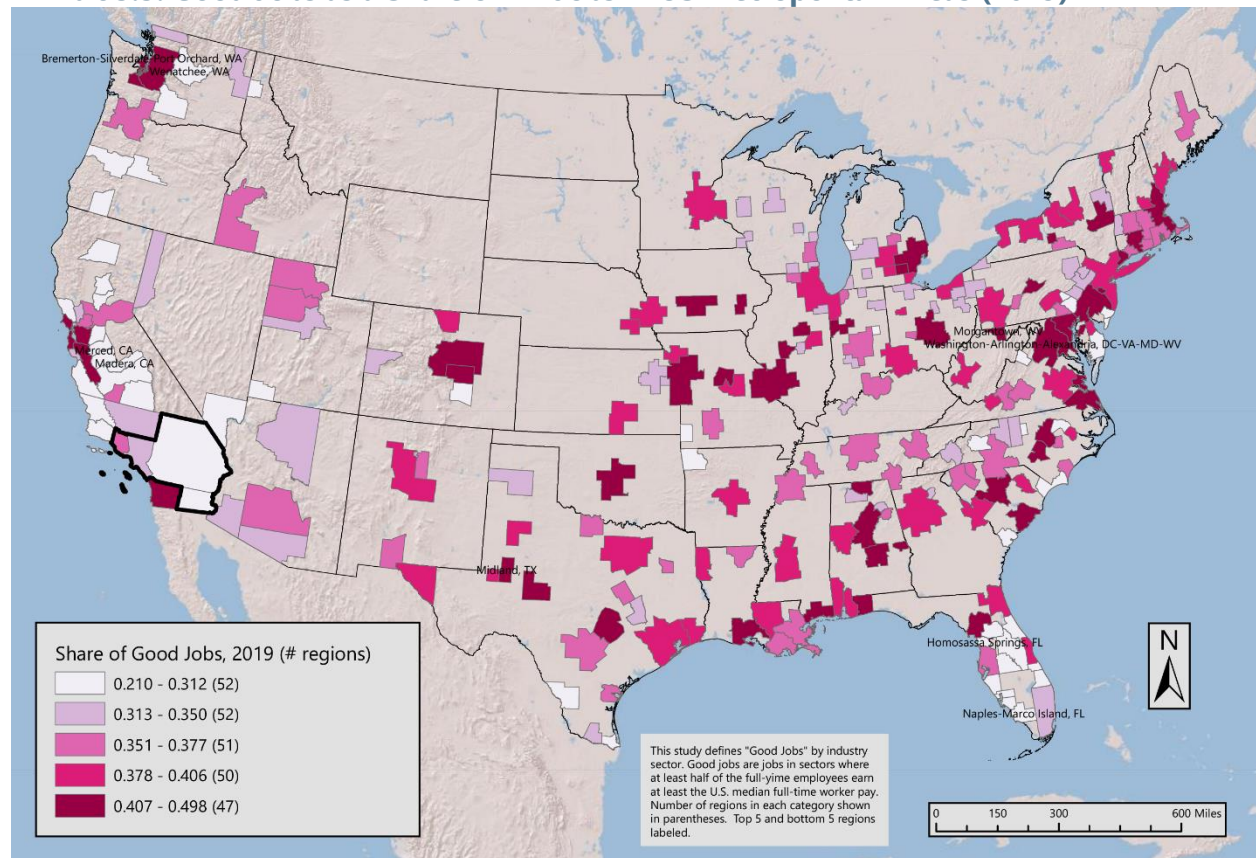
### Exhibit 3.2: Good Jobs in SCAG Region Metropolitan Areas

SCAG Metro Area (MSA)	SCAG County	MSA Size Category	Population 2019 (Thousands)	Number of Good Jobs	Good Jobs as Share of All Jobs (2019) Percent	Share Rank	Average Annual Growth of Share of Good Jobs 2013-2019
Oxnard-Thousand Oaks-Ventura	Ventura	Mid-Sized Metro	845.6	140.9	35.8%	141	-0.7%
Los Angeles-Long Beach-Anaheim	Los Angeles/Orange	Mega-Metro	13,215.1	2,145.1	35.0%	151	-0.1%
Riverside-San Bernardino-Ontario	Riverside/San Bernardino	Mega-Metro	4,649.6	585.7	30.4%	210	0.1%
El Centro	Imperial	Mid-Sized Metro	181.4	14.3	25.4%	242	-4.2%

Source: SCAG analysis of ACS PUMS 1-year samples 2013-2019.

It is instructive to visualize the distribution of good jobs across the metropolitan areas included in our sample. In Exhibit 3.3, we map good jobs as a share of all jobs in the MSAs in our sample in 2019. The SCAG region is outlined in black on the left-hand side of the map. In 2019, good jobs are highly concentrated in MSAs on the East Coast around New York and Boston, areas with high shares of jobs in the Professional, Scientific and Technical Services and Management of Companies sectors. In addition, we observe high densities of good jobs in the mid-West and Texas.

### Exhibit 3.3: Good Jobs as a Share of All Jobs in US Metropolitan Areas (2019)



Exhibits 3.4, 3.5, and 3.6 list the metropolitan areas included in our analysis, which includes the area size category and growth rate of good jobs in each of these metropolitan areas. Year-to-year, the rate of growth of good jobs varies within a metro. In 2019, the Riverside-San Bernardino-Ontario MSA experienced the second-highest growth rate of good jobs (3.8 percent) among mega-metros. This was, however, after several years of negative growth in good jobs. Comparing the growth rate of good jobs in the major metros and the mid-sized metros, we observe significantly higher growth rates of good jobs. For example, the major metro of Memphis experienced an 8.6 percent growth in

good jobs in 2019 after several years of declines in good jobs. The mid-sized metros Goldsboro, NC, and Flagstaff, AZ experienced nearly 30 percent growth in good jobs in 2019. Across all metro sizes, the year-to-year growth rate of good jobs is highly variable, and smaller metros are expected to have more year-to-year variation. The higher rates of growth among the smaller metros are not surprising if the larger metros have more mature economies where the job mix has stabilized or where the cost of living has imposed constraints on job growth.

### Exhibit 3.4: Good Jobs Growth Rate in Mega-Metro Areas

> 2.5 million population; 23 MSAs sorted by 2019 good jobs growth

Metropolitan Area	Growth of the Share of Good Jobs						Average Annual Growth
	2014	2015	2016	2017	2018	2019	2013-2019
San Diego-Carlsbad, CA	2.9%	-4.8%	1.9%	-0.4%	-2.0%	4.1%	0.3%
Riverside-San Bernardino-Ontario, CA	-0.6%	1.5%	-2.0%	-0.4%	-1.7%	3.8%	0.1%
Atlanta-Sandy Springs-Roswell, GA	0.1%	0.4%	-1.9%	-0.2%	0.2%	3.7%	0.4%
Minneapolis-St. Paul-Bloomington, MN-WI	-1.4%	1.4%	0.9%	2.0%	-0.4%	2.5%	0.2%
Seattle-Tacoma-Bellevue, WA	-0.4%	0.5%	-0.2%	-0.5%	-2.0%	2.1%	-0.1%
Baltimore-Columbia-Towson, MD	-1.4%	0.7%	0.4%	0.1%	-0.4%	1.5%	0.2%
Washington-Arlington-Alexandria, DC-VA-MD-WV	0.9%	-1.4%	0.3%	2.0%	-1.2%	1.0%	0.3%
Boston-Cambridge-Newton, MA-NH	-1.1%	-0.3%	0.9%	1.2%	0.0%	0.4%	0.2%
Chicago-Naperville-Elgin, IL-IN-WI	0.6%	0.8%	-2.3%	1.3%	-0.1%	0.4%	0.1%
Phoenix-Mesa-Scottsdale, AZ	0.6%	-0.9%	-1.4%	1.3%	-0.8%	0.3%	-0.2%
Dallas-Fort Worth-Arlington, TX	0.8%	-0.8%	0.0%	-0.9%	-1.6%	0.1%	-0.4%
Denver-Aurora-Lakewood, CO	1.5%	-1.2%	0.6%	0.7%	2.2%	-0.2%	0.6%
St. Louis, MO-IL	1.4%	-2.6%	1.7%	1.2%	2.4%	-0.3%	0.7%
Houston-The Woodlands-Sugar Land, TX	-0.3%	-1.0%	-0.9%	-1.5%	0.2%	-0.5%	-0.6%
Los Angeles-Long Beach-Anaheim, CA	-3.0%	2.2%	-0.2%	0.9%	-0.1%	-0.6%	-0.1%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.1%	1.1%	-0.2%	0.1%	2.0%	-0.7%	0.4%
Miami-Fort Lauderdale-West Palm Beach, FL	0.4%	-1.3%	-1.3%	3.6%	-1.7%	-1.2%	-0.3%
Tampa-St. Petersburg-Clearwater, FL	0.8%	1.8%	-6.0%	2.3%	0.4%	-1.2%	-0.3%
San Francisco-Oakland-Hayward, CA	-1.6%	2.2%	4.9%	-0.7%	0.9%	-1.3%	0.8%
Portland-Vancouver-Hillsboro, OR-WA	2.9%	2.4%	-0.7%	-0.3%	1.7%	-1.5%	0.8%
New York-Newark-Jersey City, NY-NJ-PA	-0.3%	0.3%	0.1%	0.9%	2.0%	-2.0%	0.2%
Detroit-Warren-Dearborn, MI	0.3%	-2.1%	1.7%	3.8%	-1.0%	-4.3%	-0.3%
Orlando-Kissimmee-Sanford, FL	2.0%	0.5%	-4.9%	3.3%	2.4%	-4.5%	-0.2%

Source: SCAG analysis of ACS PUMS 1-year samples 2013-2019.

What explains the year-to-year changes and the differences in growth of good jobs is complex. The analysis in Exhibits 3.4-3.6 does not consider the unique attributes of each metropolitan area that determine how and when good jobs grow in these urban areas. In the next section, we take this exploration a bit further and control for differences across the metropolitan areas to further understand what attributes of a metropolitan may drive good job growth.

**Exhibit 3.5: Good Jobs Growth Rate in Major Metro Areas**

1-2.5 million population; 28 MSAs sorted by 2019 good jobs growth

Metropolitan Area	Growth of the Share of Good Jobs						Average Annual Growth
	2014	2015	2016	2017	2018	2019	2013-2019
Memphis, TN-MS-AR	-1.3%	-0.2%	-0.4%	0.6%	-5.9%	8.6%	0.2%
Oklahoma City, OK	3.7%	-6.6%	3.7%	-0.5%	-3.5%	6.4%	0.5%
Buffalo-Cheektowaga-Niagara Falls, NY	3.6%	-4.3%	4.3%	1.2%	-2.2%	4.1%	1.1%
Providence, Warwick, RI-MA	-0.1%	0.7%	-0.9%	4.8%	-4.4%	3.8%	0.6%
Salt Lake City, UT	-7.0%	-0.2%	6.4%	0.5%	-3.6%	2.3%	-0.3%
Pittsburgh, PA	0.3%	-2.2%	1.5%	1.6%	-2.0%	1.6%	0.1%
Birmingham-Hoover, AL	-6.9%	5.3%	-5.9%	4.9%	-1.9%	1.3%	-0.5%
Columbus, OH	3.3%	2.3%	-0.4%	-0.6%	0.5%	1.0%	1.0%
Charlotte-Concord-Gastonia, NC-SC	-0.4%	0.1%	-0.6%	2.2%	-3.9%	0.5%	-0.3%
New Orleans-Metairie, LA	3.0%	-0.7%	-1.7%	-2.9%	-2.2%	0.3%	-0.7%
San Antonio-New Braunfels, TX	1.0%	1.2%	-5.9%	2.9%	-2.8%	0.3%	-0.5%
Indianapolis-Carmel-Anderson, IN	3.2%	-3.5%	3.3%	1.5%	-3.0%	0.0%	0.2%
Austin-Round Rock, TX	0.5%	1.7%	-1.8%	1.9%	1.0%	-0.2%	0.5%
Cleveland-Elyria, OH	-1.1%	-2.1%	1.4%	2.5%	-3.0%	-0.5%	-0.5%
Jacksonville, FL	2.9%	4.9%	2.8%	-10.0%	4.6%	-1.2%	0.7%
Virginia Beach-Norfolk-Newport News, VA-NC	2.8%	-0.2%	-0.1%	1.3%	0.0%	-1.5%	0.4%
Louisville/Jefferson County, KY-IN	3.3%	-3.8%	0.7%	-0.5%	0.3%	-1.7%	-0.3%
Cincinnati, OH-KY-IN	-2.2%	4.9%	-0.1%	-1.1%	0.0%	-2.5%	-0.2%
Hartford-West Hartford-East Hartford, CT	0.1%	2.6%	0.2%	-1.7%	-0.3%	-2.6%	-0.3%
Milwaukee-Waukesha-West Allis, WI	-0.5%	1.7%	-3.2%	6.1%	-1.8%	-2.9%	-0.1%
Kansas City, MO-KS	-3.6%	5.8%	-1.6%	-2.4%	3.3%	-2.9%	-0.2%
Las Vegas-Henderson-Paradise, NV	1.1%	-5.2%	4.2%	0.5%	4.6%	-3.7%	0.3%
Tucson, AZ	-2.0%	-3.9%	-1.6%	7.4%	-3.9%	-3.7%	-1.3%
Raleigh, NC	-0.8%	3.8%	1.9%	0.8%	0.1%	-4.0%	0.3%
San Jose-Sunnyvale-Santa Clara, CA	1.2%	0.2%	2.2%	1.7%	1.7%	-4.2%	0.5%
Nashville-Davidson-Murfreesboro-Franklin, TN	1.2%	-3.0%	0.7%	-0.9%	1.5%	-4.8%	-0.8%
Sacramento-Roseville-Arden-Arcade	0.5%	1.7%	-0.8%	0.9%	0.5%	-5.1%	-0.4%
Richmond, VA	-2.2%	-0.8%	7.4%	-3.3%	2.6%	-9.3%	-0.9%

Source: SCAG analysis of ACS PUMS 1-year samples 2013-2019.

**Exhibit 3.6: Good Jobs Growth Rate in Mid-Sized Metro Areas**

&lt; 1 million population; top 20 MSAs by 2019 good jobs growth out of 203 total

Metropolitan Area	Growth of the Share of Good Jobs						Average Annual Growth
	2014	2015	2016	2017	2018	2019	2013-2019
Goldsboro, NC	-35.6%	21.2%	8.5%	-4.4%	-25.4%	29.8%	-1.4%
Flagstaff, AZ	-23.8%	18.8%	-15.4%	-3.3%	-7.7%	29.3%	-0.3%
St. Joseph, MO-KS	11.0%	-30.8%	30.6%	-9.3%	-13.7%	25.8%	2.4%
Lima, OH	-3.4%	7.9%	0.0%	7.9%	-12.6%	21.3%	3.9%
Dover, DE	4.0%	-4.0%	-2.5%	2.9%	-11.5%	20.9%	1.7%
Yakima, WA	-14.1%	6.6%	9.3%	-5.6%	-7.8%	18.8%	1.2%
Daphne-Fairhope-Foley, AL	29.9%	-20.5%	24.5%	-22.7%	-3.6%	18.2%	4.9%
Auburn-Opelika, AL	-1.3%	-8.0%	13.2%	-7.7%	-4.3%	18.1%	1.8%
Lynchburg, VA	-1.7%	5.3%	-4.0%	-1.8%	-12.1%	16.2%	0.3%
Greenville, NC	5.9%	-2.5%	-12.4%	15.0%	-15.2%	15.4%	1.1%
Iowa City, IA	4.3%	-18.4%	12.0%	-2.8%	-12.7%	15.1%	-0.4%
Coeur d'Alene, ID	9.0%	-4.8%	5.9%	11.3%	-27.6%	14.3%	1.4%
Johnstown, PA	12.2%	-17.7%	1.2%	2.7%	-11.5%	13.3%	0.0%
Visalia-Porterville, CA	1.6%	10.5%	-5.2%	2.6%	-11.1%	13.2%	2.0%
Sheboygan, WI	-10.2%	12.8%	-5.9%	0.5%	-7.6%	12.7%	0.4%
San Angelo, TX	-7.0%	-4.0%	-13.9%	10.1%	-5.9%	10.5%	-1.6%
Baumont-Port Arthur, TX	-0.9%	8.2%	-12.2%	-6.2%	3.5%	10.2%	0.4%
Barnstable Town, MA	12.6%	-7.9%	8.4%	-12.6%	9.8%	10.2%	3.8%
Boise City, ID	10.7%	1.6%	-4.4%	0.8%	-7.3%	10.0%	2.0%
Naples-Immokalee-Marco Island, FL	-7.5%	-7.8%	-8.8%	15.2%	-12.6%	8.9%	-2.0%

Source: SCAG analysis of ACS PUMS 1-year samples 2013-2019.



## What Drives Good Jobs in Metropolitan Regions?

We now turn to an exploration of the factors associated with good job growth in metropolitan areas in the U.S., using a method in economics called a fixed effects model (FE model) to help us explore the drivers of good job growth. The FE model holds constant the attributes of the metropolitan areas that do not change over, such as climate, culture, and location. Using this method, we can mimic a controlled experiment without collecting data about all the factors that make each metropolitan area unique (for non-technical details about this model, for example, see Dranove, 2012; for more specialized treatment, see Wooldridge, 2017). In this exploration, we model the growth rate of good jobs as a function of the attributes of the metropolitan areas that we can measure, vary over time, and have an economic or logical relationship to good job growth. For this analysis, we rely on the 2013–2019 ACS PUMS data from iPUMS USA.

The development of human capital determines productivity, which in turn determines wages. Therefore, the first set of attributes we test in our model are educational outcomes: the share of the population that holds a bachelor's degree and the share of the population that holds at least a bachelor's degree in a STEM field. We expect that both attributes are positively correlated with the growth of good jobs. A bachelor's degree is increasingly required for higher-paying jobs, holding all else constant, we would expect urban areas with higher proportions of college graduates to have faster growth in good jobs. Degrees in STEM fields are associated with innovation and are increasingly in demand. We expect areas with a greater proportion of the population educated in a STEM field will also positively affect the growth of good jobs.

Next, we consider the proportion of all workers in specific sectors as determinants of the growth of good jobs. We expect that an urban area with a large share of workers in manufacturing may have a positive or a negative effect on good job growth. To the extent manufacturing jobs are high-paying jobs, either because of the risk premium associated with these jobs or higher rates of unionization in this sector, we would expect that areas with a greater share of the workforce in manufacturing would be positively correlated with good jobs growth, all else equal. On the other hand, to the extent that manufacturing jobs are in decline, urban areas with high manufacturing employment may not have as many opportunities for good job growth (Carree et al., 2015) and we would expect a negative correlation with good jobs growth. High shares of self-employed workers in a metropolitan area are likely to have an ambiguous effect on good job growth. While self-employed workers may drive innovation, self-employment may be more variable in terms of hours worked and compensation. We also include the share of workers in the government sector to capture the effect of size of government in a region relative to private sector jobs. A higher government share of jobs may increase or decrease the rate of growth of good jobs. If this variable reflects job stability and fair compensation, all else equal, we expect a positive effect. If the government share of jobs results in crowding out of private sector employment, a higher government share of jobs would decrease good job growth.

The model includes several quality-of-life measures: median family income, access to broadband, owner-occupied housing, and a high rent indicator. We expect higher family income to be associated with higher growth of good jobs. We expect that the higher the share of the population that lives in owner-occupied housing to have a positive effect on the growth rate of good jobs. We expect high rent MSAs, measured by the BEA Rent Regional Price Parity Index, to have lower growth in good jobs to the extent that higher cost of living makes a job in a particular region less attractive to workers.

To test the effect of wage inequality on the rate of growth of good jobs, we include in our model a wage inequality index, measured by the Gini coefficient for annual wage and salary income. For each MSA and each year, we compute the Gini coefficient using the pre-tax wage income from individual survey responses reported in the ACS PUMS. The Gini coefficient is a measure of inequality that takes values from 0 to 1. A value of 0 indicates perfect income equality and a value of one indicates perfect income inequality. In other words, the higher the Gini coefficient, the greater the inequality.

### Exhibit 3.7: Wage Income Inequality Index (Gini Coefficient) in Mega-Metro Areas > 2.5 million population ; top 5 and bottom 5 MSAs by equality index

Equality Index Rank 2019	Metropolitan Area	Wage Income Inequality Index 2019
1	Riverside-San Bernardino-Ontario, CA	0.450
2	Portland-Vancouver-Hillsboro, OR-WA	0.454
3	Minneapolis-St. Paul-Bloomington, MN-WI	0.459
4	Phoenix-Mesa-Scottsdale, AZ	0.461
5	Baltimore-Columbia-Towson, MD	0.463
<b>Mega-Metro Average</b>		<b>0.477</b>
19	San Diego-Carlsbad, CA	0.491
20	Houston-The Woodlands-Sugar Land, TX	0.491
21	Los Angeles-Long Beach-Anaheim, CA	0.497
22	San Francisco-Oakland-Hayward, CA	0.499
23	New York-Newark-Jersey City, NY-NJ-PA	0.508

Source: SCAG analysis of ACS PUMS 1-year samples 2013-2019

Exhibits 3.7 and 3.8 report the computed Gini coefficients for the MSAs with the five lowest and five largest Gini coefficient in 2019. The Riverside-San Bernardino-Ontario MSA had the smallest Gini (most equal) wage and salary income distribution among the mega-metros in the sample. The Los Angeles-Long Beach-Anaheim MSA had the third highest Gini (most unequal) wage and salary income distribution in 2019. Major metro areas had similar Gini coefficients as mega-metros.

### Exhibit 3.8: Wage Income Inequality Index (Gini Coefficient) in Major Metro Areas 1-2.5 million population; top 5 and bottom 5 MSAs by equality index

Equality Index Rank 2019	Metropolitan Area	Wage Income Inequality Index 2019
1	Buffalo-Cheektowaga-Niagara Falls, NY	0.438
2	Virginia Beach-Norfolk-Newport news, VA-NC	0.443
3	Providence-Warwick, RI-MA	0.446
4	Las Vegas-Henderson-Paradise, NV	0.449
5	Kansas City, MO-KS	0.450
<b>Major Metro Average</b>		<b>0.469</b>
24	Raleigh, NC	0.481
25	Austin-Round Rock, TX	0.487
26	Charlotte-Concord-Gastonia, NC-SC	0.489
27	Nashville-Davidson-Murfreesboro-Franklin, TN	0.492
28	San Jose-Sunnyvale-Santa Clara, CA	0.509

Source: SCAG analysis of ACS PUMS 1-year samples 2013-2019

In the mid-sized metro areas (Exhibit 3.9) we observe much greater variability in the Gini coefficient. The most equal area, as measured by the wage and salary income Gini, is Jefferson City, MO, which had a Gini of 0.372 in 2019, the lowest observed in the entire sample. However, we also observe the higher Gini coefficient in this group, with the Gini for Stamford, Conn. computed at nearly 0.600. We note, however, that the top ten most unequal (high Gini coefficients) are mostly in college towns. This may be an artifact of the definition of wage and salary income. Typically, college students do not earn high wages, even though their family wealth may be high. On the other hand, non-student residents of college towns are disproportionately educated and more likely to earn higher incomes.

### Exhibit 3.9: Wage Income Inequality Index (Gini Coefficient) in Mid-Sized Metro Areas < 1 million population; top 10 and bottom 10 MSAs by equality index

Equality Index Rank 2019	Metropolitan Area	Wage Income Inequality Index 2019
1	Jefferson City, MO	0.372
2	Lewiston-Auburn, ME	0.392
3	Rocky Mount, NC	0.399
4	Jackson, TN	0.401
5	Hanford-Corcoran, CA	0.404
6	Topeka, KS	0.404
7	Oshkosh-Neenah, WI	0.406
8	Lebanon, PA	0.407
9	Owensboro, KY	0.407
10	Yakima, WA	0.409
<b>Mid-Sized Metro Average</b>		<b>0.459</b>
194	Bloomington, IN	0.515
195	Naples-Immokalee-Marco Island, FL	0.520
196	Santa Maria-Santa Barbara, CA	0.522
197	Provo-Orem, UT	0.527
198	Ann Arbor, MI	0.532
199	Chico, CA	0.537
200	Santa Cruz-Watsonville, CA	0.545
201	Iowa City, IA	0.560
202	Ithaca, NY	0.573
203	Bridgeport-Stamford-Norwalk, CT	0.575

Source: SCAG analysis of ACS PUMS 1-year samples 2013-2019

In Exhibit 3.10 we explore the geographic distribution of wage income inequality. From this map, we observe that the coastal regions on the Pacific and Atlantic Coasts have the highest levels of income inequality, including the coastal communities in the SCAG region. As shown in in Exhibits 3.7-3.9, and consistent with the literature, the highest levels of inequality are in the large metropolitan areas.

**Exhibit 3.10: Geographic Distribution of Wage and Salary Income Inequality Index (Gini Coefficient)**

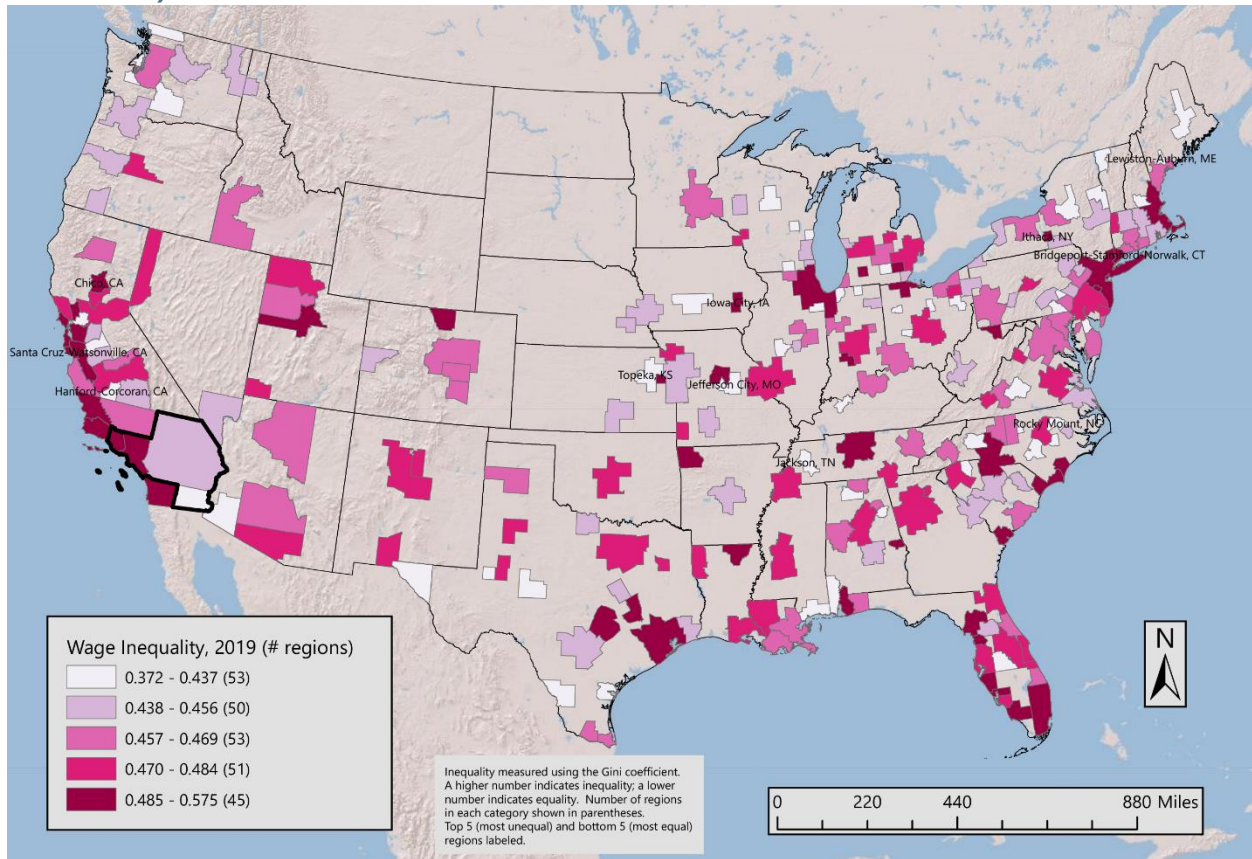
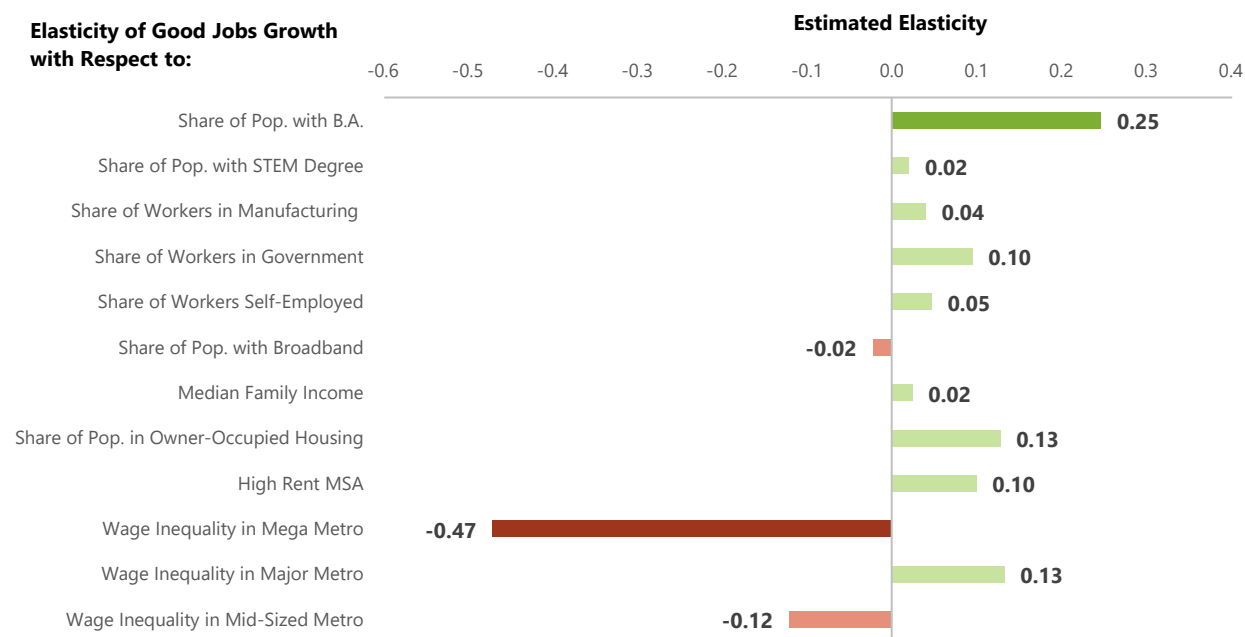


Exhibit 3.11 reports the estimated relationships between job growth and our hypothesized determinants of good job growth. We report the effects of the model variables on the rate of job growth as an elasticity, a measure of how sensitive the job growth rate is to changes in the explanatory variable. An elasticity reports the proportional change in the rate of job growth given a proportional change in the explanatory variable, thus, it does not depend on the unit used to measure the determinant.

In Exhibit 3.11, positive effects are shown in blue and negative effects are shown in red. Darker-shaded bars indicate that effects are statistically significantly different from 0 using the 10 percent significance level convention. We observe a disproportionately negative and statistically significant effect of the Gini coefficient on the rate of job growth in mega-metros. In the model, a 1 percent increase in inequality is associated with a 0.5 percent decrease in the rate of good jobs. Having a bachelor’s degree has a large and positive effect on the growth of good jobs, which is not surprising, as higher prevalence of bachelor’s degrees indicates higher human capital within a region.

### Exhibit 3.11: Estimated Drivers of Good Jobs Growth Statistically insignificant effects shown in lighter shade



Note: Fixed effects regression results available upon request.  
Source: SCAG analysis of ACS PUMS 1-year samples 2013-2019

## Discussion

When we define good jobs as above-median full-time wages, we find a strong correlation between the growth rate of good jobs in U.S. metropolitan areas and college education and STEM education. These findings are consistent with the literature and the theoretical expectation that development of human capital increases productivity, and therefore, compensation. It is interesting to note that while the effect of STEM degrees was positive and significant, its effect was very small relative to having any bachelor’s degree.

We also find that in the mega-metro regions, the growth rate of good jobs is negatively correlated with wage income inequality. This is consistent with the literature that finds that some of the most well-known global regions are also the most unequal, including several in California (e.g., San Francisco, Los Angeles, and San Jose). As a starting point for developing policy to promote the growth of good jobs in the SCAG region, this exploratory data analysis reiterates the recommendations from SCAG’s IERS to support education and invest in human development and provides further support to the importance of reducing wage inequality to achieve broader economic development goals.

One of the advantages of the FE model used in this analysis is that it can mitigate the problem of omitted variable bias, however, its disadvantage is that it cannot measure the effects of time-invariant factors. In this model, we assume that structural racism that may influence the growth of good jobs is constant over time, even though the extent of racial determinants of job growth may differ across metropolitan areas. As we refine this model, we will seek to incorporate other measures of inequity. This analysis is not exhaustive and is preliminary, however, by identifying industry sectors that have historically supported good jobs. This analysis will also serve as a foundation for SCAG’s forthcoming work on a subregional job quality index.

## Appendices: County Outlook Reports

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The Appendices of the Regional Briefing Book include economic snapshots of the counties in the SCAG region. Working with regional experts, SCAG provides an analysis of each county's economic performance and our regional experts' outlooks for each county. The regional experts consulted on the County Outlook Reports are listed below.

### IMPERIAL COUNTY

**Michael Bracken**

Managing Partner & Chief Economist, Development Management Group, Inc.

### LOS ANGELES COUNTY

**Shannon Sedgwick**

Director, Institute for Applied Economics, Los Angeles County Economic Development Corporation

### ORANGE COUNTY (AND SCAG REGION)

**Wallace Walrod, Ph.D.**

Chief Economic Advisor, Orange County Business Council

Chief Economic Advisor, SCAG

### RIVERSIDE & SAN BERNARDINO COUNTIES

**John Husing, Ph.D.**

Principal, Economics & Politics, Inc.

### VENTURA COUNTY

**Matthew Fienup, Ph.D.**

Executive Director, Center for Economic Research & Forecasting, California Lutheran University

**Dan Hamilton, Ph.D.**

Director of Economics, Center for Economic Research & Forecasting, California Lutheran University

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#### ***A Note on Data Availability***

At the time of publication of this report, the 2020 American Community Survey was not published as expected. According to a recent announcement by the U.S. Census Bureau, it does not plan to release its standard 2020 American Community Survey (ACS) 1-year estimates due to the impacts of the COVID-19 pandemic on data collection. Experimental estimates developed from 2020 ACS 1-year data, however, will be available by Nov. 30, 2021.

## Appendix 1: County Outlook – Imperial

Imperial County, located in the southeast corner of California, shares borders with San Diego County, Riverside County, Yuma County (Arizona), and Mexico (the City of Mexicali and the greater Mexicali Valley). The county has a current estimated population of 186,034, a decline of 1.3 percent or 2,378 persons from a year ago. The economy of the region is based on the following industries:

- Agriculture (livestock and crops)
- Border security (namely Department of Homeland Security)
- Energy production/storage (solar, wind, geothermal)
- Local serving small businesses (traditional retail, restaurants, service-oriented)
- Local/regional government and related services (police, fire, education, utilities)
- Logistics (agriculture, products assembled in Mexicali, Mexico, and customs brokers)
- Prison/detention facilities (federal and state)

### Overall County Production

Using the latest year available, the GDP of Imperial County (El Centro MSA) in 2019 was \$8.98 billion (Exhibit A1.1). Agriculture is the largest driver of GDP in the region. Over the last 19 years, agriculture production has averaged 23.1 percent of annual GDP. GDP per capita is estimated at \$48,271, which is similar to the GDP per capita in the states of Oklahoma, Kentucky, South Carolina, and Idaho.

#### Exhibit A1.1: GDP in Imperial County (2002-2019)



Source: Federal Reserve of St. Louis, FRED

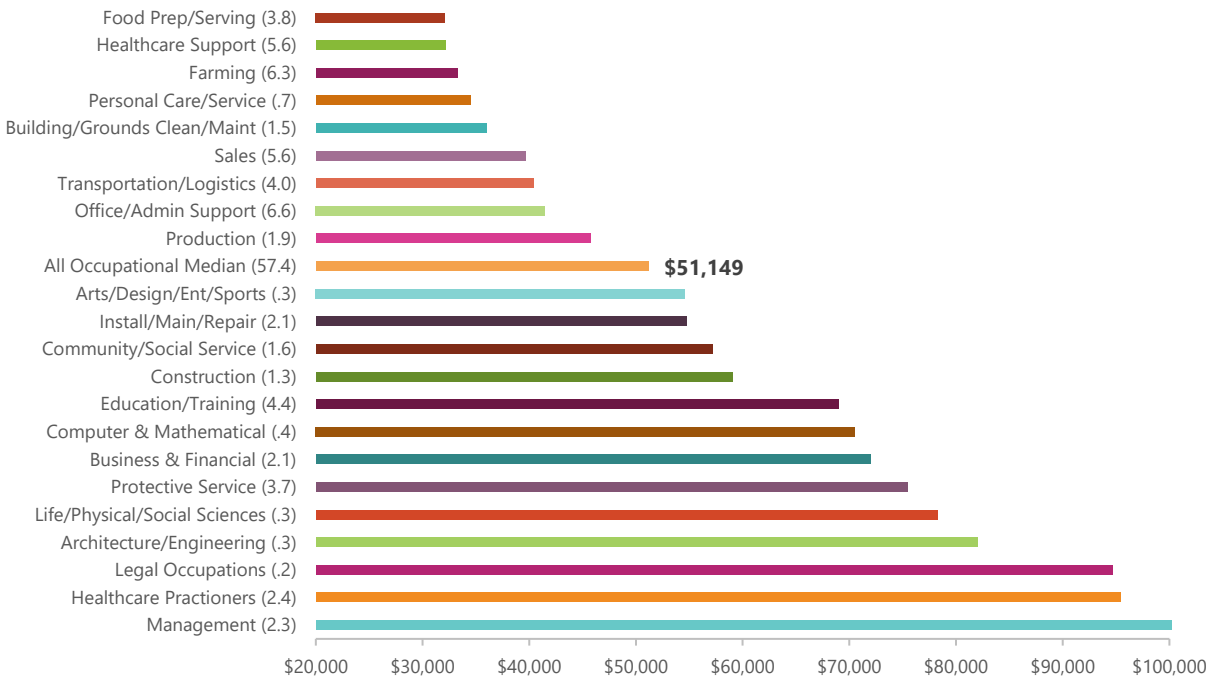
### Employment & Pay

As of August 2021, Imperial County had an unemployment rate of 19.4 percent (not seasonally adjusted). The labor force in Imperial County continues to shrink from a high of 79,600 persons in 2011 to 68,500 at present (a loss of 11,000). The total employed peaked in 2014 at 59,300. Currently, there are 55,200 employed, a loss from peak employment of 4,100 jobs. Over the past year, the labor force decreased by 300 persons while the total number employed increased by 3,900 as the economy begins to recover from the worst of the pandemic.

Year-over-year (August 2020 to August 2021), gains were seen in Retail (+1,000), Leisure and Hospitality (+600), Manufacturing (+500), Local Government (+500), and Education/Health Services (+200). Decreases were seen in Financial Activities (-100), Federal Government (-100), and State Government (-100) jobs. The largest employment sectors are Agriculture related (18 percent of all jobs) and Government (local government, education, state prisons, federal Department of Homeland Security), accounting for almost 33 percent of all employment.

In 2021, median income (Exhibit A1.2) reached an all-time high of \$51,149, an increase of \$2,950 or 6.1 percent year-over-year. Occupations paying above the median wage, and with significant employment in the county, include management, healthcare practitioners, protective services (police, fire, prison/detention facility personnel), business and financial, and education (each paying at least \$69,000 per year) while career categories paying below the median (and having significant employment) include office/administrative support, logistics, sales, farming, healthcare support, and food preparation/serving.

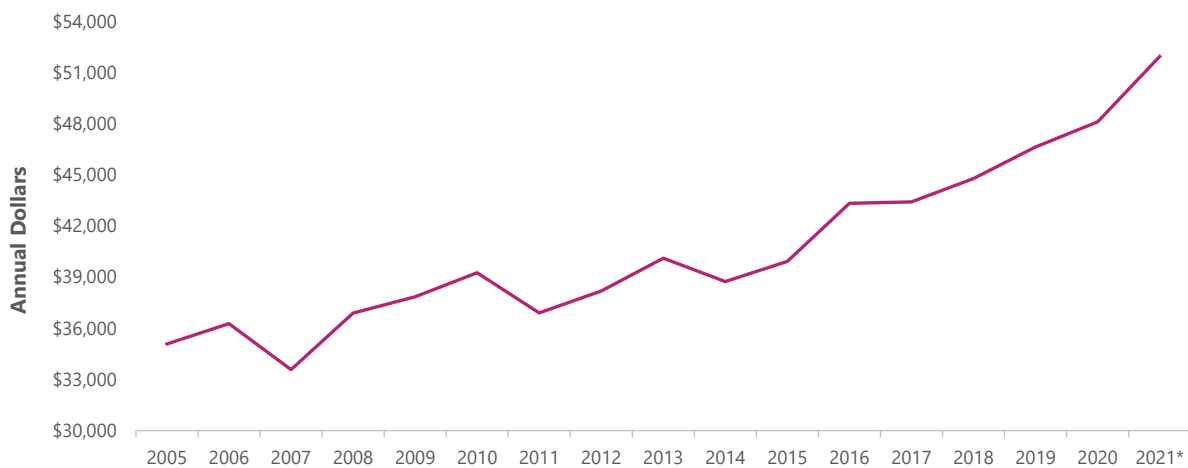
### Exhibit A1.2: First Quarter 2021 Median Income by Occupation in Imperial County



Source: CA EDD

Median household income (Exhibit A1.3) continues to rise in Imperial County. Year-over-year (2020 to 2021), the increase was \$3,835 in whole dollars, an increase of 8.0 percent. Over the past five years, Median Household Income has risen \$8,610 in whole dollars or 19.9 percent, an average annual increase of almost 4.0 percent.

### Exhibit A1.3: Median Nominal Household Income in Imperial County (2005-2020)



Source: EnviroNics Analytics

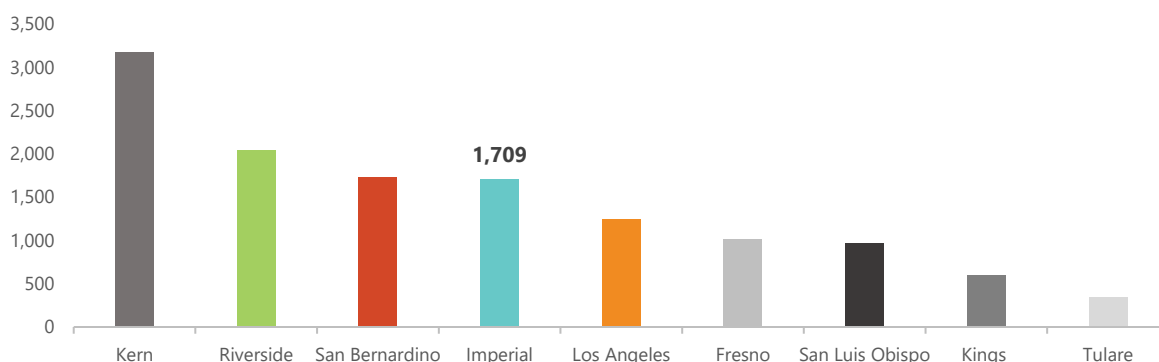


## Leading Industries

### RENEWABLE ENERGY GENERATION

As California’s Renewable Portfolio Standard (RPS) continues to march toward the 2040 goal of 100 percent renewable power generation, Imperial County is playing a key role. The region produces over 11 percent of California’s total solar production and significant amounts of wind and geothermal energy (Exhibit A1.4). Overall, Imperial County has approved over 3,400 megawatts (MW) of renewable power generation over 24,000 acres of land with an additional 1,000 MW of power and 3,000 MW of battery storage in the permitting process.

**Exhibit A1.4: 2020 Solar Energy Production Capacity (MW) by County (Min. 300 MW)**



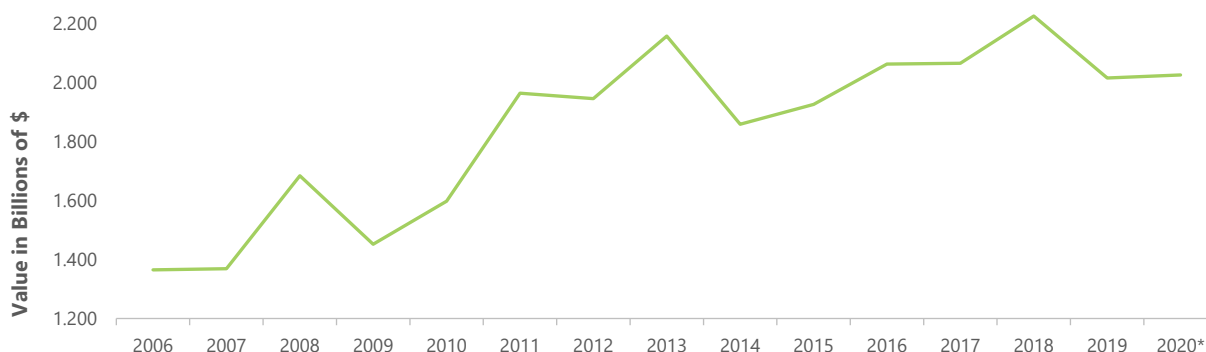
Source: California Energy Commission

### AGRICULTURE

Agriculture is the largest private sector industry in the Imperial Valley. In 2020, agriculture production was about \$2.026 billion, the fourth highest year on record for the region, which was a year-over-year increase of \$10 million from 2019 (Exhibit A1.5). In 2020, 494,679 acres were utilized for agriculture production, a decrease of 6.29 percent from 2019. To provide perspective, Imperial County farms a land area about the same size as all of Orange County in any given year. Crop production values for 2020 included:

- Vegetable/Melons: \$895.98 million
- Livestock: \$490.63 million
- Field Crops (Alfalfa/Bermuda Grass): \$444.69 million
- Seed/Nursery Production: \$95.33 million
- Fruit and Nut Crops: \$94.57 million
- Apiary/Honey: \$5.22 million

**Exhibit A1.5: Total Agriculture Production Imperial County (2006-2020\*)**



Source: County of Imperial Agriculture Commission

## WATER

Imperial County is allocated 3.1-million-acre feet of water annually from the Colorado River, which is managed by the Imperial Irrigation District (IID), a governmental entity based in the region. IID utilizes over 3,000 miles of canals within the region to distribute water. Approximately 97 percent of water allocated to the region is used for agriculture purposes while only 3 percent is used for municipal, residential, business/industrial, and domestic type uses.

In recent years, there has been a legal dispute between IID and individual farmers within the region. Individual farmers asserted that they owned the water rights directly and said rights were not limited to service rights through IID. The Fourth District Court of Appeals ruled in favor of IID, and in October 2020, the California Supreme Court refused to review the case. In early 2021, said farmers requested the United States Supreme Court review the item. In late June 2021, the United States Supreme Court, issued a denial to the writ of certiorari, ending years of litigation. The U.S. Supreme Court decision ruled IID is the owner of the water rights on behalf of Imperial County constituents and that all of IID customers will have equal access to the water supply, rather than any private individual or group having specific ownership.

## TAXABLE SALES

Taxable sales is a measure of spending in the economy by both households and businesses. In 2020, taxable sales in Imperial County totaled \$2.984 billion, a 10.6 percent increase from 2019 when taxable sales totaled \$2.698 billion. The increase in taxable sales within the region mirrors California as a whole as households receiving federal stimulus bought more in taxable goods.

## ASSESSED VALUATION

Imperial County saw an overall increase in assessed valuation from \$13.85 billion in FY 2020-2021 to \$14.24 billion in FY 2021-2022. This represents a 2.75 percent increase year over year. In the past ten years (since the Great Recession), assessed valuation in Imperial County has increased by 36 percent.

## HOUSING

The housing market in Imperial County, like most regions in California, is seeing increased values. For the last full year (2020), the median home price in the region was \$260,000. For the current year to date (through Aug. 31, 2021) the median home price in Imperial County is \$281,000, an increase of 8 percent. Demand for housing continues to be strong within the region and on pace to see over 1,500 transactions in 2021 (volumes not seen since 2012 as banks were clearing foreclosures off their books). Apartment demand is strong and prices are also increasing. Property managers report few, if any, vacancies. Two-bedroom apartments are priced at \$1,100 to \$1,300 month. Rental homes (e.g., 1,400 square foot 3-bedroom, 2-bathroom) are listed for \$1,400-\$1,700 per month.

## Outlook

- The overall economy of the region is stable, though the decrease in overall population and labor force is concerning.
- While agriculture production for 2020 was stable, decisions for 2020 were based on 2019 market conditions (pre-pandemic). Overall, agriculture is under pressure due to labor costs and availability. The livestock industry is being hurt due to concentration and pricing to process. Beef costs and availability are expected to negatively affect consumers for the foreseeable future. The 2021 crop report will likely show the short-term impacts on the agriculture industry due to COVID-19.
- Imperial Valley is poised for billions of dollars of investment in solar energy production and battery storage in the coming years. The region is being explored for lithium mining as lithium is an essential element for electronic equipment, including batteries and mobile phones.
- The path to the middle class continues to be reliant on government jobs (public safety, local government, and teaching/education).

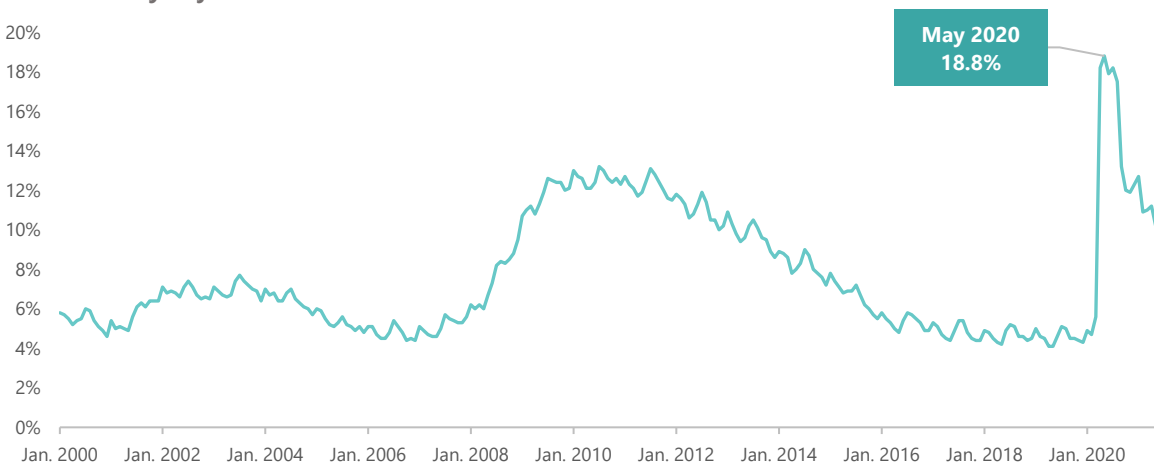
## Appendix 2: County Outlook – Los Angeles

The Los Angeles region faced major challenges over the past year and half with the COVID-19 pandemic halting economic progress and posing severe problems for the economy. Even during the recovery process, rapidly increasing home prices and elevated unemployment rates are examples of complications that must still be addressed. The strength of the county's critical industries persists, however, and forecasts for the future show resumed growth on the horizon.

### Economic Environment

The August 2021 unemployment rate in Los Angeles County was 9.7 percent (not seasonally adjusted), well above the pre-pandemic average of 4-5 percent in the county, but down significantly from its peak at 18.8 percent in May 2020 (Exhibit A2.1). Nonfarm employment in August 2021 totaled just over 4.5 million, up over 460,000 jobs over the year, but still down by about 430,000 from the height of employment before the pandemic's onset. Most major industry sectors saw growth over the past year as the recovery process began. Many of the hardest hit industries, such as Accommodation and Food Services, Information and Arts, Entertainment, and Recreation added a significant portion of jobs back to their payrolls.

**Exhibit A2.1: Civilian Unemployment Rate in Los Angeles County (Jan. 2000 – Aug. 2021)**  
Not seasonally adjusted



Source: CA EDD

County employment is projected to grow by about 91,000 jobs annually from 2020 to 2025, adding roughly 457,000 jobs in total. The industries expected to add the most jobs overall are Healthcare and Social Assistance, Accommodations and Food Services, and Transportation and Warehousing.

### Leading Industries

The industries with the highest projected growth opportunities in terms of employment and wages over the next five years are projected to be:

**Arts, Entertainment, and Recreation** is expected to grow at an average annual growth rate of around 7.0 percent over the next five years and add approximately 26,500 jobs. This sector has consistently been a strength for Los Angeles County.

**Accommodation and Food Services** is forecasted to make a significant recovery from the severe job losses it suffered during the pandemic. The industry is projected to grow at an average annual rate around 4.5 percent, adding almost 84,000 jobs by the end of 2025.

**Transportation and Warehousing** has been driven by a boom in consumer demand that has fueled imports and trade activity throughout the pandemic. This sector added the most jobs out of any other over the past 18 months and is expected to grow at an average annual rate of almost 4.0 percent through 2025, adding around 40,000 jobs throughout this period.

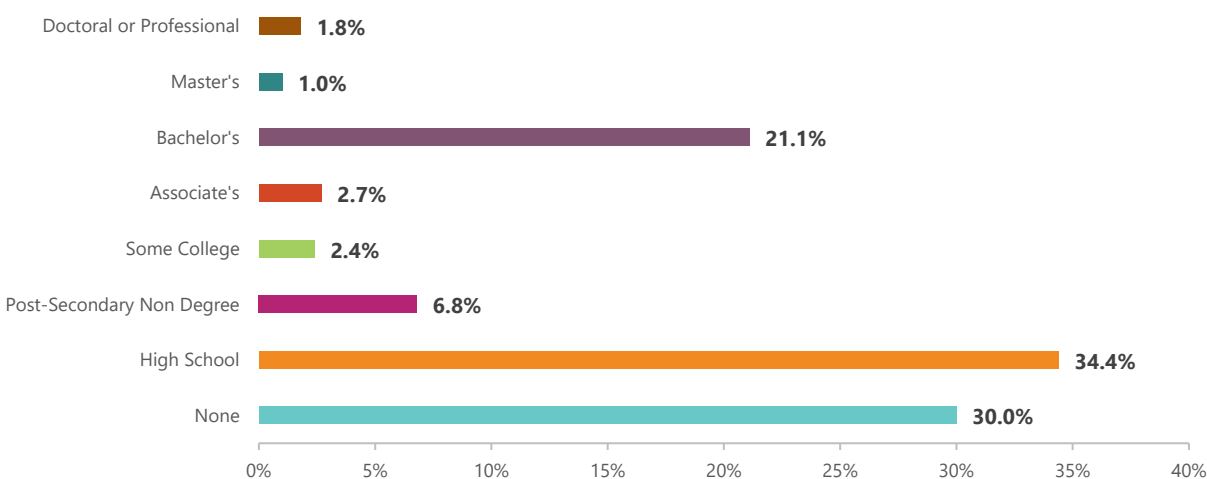
**Information** is expected to grow at an average annual rate of around 3.0 percent per year over the next five years, adding almost 31,000 jobs by the end of 2025. Information includes the motion picture and sound recording industries, which were heavily impacted by pauses to production in 2020. These industries are anticipated to rebound quickly due to high consumer demand for film and television content.

**Other Services** is projected to grow at an average annual rate around 4.0 percent, adding around 27,000 jobs by the end of 2025. Other Services includes industries like personal care services, which were severely affected by the pandemic health restrictions impacting business and leading to high rates of layoffs and unemployment. As a result, there are many jobs still to be recovered in this sector.

## Occupational Outlook

As noted in Exhibit A2.2, the highest number of new jobs will be in occupations that require a high school diploma or less, which are often lower-paying and lower-skilled jobs. Between 2020 and 2025, 30.0 percent of all new projected job openings in Los Angeles County are expected to have no educational requirements for entry, and a further 34.4 percent will require workers with just a high school diploma. Meanwhile, less than a quarter of job openings will require a bachelor's degree or higher.

### Exhibit A2.2: Entry Level Education Requirements in Los Angeles County All jobs 2020-2025\*



Note: \*Data for 2021-2025 are forecasted.

Source: CA EDD; Forecast by LAEDC

As in our 2020 update, the highest level of educational attainment that an individual earns in Los Angeles County is a major indicator of their level of income. With the median income of a worker holding a bachelor's degree being nearly double that of a worker with only a high school diploma, this disparity is even more pronounced between workers with graduate degrees and those with no formal education. The availability of jobs with low educational requirements is fortunate in some ways; Los Angeles County holds a large pool of unskilled labor, but the inequities caused by unequal access to educational pathways is another challenge that the region will be forced to deal with in the near future.

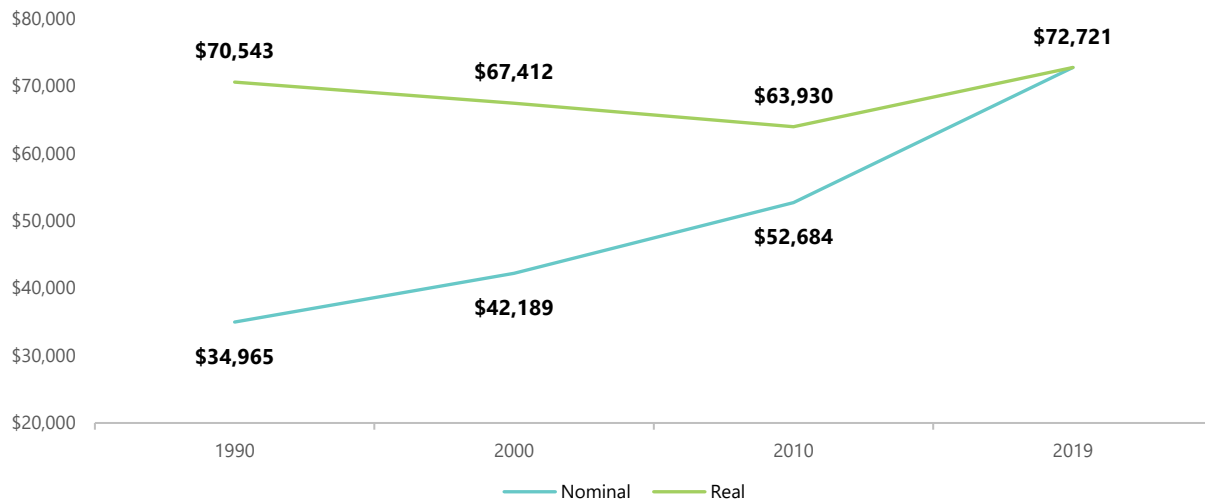
## Income and Poverty

Both median household incomes (Exhibit A2.3) and per capita incomes in Los Angeles County have been increasing in real and nominal terms. In 2019, the real median household income in the county was \$72,721, up by 13.7 percent from 2010. The real per capita income was \$34,156, up 9.4 percent in the same period. Every year, the distribution of households across income brackets shows more and more households in the county achieving higher levels of income. Some 35.0 percent of Los Angeles County households had an income of less than \$50,000 annually in 2019, down from 37.8 percent in 2018 and 39.5 percent in 2017.

The individual poverty rate (Exhibit A2.4) reached 13.4 percent in 2019, down from 14.1 percent in the preceding year and a substantial decrease from the peak of 19.1 percent reached in 2012. The household poverty rate was 13.5 percent, well below its figure in 2010 at 16.0 percent. While the county is improving in poverty metrics, however, these positive outcomes are not distributed evenly across demographic groups. Hispanic and Black households are much more likely to struggle with poverty than their White and Asian counterparts, demonstrating yet another troublesome divide in Los Angeles County.

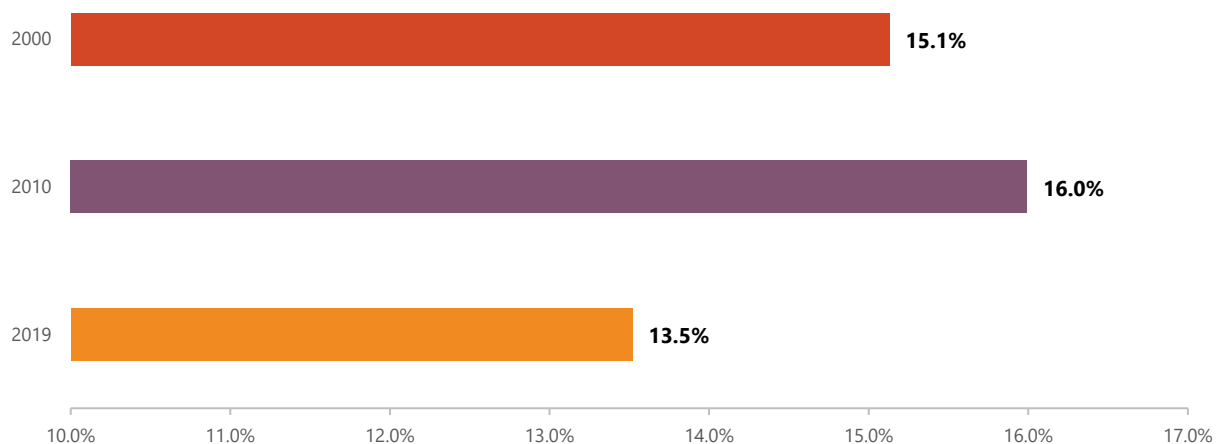
### Exhibit A2.3: Median Household Income in Los Angeles County

Nominal and 2019\$



Source: ACS 2019 1-year estimates; BLS

### Exhibit A2.4: Household Poverty Rate in Los Angeles County



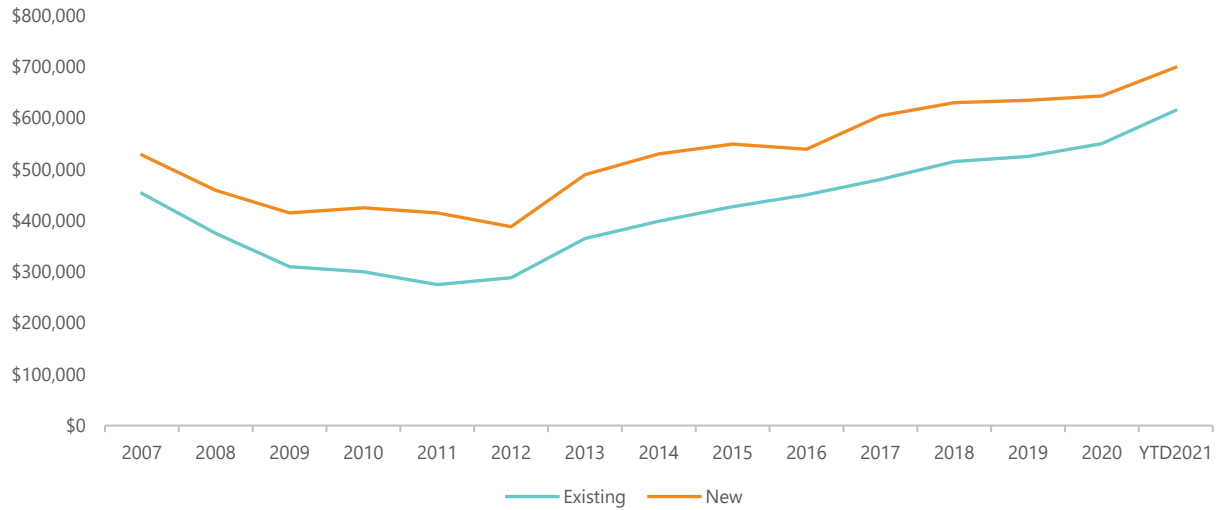
Source: Census Bureau

## Housing Market

Housing demand skyrocketed during the pandemic due to a combination of limited supply, low interest rates, and more, which translated into pent-up demand in 2021 that has pushed prices higher and higher (Exhibit A2.5). Currently the median price for a new attached home is nearly \$700,000 and the price for an existing attached home is above \$600,000. The price for detached homes is even more inflated with the median price for a new detached home rising to nearly \$1,200,000. Accordingly, housing affordability has hit a low point in both Los Angeles County and California.

**Exhibit A2.5: Annual Median Home Prices in Los Angeles County (2007-YTD2021)**

**Attached homes**



Source: DataQuick

## Appendix 3: County Outlook – Orange

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As in the aftermath of the Great Recession, Orange County's competitive advantages – such as its educated workforce and diverse industry base – have fueled its recovery from the pandemic-related economic downturn faster than its neighbors. While the possibility of new COVID-19 variants keeps the future outlook uncertain, high vaccination rates will likely blunt the effects of these variants. Significant challenges remain, such as rising housing and cost-of-living affordability concerns and global supply chain disruptions, but Orange County's fundamentally strong economy will help it weather these challenges.

Orange County's economy will likely continue to grow in 2022, albeit at a slower rate than in the recovery year of 2021. A variety of factors will determine the speed of growth, such as:

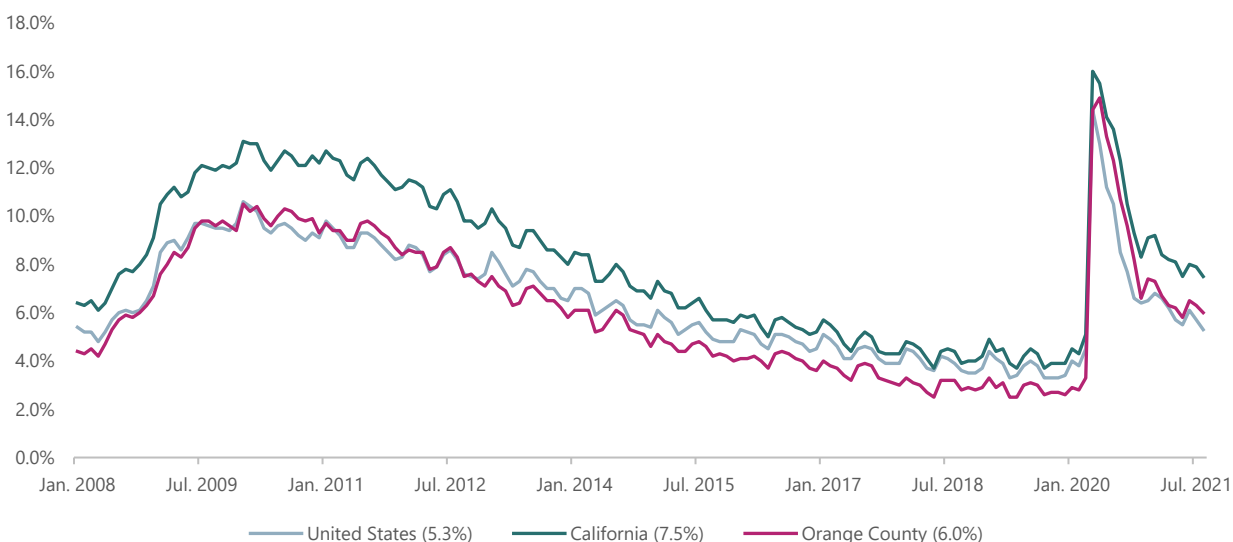
- New COVID-19 variants.
- Employers' ability to fill job openings.
- Potential raw material shortages.
- Potential increases in shipping costs.
- Continued supply chain disruptions, such as long delays caused by bottlenecks at ports.

While Orange County lost 280,400 jobs between February 2020 and May 2020, it has since recovered approximately 194,000 jobs – 70 percent of the losses – as of August 2021. Chapman University predicts that Orange County will add 100,000 jobs between the second quarter of 2021 and the end of the year, bringing total county employment to 98 percent of employment in the first quarter of 2020. Chapman University cites a recovering Leisure and Hospitality sector and a growing Construction sector as the main catalysts. National real GDP growth is expected to hit 6.7 percent in 2021, the fastest growth since the early 1980s. Similarly, CSUF economists expect national GDP growth of 6.8 percent in 2021 due to “the vaccine-fueled COVID-19 turnaround, massive federal support and signs of a resilient economy reacting to the widespread reopening of society” (Urish, 2021). While mentioning potential challenges, such as inflation, CSUF's overall economic outlook remains positive.

### 2021 Orange County Economy by the Numbers

- Orange County had a GDP of \$262 billion in 2020.
- Orange County had an unemployment rate of 6.0 percent in August 2021, lower than the state average at 7.5 percent, but higher than the national average at 5.3 percent (Exhibit A3.1).
- Total county employment has reached 1,485,700 in 2021 with only 94,900 county residents still unemployed.
- Orange County's median industry wage grew by \$8,269 (10.6 percent), between 2019 and 2020, reaching \$86,332 in 2020.
  - Occupational groups with the largest year-over-year salary increases included Personal Care and Service Occupations; Food Preparation and Serving-Related Occupations; and Arts, Design, Entertainment, Sports, and Media Occupations.
  - Industries with the largest year-over-year salary increases included Arts, Entertainment, and Recreation; Management of Companies; and Utilities.
- Orange County continues to maintain a strong and diverse economy. Top industries include Professional and Business Services (20.3 percent of employment); Educational and Health Services (14.2 percent); and Leisure and Hospitality (12.8 percent).
- The year's largest employment growth occurred in Leisure and Hospitality (+66,000 jobs), followed by Professional and Business Services (+20,400) and Other Services (+8,000).
- Financial Services was the only industry to see declines over the past year, which lost 700 jobs (0.6 percent).
- Total passengers at John Wayne bounced back from just over 25,000 in April 2020 to 890,185 in July 2021.
- Total passengers at John Wayne Airport increased by 272.3 percent from July 2020 to July 2021.
- Orange County business executives cite inflation as the most significant concern with half of executives listing it as the primary worry moving forward (Costello, 2021).
- CSUF's Orange County Business Expectations Index (OCBX), which measures business executive confidence on a scale from 0-100, has recovered from a low of 22.7 in the second quarter of 2020 to 96.4 in the third quarter of 2021 – the highest score in three years.

### Exhibit A3.1: Comparison of Unemployment Rates (Jan. 2008 – Aug. 2021) Not seasonally adjusted



Source: U.S. Bureau of Labor Statistics, CA EDD

## Leisure and Hospitality Continues to Rebound

Orange County’s largest industries as of August 2021 included:

- Professional and Business Services (20.3 percent of total employment)
- Educational and Health Services (14.2 percent)
- Leisure and Hospitality (12.8 percent)
- Manufacturing (9.4 percent)

The County’s Leisure and Hospitality industry is well into its recovery, gaining 66,000 jobs over the past year. Financial Services, on the other hand, was the only county industry to shrink over the past year, losing 700 employees.

Orange County’s strong industry clusters (Exhibit A3.2), such as Medical Devices, will play a key role in further economic recovery by fueling innovation and employment growth. The U.S. Cluster Mapping Project ranks the county’s Medical Devices cluster as first in the nation with total employment of 17,231 and a location quotient of 5.3, indicating that Medical Device employment is more than five times as concentrated in Orange County compared to the nation. Orange County’s five most concentrated sectors, as seen below, include Medical Devices, IT and Analytical Instruments, Hospitality and Tourism, Communications, and Financial Services.

### Exhibit A3.2: Industry Cluster Overview in Orange County

Industry	Rank in Nation	Employment	Location Quotient
Medical Devices	1	17,355	5.3
IT and Analytical Instruments	5	30,527	1.87
Hospitality and Tourism	4	77,547	1.86
Communications	8	9,697	1.73
Financial Services	6	38,527	1.62

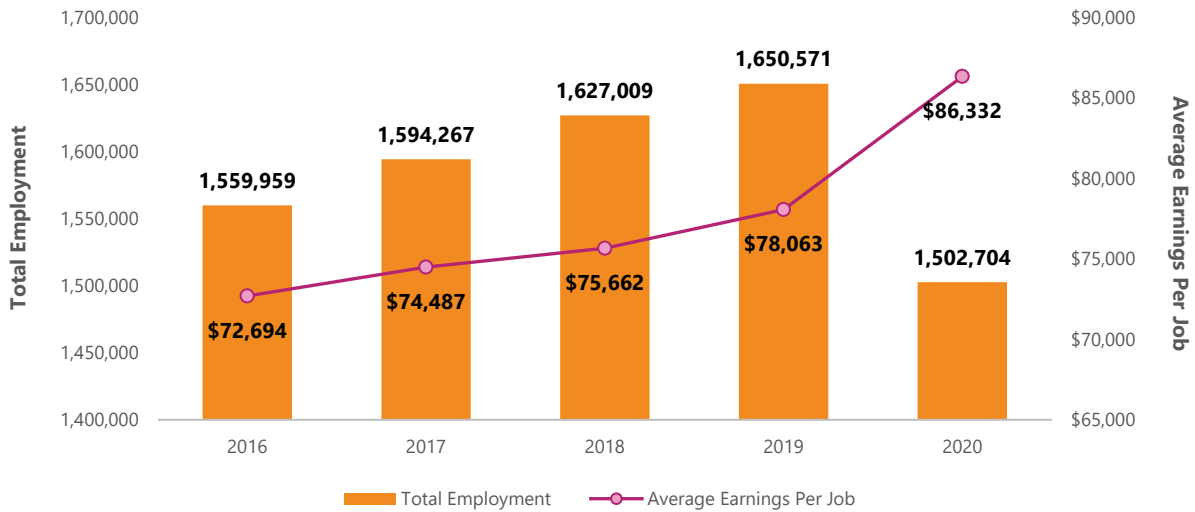
Source: U.S. Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

## ORANGE COUNTY INDUSTRY WAGES SEE SIGNIFICANT JUMP IN 2020

Employment and wage growth in Orange County saw a significant divergence in 2020 after a few years of steady growth for both. While county employment fell by 9.0 percent during the COVID-19 pandemic, county wages continued to increase, growing by 10.6 percent to reach an average of \$86,332 in 2020.



### Exhibit A3.3: Annual Employment and Nominal Wages in Orange County (2016-2020)

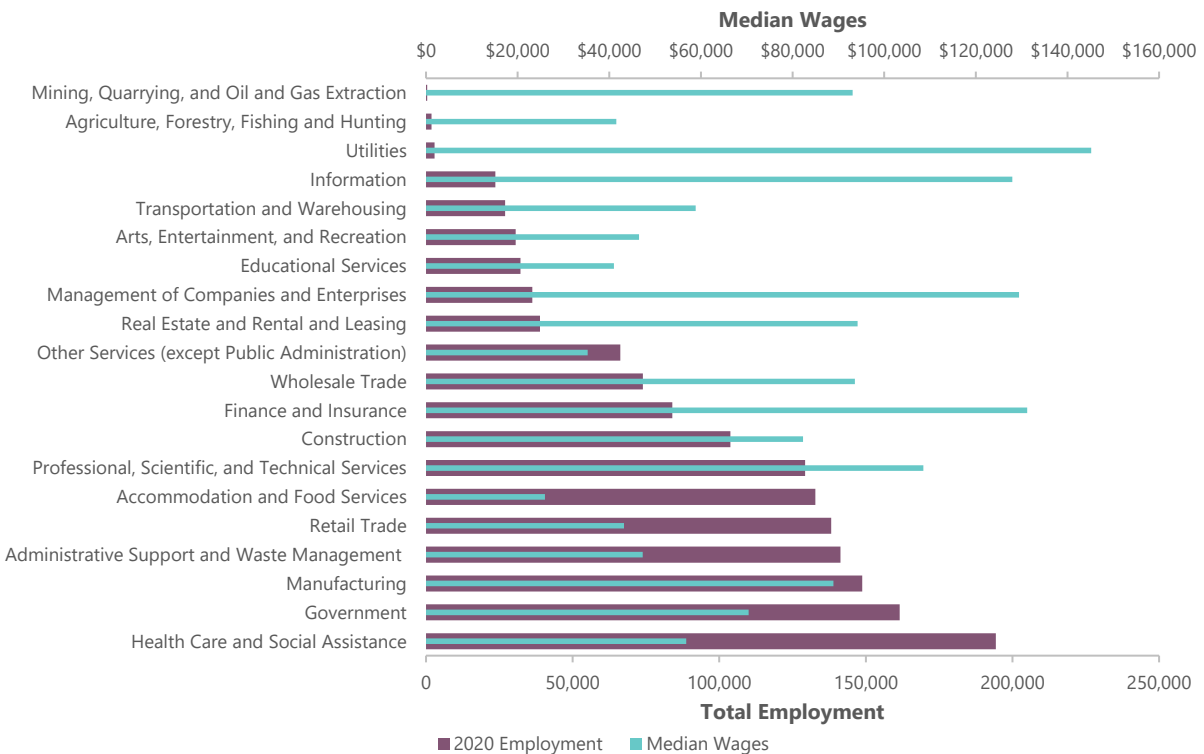


Source: Emsi

In 2020, Orange County Health and Social Assistance employment reached 194,334 – more than any other county industry – and paid a median annual salary of \$56,810. Government employment, as seen in Exhibit A3.4, finished in second place with 161,507 employees at a median annual salary of \$70,427. County industries with the highest 2020 median wage included Utilities (\$145,163), Financial Activities (\$131,227), and Management of Companies (\$129,439).

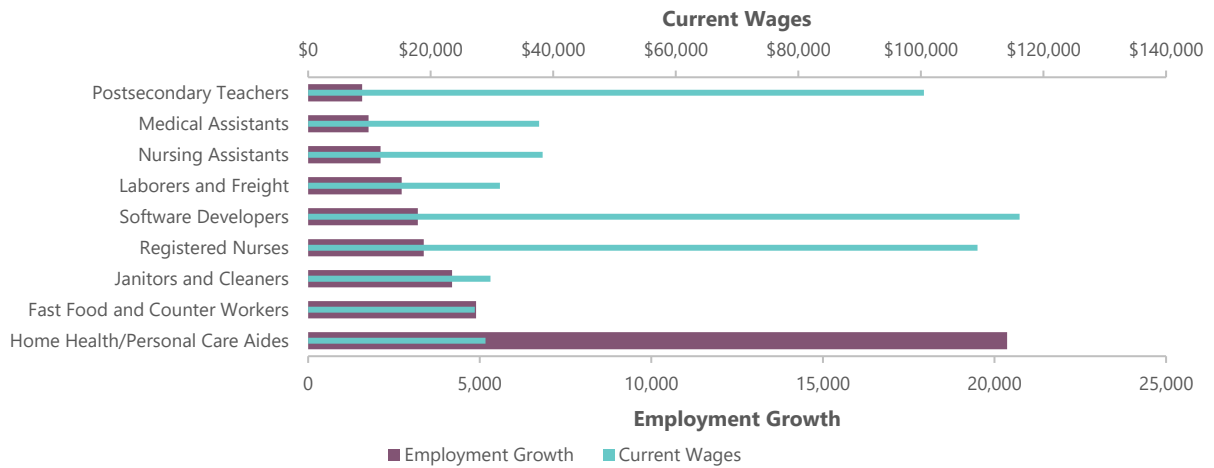
Looking forward, the top growth occupations in Orange County from 2020 to 2031 (Exhibit A3.5) include Home Health and Personal Care Aides, expected to add 20,370 jobs, followed by Fast Food and Counter Workers (+4,894 jobs) and Janitors and Cleaners (+4,196 jobs).

### Exhibit A3.4: Employment and Median Wages by Industry in Orange County (2020)



Source: Emsi

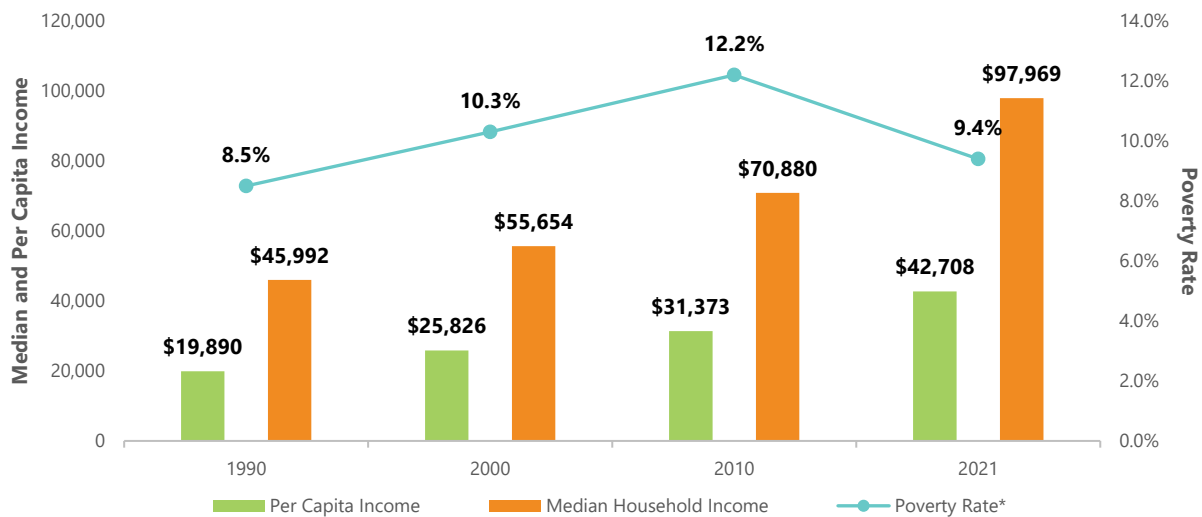
### Exhibit A3.5: Top 10 Occupations by Absolute Projected Job Growth and Current Median Wages in Orange County (2020-2031)



Source: Emsi

Both per capita and median household incomes have increased dramatically in Orange County since 1990. Between 1990 and 2021, per capita nominal incomes in the region have increased by 114.7 percent, reaching \$42,708 in 2021, while median household nominal incomes increased by 113 percent to reach \$97,969 in 2021. While County poverty rates increased between 1990 and 2010, rates have since declined to only 9.4 percent. As seen in Exhibit A3.6 below, 2020-2021 U.S. Census Bureau poverty data has been delayed due to COVID-19. The pandemic’s dramatic economic impacts make it likely the poverty rate will increase in future years.

### Exhibit A3.6: Nominal Income and Poverty Rates in Orange County



Note: \*Due to delay of data from the U.S. Census, the 2021 poverty rates represent 2019 measures.  
 Source: U.S. Census Bureau, American Community Survey and Current Population Estimates; Esri

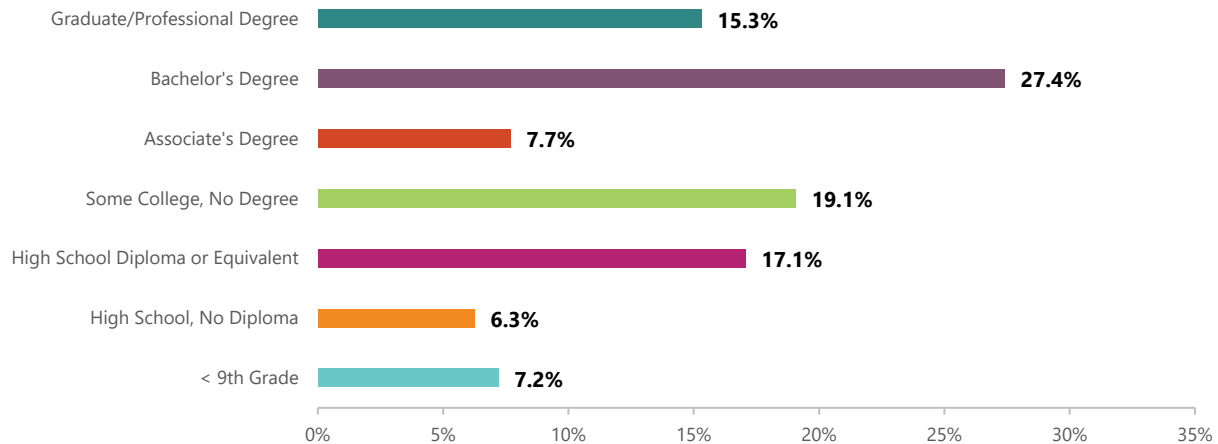
## COVID-19 FADING BUT STILL PRESENT IN ORANGE COUNTY

The Orange County Healthcare Agency reports that Orange County had a total of 297,635 cumulative cases and 5,432 cumulative deaths as of Sept. 30, 2021. Of cases with known ethnicities, 44.8 percent were Hispanic or Latino, while 27.3 were White, 11.4 percent were Other, 11.9 percent were Asian, and 1.5 percent were Black. Hispanic or Latino communities represented 38.3 percent of total deaths, followed by Whites (37.7 percent), Asians (21.0 percent), and Blacks (1.3 percent). 2,115,536 residents are fully vaccinated while another 197,514 have received one dose.

## Increased Educational Attainment Pathway to Better Job Opportunities

Orange County remains home to a highly educated population, a key competitive advantage that helps attract and retain businesses. Like elsewhere in the U.S., educational attainment also correlates to higher income in Orange County. In 2021, approximately 42.7 percent of county residents 18 and older had either a bachelor’s degree or a graduate or professional degree, with 7.7 percent holding an associate’s degree. Some 19.1 percent had attended some college without earning a degree, while only 13.5 percent lacked a high school diploma (Exhibit A3.7).

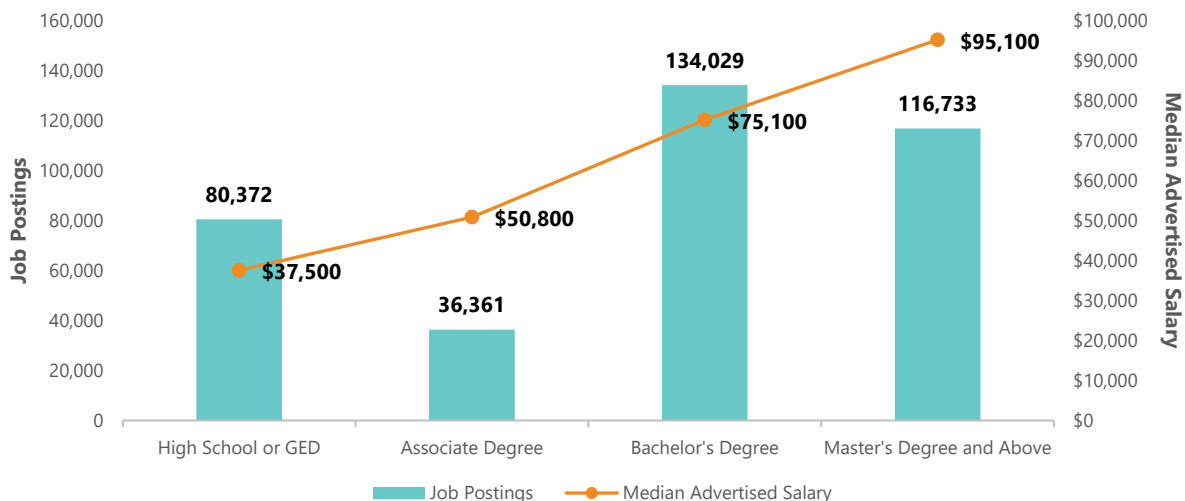
**Exhibit A3.7: Educational Attainment in Orange County (2021)**



Source: Esri

Unique job postings in Orange County totaled 509,134 between August 2020 and August 2021 with a median posting duration of 29 days and a median advertised salary of \$50,000. As seen in Exhibit A3.8, occupations with bachelor’s degrees had the highest number of job postings at 134,029 with a median advertised salary of \$75,100. Jobs requiring a master’s degree and above had a total of 116,733 job postings with a median advertised salary of \$95,100. While wages have been increasing, especially in Orange County, the cost of living – driven primarily by housing prices – continues to alienate many residents in the area.

**Exhibit A3.8: Job Postings and Median Advertised Salary in Orange County (Aug. 2020 – Aug. 2021)**



Source: Emsi

In July 2021, the United States had significantly more job openings (10.9 million) than unemployed workers (8.7 million) in July 2021 in the U.S. This suggests that workers are increasingly dissatisfied with current job opportunities, especially as home and rental prices continue to increase. From August 2020 to August 2021, Orange County saw a total of 508,934 job postings with a median advertised salary of \$50,000, with the majority of jobs requiring a bachelor’s degree (Exhibit A3.9).

### Exhibit A3.9: Job Postings by Educational Attainment and Minimum Experience in Orange County (Aug. 2020 – Aug. 2021)

Educational Attainment	Percent	Minimum Experience	Percent
Unspecified	53%	No Experience Listed	55%
High School or GED	16%	0-1 Years	14%
Associate Degree	7%	2-3 Years	18%
Bachelor's Degree	26%	4-6 Years	10%
Master's Degree	7%	7-9 Years	2%

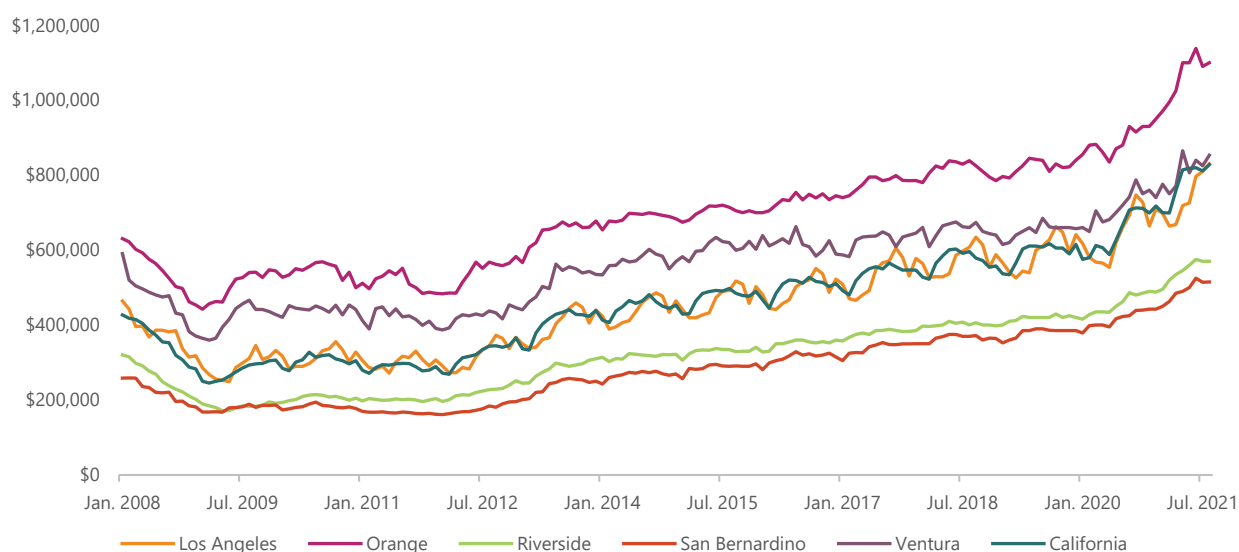
Source: Emsi

## Housing Prices Continue Upward Climb

Orange County’s median existing home price (Exhibit A3.10) hit record highs in 2021, reaching \$1,138,000 in June 2021 and remaining at over \$1 million in August. The county’s traditional housing affordability index shrunk from 25 in the second quarter of 2020 to 17 in the second quarter of 2021, its lowest reading since the fourth quarter of 2007. This means that only 17.0 percent of County residents can afford a median-priced home.

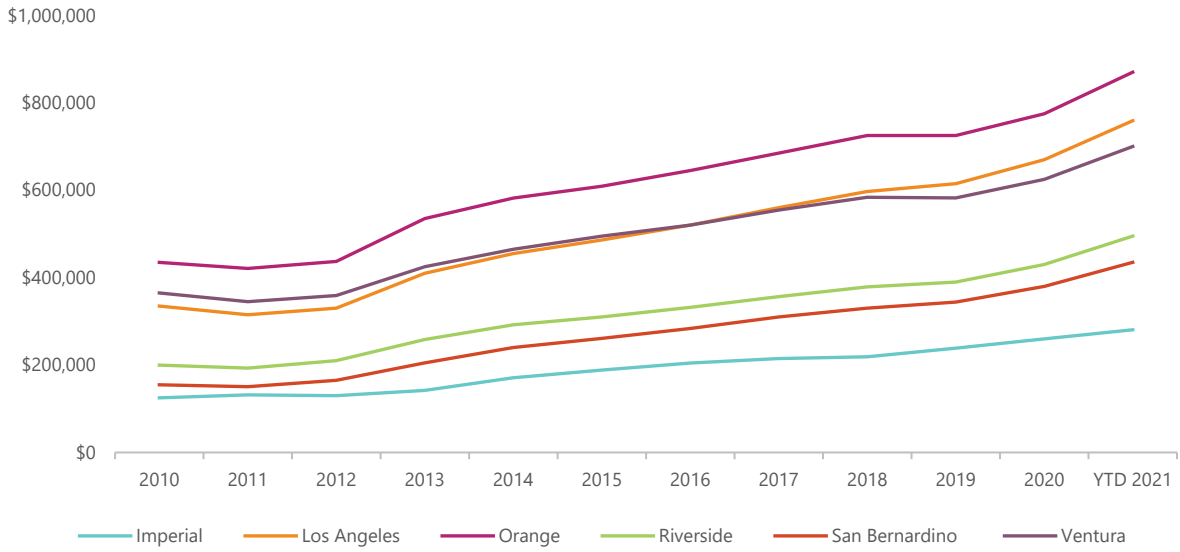
The combination of record-high home prices (Exhibit A3.11) and a continued economic downturn in 2021 could further exacerbate Orange County’s affordability crisis, hindering its economic recovery. While wages have increased, they have been outpaced by home and rental prices, pushing many residents to relocate. As a result, Orange County lost 25,000 residents to outmigration in 2020, with California recording its first ever annual decline in population (Beam, 2021).

### Exhibit A3.10: Southern California Existing Median Home Prices (2008-2021)



Source: California Association of Realtors

### Exhibit A3.11: Southern California Average Annual Median Sales Price for All Homes by County (2010-YTD 2021)



Source: CoreLogic; DQNews

## Appendix 4: County Outlook – Riverside & San Bernardino

An important consideration in looking at the status and future of the Riverside-San Bernardino metropolitan area's economy is to understand the conditions that affect the region. Like many U.S. metropolitan areas (e.g., the Bay Area), the economy is made up of more than one county. In this case, Riverside and San Bernardino counties both largely respond to the same set of economic forces. Both are inland from coastal counties that are largely built out and thus subject to the outward migration of demographic and economic activity from those areas as Southern California expands. This has affected the nature of their residents, companies, commuting, and educational levels.

### County Growth Patterns

In each county, inland migration of demographic and economic activity began with single-family housing, gradually spreading further inland. In addition to housing, the movement of industrial activity (e.g., manufacturing, logistics) followed this growth pattern from the west to east. Workers in Riverside and San Bernardino Counties moved across county lines in large numbers, with an average of 97,000 Riverside workers going to jobs in San Bernardino in the latest available data from 2011-2015 (U.S. Bureau of the Census). Meanwhile, an average of 64,255 San Bernardino workers drove to Riverside. When job growth has not kept up with population growth, however, a significant share of area workers in each county have migrated outside the region to coastal counties (Riverside 19.9 percent; San Bernardino 22.3 percent), with those patterns remaining largely stable going back to 1990. Of the total commuters from the area, the shares are nearly even: Riverside at 49.5 percent) and San Bernardino at 50.5 percent (Exhibit A4.1).

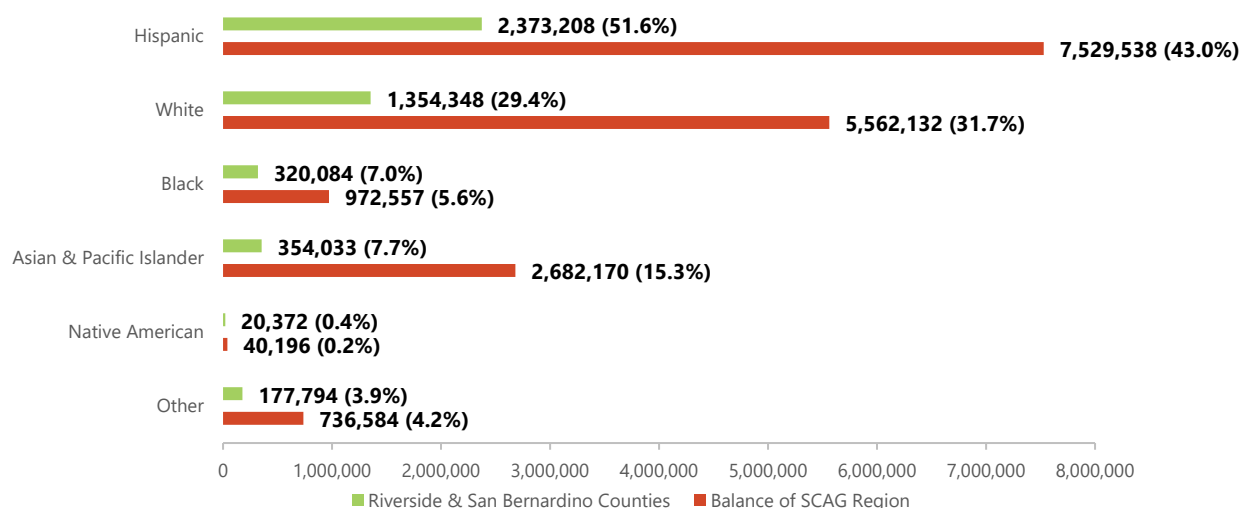
#### Exhibit A4.1: Destination of Inland Commuters (2011-2015)

	Numbers	Shares
<b>Riverside County</b>		
Employed Persons	898,639	
To San Bernardino County	97,000	10.8%
Outside Riverside-San Bernardino	178,701	19.9%
<b>San Bernardino County</b>		
Employed Persons	816,403	
To Riverside County	64,255	7.9%
Outside Riverside-San Bernardino	182,162	22.3%
<b>County Share of Riverside-San Bernardino Counties Commuters</b>		
Riverside		49.5%
San Bernardino		50.5%

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

Emerging from the inland migration, populations within both counties saw significant increases in the share of Hispanic population and a decline in the share of non-Hispanic Whites. The 2020 Census showed Hispanics at 51.6 percent of the population versus 43.0 percent in the rest of Southern California. White non-Hispanics fell to 29.4 percent compared to 31.7 percent in the balance of Southern California. Blacks were 7.0 percent versus 5.6 percent. Asians and Pacific Islanders were 7.7 percent versus 15.3 percent as those groups have just begun to migrate inland. Native Americans were 0.4 percent versus 0.2 percent. Mixed/Other populations were 3.9 percent compared to 4.2 percent (Exhibit A4.2).

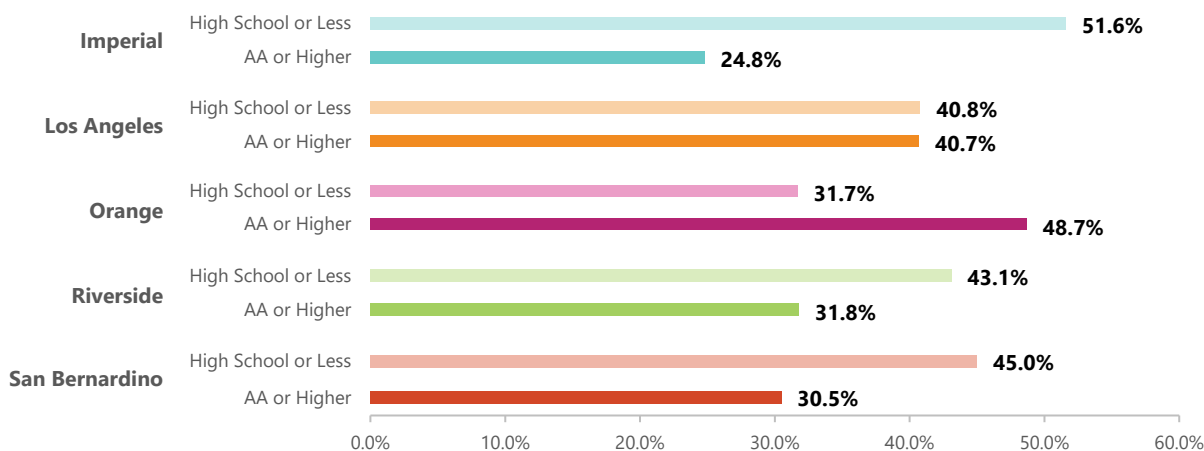
### Exhibit A4.2: Ethnicity of Population – Inland Counties vs. Rest of SCAG Region (2020)



Source: 2020 U.S. Census

The migration of population has left both counties with similar educational issues, molding the nature of their economies. In 2019, Riverside County found 43.1 percent of adults 25 and over with high school or less schooling, with 45.0 percent in San Bernardino. Similarly, those with an associate’s or higher degrees were 31.8 percent in Riverside and 30.5 percent in San Bernardino. In each case, these were up from 2018, but well below the educational attainment levels in the coastal counties with which they must compete (Exhibit A4.3). At the bachelor’s or higher level, the figures were respectively 23.5 percent and 22.5 percent. Again, these levels were well below competitive areas in Southern California.

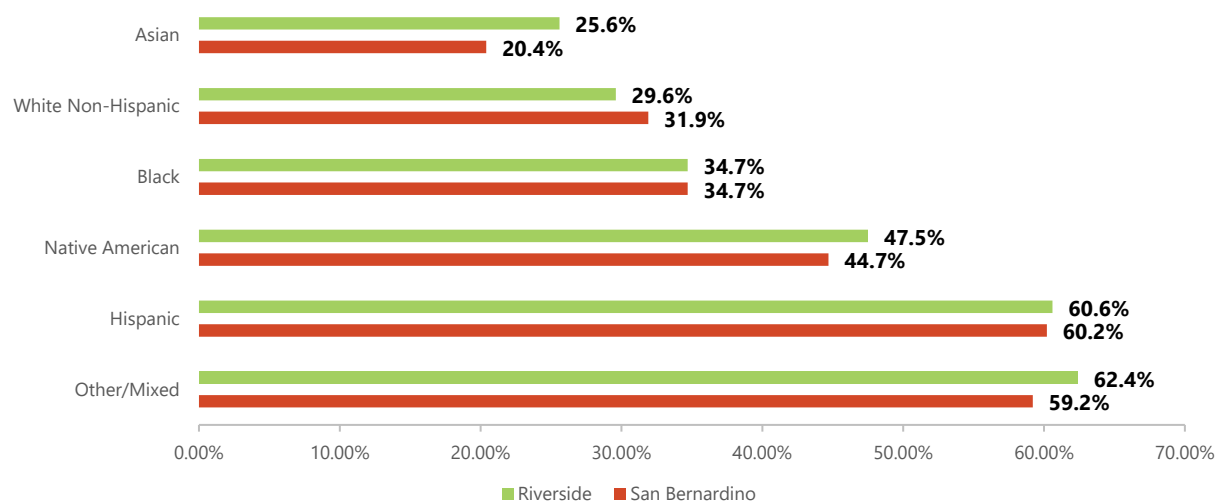
### Exhibit A4.3: Educational Attainment by Southern California County (2019)



Source: American Community Survey, 2019

In an era when high school graduation is insufficient for most good-paying jobs, a difficulty for both inland counties is the significant disparities in educational attainment by adults among each county’s ethnic groups. Exhibit A4.4 shows the distribution of adults in Riverside and San Bernardino Counties with high school or less education in 2019 by ethnic group. Asians made up the smallest share with 25.6 percent in Riverside County and 20.4 percent in San Bernardino County. The highest share of adults with high or less education was among Hispanics, with approximately 60 percent of Hispanics in both counties receiving high school or less education.

### Exhibit A4.4: Educational Attainment in Riverside and San Bernardino Counties by Ethnicity (2019)



Source: American Community Survey 2019 Tables B15002 b-i

## General Status of the Economy

The COVID-19 pandemic has brought significant short-term pressures on Riverside and San Bernardino Counties. First, the pandemic significantly lowered employment in the service sectors that offer the bulk of jobs to workers with low educational attainment. Thus, any occupation requiring close physical contact with customers was largely shut down in 2020 and recovering slowly in 2021 due to the persisting pandemic. This includes work with restaurants and bars, retailers, personal service providers, entertainment venues, and travel outlets. Shopping centers have seen increased vacancies as a result. Since Healthcare, Real Estate, Finance, and Education also involve close contact between providers and patrons, those sectors also saw employment declines in 2020. They are, however, recovering faster in 2021. Interestingly, the Office sector has seen rising vacancies as many workers have learned that they prefer working remotely.

Meanwhile, the federal government passed the Coronavirus Aid, Relief, and Economic Security (CARES) Act, sending money to idled workers. Since service sectors were shut down, families now flush with cash found themselves only able to buy physical goods. This has flooded ports, rail lines, highways, and warehouses with containerized products. Importantly, even the most technologically challenged people wanting to avoid going shopping have learned to buy goods online. This has accelerated the rise of e-commerce and added to pressures on shopping malls. All of this played directly to the inland area's competitive advantage in logistics, causing its employment to explode and the industrial real estate market to accelerate in both 2020 and 2021. Cities dependent on mall-based sales taxes saw their budgets decline and their hiring reduced.

An anomaly in this situation has been the residential real estate market. While families may have the money for traditional purchases, a lack of willing sellers has caused home prices and rents to exceed even the lofty levels that ultimately led to the Great Recession. This has frustrated potential buyers and appears to require accelerated construction as a solution. That has been delayed by California's housing policies, like the California Environmental Quality Act (CEQA), that have been used to stop projects as well as a lack of available construction workers to support increased building.

## Employment Changes

For Riverside and San Bernardino Counties, a look at the most recent California EDD data clearly shows these trends. In 2020, the economy lost 65,692 jobs, a decline of 4.2 percent from 2019 levels. In 2021, the average annual January-August growth stood at 31,120, up 2.1 percent. This timeframe, however, included a very weak first quarter. Looking specifically at the August 2020-2021 growth, the gain was 64,665 jobs or 4.2 percent, indicating that the economy



accelerated. If the 4.2 percent rate holds from September–December, the full year would add 69,027 jobs or 4.6 percent. This depends on whether the COVID-19 Delta variant holds back the rest of the year.

Unemployment in the inland area took off in 2020, rising from an annual average of 4.3 percent in 2019 to 9.7 percent in 2020. It has averaged 7.8 percent from January–August 2021, with August itself at 7.6 percent. The area’s August 2021 rate was the third highest among the 50 major U.S. metropolitan areas. Among nearby areas, Las Vegas (8.2 percent) and Los Angeles (9.7 percent) were higher. The August 2021 not seasonally adjusted rate of 7.5 percent in California was just a shade lower than the inland rate. The U.S. rate at 5.3 percent was much lower. For the two counties, EDD put the rates at 7.6 percent in both Riverside and San Bernardino Counties.

## Basic Sectors

Like all regional economies, the key for Riverside and San Bernardino Counties’ growth is the performance of the economic base sectors for which it has competitive advantages. This is the group of activities bringing money to it from the outside world. Fundamentally, there are five such sectors.

### LOGISTICS

Logistics firms have located in Riverside and San Bernardino Counties in response to its available land and the need to handle both the huge flow of goods moving into the U.S. via the Ports of Los Angeles and Long Beach, plus the rapid expansion of fulfillment centers that have handled the explosive expansion of e-commerce. The sector added 21,100 jobs in 2020 and is headed for another 26,800 as of August 2021, moving toward an annual average of 256,900. The sector had a 2021 median pay of \$51,821. Importantly for the moderately educated inland area during 2018, 78.4 percent of the sectors occupations required high school or less schooling. It is the main source of jobs that can help these workers move out of poverty.

### HEALTHCARE

Healthcare operations are expanding in Riverside and San Bernardino Counties in part because the average worker in the sector is already serving 21.6 percent more people than California’s average. The Affordable Care Act has helped by cutting the share of residents without health insurance from 20.5 percent in 2012 to 8.9 percent in 2019, though the 2017 share was 7.8 percent. Healthcare providers are also responding to the fact that 19.0 percent of the population was 60 years or older in 2019. The area’s population growth requires healthcare expansion as it grew by 405,511 people, or 9.6 percent, from 2010–2021. Based on growth through August 2021, the sector should add 6,500 positions to reach 151,700 jobs for the year. It is high paying with 2021 median pay of \$70,836. It can help those with minimal educations as 33.7 percent of 2018 occupations had high school or less requirements. The sector also provides significant upward income potential for those with associate’s degrees or post-secondary training.

### CONSTRUCTION

Construction has historically been the major driver of the Riverside and San Bernardino Counties’ economy given the large amounts of undeveloped land and Southern California’s need for single family homes, apartments, industrial facilities, and infrastructure. The mortgage crisis upset the first of these and was largely responsible for the sector falling from 127,500 jobs to 59,100, down 68,400 jobs or 53.6 percent from 2006 to 2011. During 2012–2019, it gained back 48,100 jobs. In 2020, the pandemic slowed construction, losing 2,200 positions. If growth through August 2021 continues for the rest of the year, the sector will create 5,000 jobs to reach 110,000. Still, that would be 17,500 less workers or -14.2 percent below the 2006 peak. The sector’s 2021 median pay was \$56,670 making it a good fit for those needing moderately good incomes. In 2018, 82.2 percent of the workers were in jobs requiring minimal levels of formal education, though apprenticeship is necessary for most types of work. This is a good fit for the inland area’s modestly educated population. The sector was the second fastest growing in the inland area from 2011–2021 though firms continue having trouble finding workers.

### MANUFACTURING

Manufacturing has been the economic base sector with sub-par performance in Riverside and San Bernardino Counties. This stems from the high cost of electricity in the area. In June 2021, the state’s industrial electrical cost per

kilowatt-hour (kWh) was 15.71 cents, 125.4 percent above adjacent Arizona (6.97 cents per kWh) and 134.5 percent above Nevada (6.70 cents per kWh). This may have contributed to differences in job creation in energy-intensive manufacturing jobs.

From January 2011 to January 2020, the state created 78,200 manufacturing jobs (6.3 percent growth) and accounted for only 6.7 percent of the 1,171,000 jobs created in the U.S. (10.1 percent growth). From January 2020 to August 2021, U.S. manufacturing lost 2.9 percent of its jobs. Over that same period California has lost 5.2 percent. Riverside and San Bernardino Counties added 16,000 jobs from 2012-2019. The sector, however, lost 6,300 in 2020 due to the pandemic slowdown and was on track to lose another 4,500 in 2021. The total number of manufacturing jobs in the Counties in 2021 is 89,800, a loss of 33,400 jobs or 27.1 percent below the 2006 high of 123,200 manufacturing jobs. The sector is a modestly good paying one with a 2021 median pay of \$57,403. While it offers little job growth, there are openings to replace aging baby boomer technicians. Of the sector's labor force in 2018, 66.5 percent needed only high school or less training.

## Consumer-Serving Sectors

Jobs in the Professional, Management, and Scientific sector has recently started expanding in Riverside and San Bernardino Counties. This appears to be driven by three key factors. First, the population with a bachelor's degree or higher has more than doubled from 2000-2019 (122.2 percent). Moreover, while the area's population is less well-educated than populations in coastal counties, the overall percentage of the population with associate's or higher degrees increased from 23.1 percent to 31.2 percent. Second, the growth of the inland economy requires increasing levels of professional service providers, given its 4.6 million people and 133,646 companies. Third, the re-emergence of the construction sector creates a need for engineers and other such specialists. From the 2010 low of 43,300 staff members among professional and management firms, this sector is on track to reach 52,100 in 2021. That would be a gain of 8,800 or 20.3 percent despite a job loss of 300 in 2020. This sector had a strong 2021 median pay level of \$76,187. A relatively small share of workers (34.5 percent) are in jobs requiring less than a high school degree. Another 9.2 percent can step up to better paying jobs, however, with an associate's degree or post-secondary training.

Several consumer-serving sectors were highly impacted by COVID-19. Riverside and San Bernardino Counties lost 55,192 jobs in the service sectors in 2020. This included job in restaurants and bars (-23,725), retailers (-11,992), entertainment venues (-7,050), personal service providers (-6,542) and travel outlets (-5,883). By August 2021, COVID-19 restrictions had partially been lifted, allowing these sectors to gain back 32,700 jobs. That leaves the economy still short by 22,500 of jobs in service sector jobs. This sector group is not high-paying with median incomes just over \$36,800. In 2018, 93.2 percent of jobs in travel and entertainment were open to people with high school or less education.

## Income Issues

A need for change in the Riverside and San Bernardino Counties' economy is underscored by the fact that after inflation, the estimated 2018 median household income of \$70,757 exceeded 1990 median household income by 8.7 percent. Per capita income fared better in that period. It was up 16.8 percent from 1990-2018, though this measure is pulled higher by households with unusually high incomes (i.e., outliers).

Meanwhile, the inland area continues to have an imbalance in its income distribution. In 2018, the 33.6 percent of households making over \$100,000 a year captured 35.8 percent of all income and the 16.4 percent of households receiving \$100,000-\$149,999 a year earned 24.8 percent of the region's income. These two groups together constituted 30.5 percent of households, but had 63.8 percent of the inland area's income. By contrast, the 35.0 percent of households earning below \$50,000 received only a 10.4 percent share of total area income.

Finally, the ethnic dimension of economic measures consistently shows the difficulties facing Black, Hispanic, and Mixed/Other families. Here, the data shows that they face significantly higher shares of lower educational attainment, lower median incomes, higher poverty rates, lack of health insurance, and lower rates of homeownership than non-Hispanic Whites and Asians in the area. Native Americans tend to fall between these extremes.

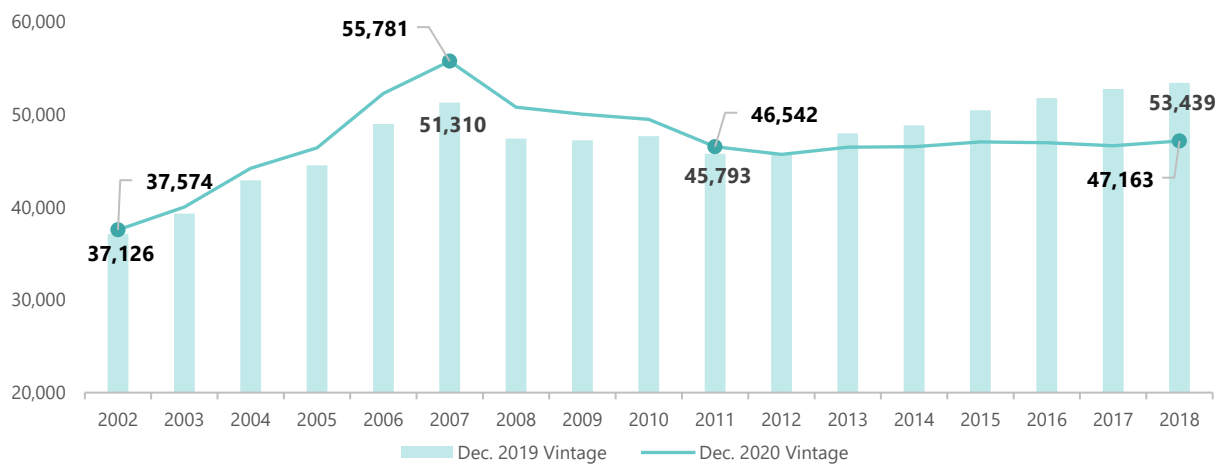
## Appendix 5: County Outlook – Ventura

### Revised Economic History of the County

Even before the onset of the COVID-19 pandemic, Ventura County was experiencing a prolonged period of economic weakness. Revised data indicate that this weakness was longer and more severe than we understood one year ago (Exhibits A5.1 and A5.2). In mid-December 2020, the U.S. Bureau of Economic Analysis (BEA) released revisions to the county’s historical GDP data. Whereas previous estimates indicated that the County’s economy grew by \$2.1 billion from 2007 to 2018, the revised estimates indicate that the county’s economy shrank by \$8.6 billion during that time. This is a 15.4 percent decline in total economic activity. The drop represents an astonishing \$26,000 per worker.

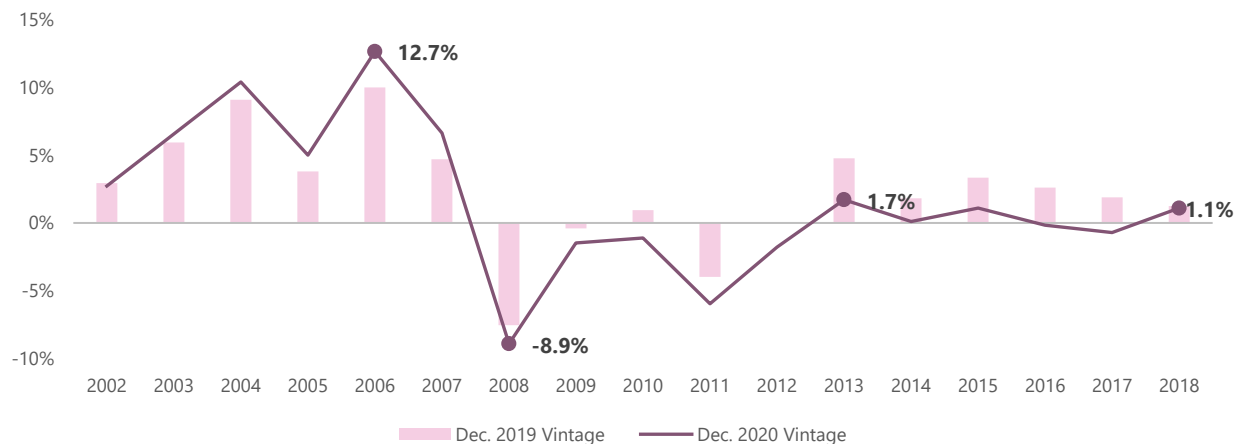
#### Exhibit A5.1: GDP in Ventura County (2002-2018)

Vintage comparison; millions of 2012\$



Source: US Bureau of Economic Analysis

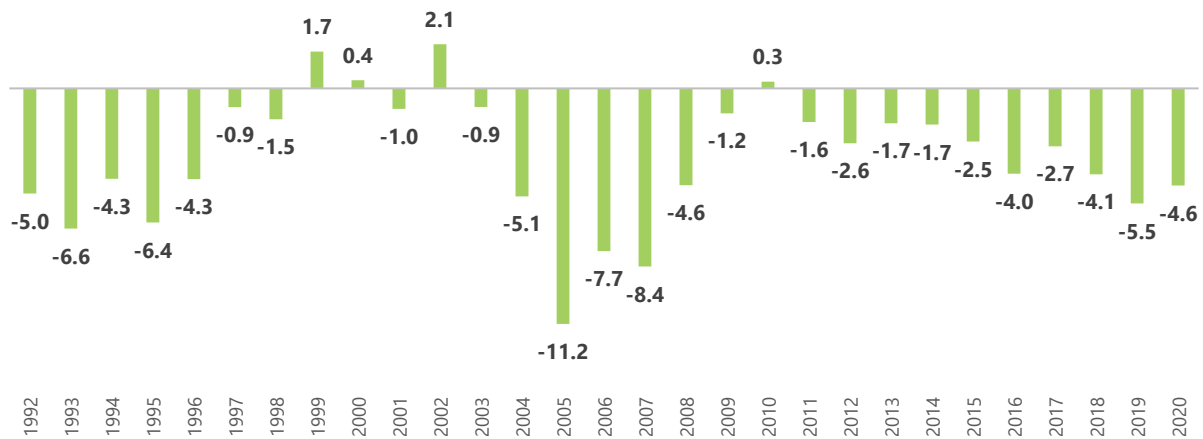
#### Exhibit A5.2: Real GDP Growth in Ventura County (2002-2018)



Source: US Bureau of Economic Analysis

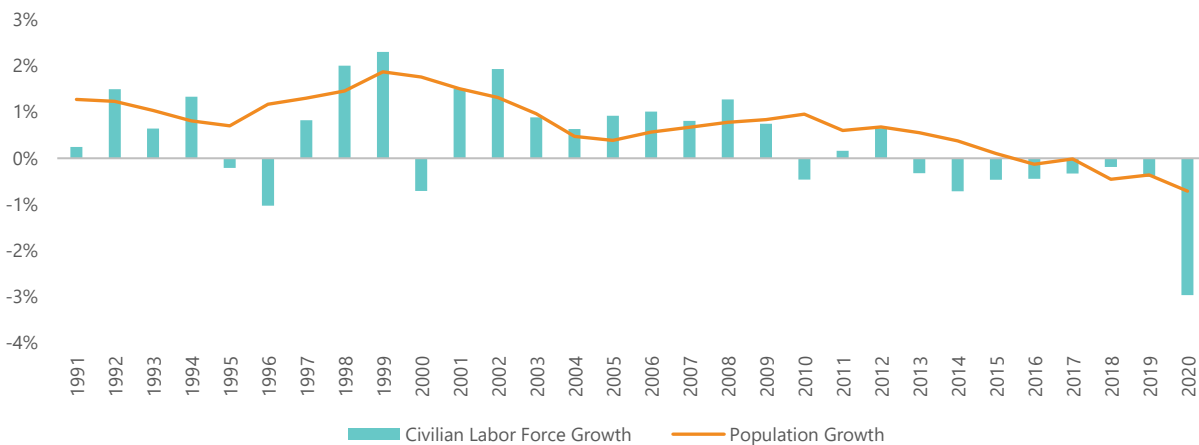
The BEA’s revisions bring Ventura County GDP data in line with other key economic indicators, which already indicated poor economic health. According to California Department of Finance data, Ventura County’s population declined in every year from 2016 onward, and currently sits at the same level as the population in 2012 (Exhibit A5.3). Net domestic migration has been negative for ten consecutive years, and the county’s civilian labor force contracted in eight consecutive years (Exhibit A5.4).

**Exhibit A5.3: Net Domestic Migration in Ventura County (1992-2020)**  
Thousands of persons



Source: US Bureau of the Census

**Exhibit A5.4: Civilian Labor Force in Ventura County (1991-2020)**



Source: CA EDD, California DOF

## STATE OF VENTURA COUNTY’S ECONOMY & COVID-19 IMPACTS

The pre-pandemic peak of economic activity was February 2020 when there were 339,500 jobs across all industries in Ventura County. The COVID-19-induced government-mandated shutdowns caused an unprecedented contraction. By May 2020, Ventura County’s job market had lost 38,100 jobs, a loss of more than 11 percent. At the same time, the county’s labor force contracted by more than 19,000.

The headline unemployment rate, which only counts those who are actively working or seeking work, has proven to be a poor indicator of the region’s economic health. Unemployment in Ventura County peaked in April 2020, at a reported rate of 14.5 percent. Using the February 2020 labor force participation rate, we estimate that Ventura County’s true unemployment rate peaked at approximately 20 percent. Making a similar adjustment increases the August 2021 unemployment figure from 6.2 to 9.1 percent.

### Exhibit A5.5: Job Market in Ventura County – Peak to Trough and Peak to Present

Not seasonally adjusted

Sectors	Employed Thousands		Peak to Trough Change-Thousands (Percent Change)		Peak to Present Change-Thousands (Percent Change)	
	Feb. 2020	Aug. 2021	Feb. 2020 – May 2020		Feb. 2020 – Aug. 2021	
Agriculture and Resource Extraction	24.1	23.9	5.9	(24.5%)	-0.2	(-0.8%)
Construction and Manufacturing	45.0	44.7	-2.7	(-6.0%)	-0.3	(-0.7%)
Trade, Transportation, and Warehousing	19.4	19.3	-1.1	(-5.7%)	-0.1	(-0.5%)
Technology and White Collar	116.9	112.3	-10.7	(-9.2%)	-4.6	(-3.9%)
Retail, Leisure and Hospitality, and Personal Services	86.1	76.7	-26.3	(-30.5%)	-9.4	(-10.9%)
Government	48.0	43.2	-3.2	(-6.7%)	-4.8	(-10.0%)
<b>Total All Industries</b>	<b>339.5</b>	<b>320.1</b>	<b>-38.1</b>	<b>(-11.2%)</b>	<b>-19.4</b>	<b>(-5.7%)</b>

Source: US Bureau of Labor Statistics

By now, it is well known that the impacts of the pandemic are not evenly distributed across the labor market. As shown in Exhibit A5.5, jobs in Retail, Leisure and Hospitality, and Personal Services, the lowest paying sectors in Ventura County with a pre-pandemic average annual salary of just \$31,000, dropped by 30.5 percent. Jobs in these sectors have grown by 28.3 percent since the low point in May but are still down nearly 11 percent from the pre-pandemic level. Meanwhile, jobs in the highest paying sectors with a pre-pandemic average salary of \$80,000, declined by only 9.5 percent (Exhibit A5.6). They have subsequently increased 8.9 percent and are only 1.5 percent below the pre-pandemic peak.

### Exhibit A5.6: Jobs Recovery in Ventura County (Jan. 2020 – Aug. 2021)

Non-farm jobs



Source: CA EDD

## Industries and Occupations

Ventura County’s labor market has been undergoing a long-term compositional transformation that began prior to the Great Recession (Exhibit A5.7). Net jobs have been created in lower-paying sectors, while high-paying sectors saw sustained declines. From February 2008 to February 2020, jobs in Manufacturing; Information and Technology; Financial Activities; and Management of Enterprises declined between 11 and 26 percent. Over that same period, jobs in Education and Health Services and Leisure and Hospitality grew by 50 and 23 percent, respectively.

## Exhibit A5.7: Job Market in Ventura County – Changes During the Last Year and Changes Since the Great Recession

Not seasonally adjusted

Sectors	Most Recent Employed	Changes During the Last Year		Changes Since the Great Recession	
	Thousands	Change-Thousands (Percent Change)		Change-Thousands (Percent Change)	
	Aug. 2021	Aug. 2020 – Aug. 2021		Aug. 2008 – Aug. 2021	
Agriculture and Agriculture Production Services	23.9	-0.1	(-0.4%)	-0.1	(-0.4%)
Natural Resources and Mining	0.9	0.0	(0.0%)	-0.3	(-25.0%)
Construction	17.2	0.3	(1.8%)	0.5	(3.0%)
Durable Goods Manufacturing	18.7	0.6	(3.3%)	-4.5	(-19.4%)
Non-Durable Goods Manufacturing	7.9	0.5	(6.8%)	0.9	(12.9%)
Wholesale Trade	13.0	0.3	(2.4%)	0.1	(0.8%)
Retail Trade	34.6	0.4	(1.2%)	-2.2	(-6.0%)
Transportation, Warehousing, and Utilities	6.3	0.3	(5.0%)	0.6	(10.5%)
Information and Technology	3.8	0.2	(5.6%)	-2.0	(-34.5%)
Financial Services	16.3	0.7	(4.5%)	-4.6	(-22.0%)
Professional, Scientific, and Technical Services	16.8	0.4	(2.4%)	0.2	(1.2%)
Management of Companies and Enterprises	7.9	0.0	(0.0%)	-0.9	(-10.2%)
Administrative and Support and Waste Management	19.2	1.3	(7.3%)	0.1	(0.5%)
Educational and Health Services	48.3	0.3	(0.6%)	14.6	(43.3%)
Leisure and Hospitality	33.7	5.1	(17.8%)	1.9	(6.0%)
Personal, Repair, and Maintenance Services	8.4	1.0	(13.5%)	-1.6	(-16.0%)
Government	43.2	0.7	(1.6%)	3.0	(7.5%)
<b>Total All Industries</b>	<b>320.1</b>	<b>12.0</b>	<b>(3.9%)</b>	<b>5.7</b>	<b>(1.8%)</b>

Source: CA EDD

The pandemic seriously impacted the two fastest growing sectors since the Great Recession: Education and Healthcare and Leisure and Hospitality. Whereas jobs in Education and Healthcare had increased by 50 percent from the Great Recession to the February 2020 peak, the sector is now up only 43.3 percent. The number of jobs in Leisure and Hospitality increased 22.9 percent from the Great Recession to the pre-pandemic peak, but the pandemic wiped out 70 percent of these gains.

As we consider the years ahead, it is worth remembering that Ventura County was the last county in Southern California to recover the number of jobs lost during the Great Recession. It was not until 2017 that the county finally reached that long-sought milestone. Given the county's pre-existing weakness, we expect the recovery from the Pandemic Recession to also be slower than the recoveries in neighboring counties.

## Incomes, Poverty and Equity

Median household income is significantly higher in Ventura County than in the United States (Exhibit A5.8). In 2019, Ventura County's median household income was 40 percent higher than the nation's median household income. Income data compares favorably for all races and ethnicities.

### Exhibit A5.8: Income in Ventura County and the United States (2019)

	Ventura County	United States
Median Household Income	\$92,236	\$65,712
White	\$91,546	\$69,823
Black	\$90,678	\$43,862
American Indian or Alaska Native	\$88,320	\$45,476
Asian	\$123,049	\$93,759
Native Hawaiian and Other Pacific Islander	\$106,224	\$66,464
Some Other Race	\$75,570	\$53,097
Two or More Races	\$105,156	\$62,085
Hispanic or Latino (and Race)	\$73,765	\$55,658

Source: U.S. Bureau of Census (ACS 1-year estimates)

Ventura County's higher incomes are accompanied by significantly lower rates of poverty than the broader United States (Exhibit A5.9). In addition, un-adjusted poverty rates in Ventura County are significantly lower for all demographic groups. In 2019, poverty rates ranged from 25 to 71 percent lower across all races and ethnicities. We caution that a proper comparison of poverty rates would account for differences in costs of living across different

geographies. Ventura County's cost of living-adjusted poverty rates would be much less favorable. It is also important to distinguish between a low poverty rate and abundant economic opportunity which lifts people out of poverty. The evidence is that Ventura County lacks the latter. In Ventura County, upward economic mobility often requires leaving the county for lower cost, more generous and more growth-friendly environments. Ventura County's negative net domestic migration, noted above, bears this out.

### Exhibit A5.9: Poverty Rates in Ventura County and the United States (2015 vs. 2019)

	Ventura County			United States		
	2015	2019	Change	2015	2019	Change
All Races & Ethnicities	9.6%	7.9%	-1.7%	14.7%	12.3%	-2.4%
<b>By Race</b>						
White	9.6%	8.2%	-1.4%	12.2%	10.3%	-1.9%
Black	8.5%	7.2%	-1.3%	25.4%	21.2%	-4.2%
American Indian and Alaska Native	32.5%	N/A	N/A	26.6%	23.0%	-3.5%
Asian, Hawaiian, Other Pacific Islander	4.7%	2.9%	-1.8%	12.2%	9.9%	-2.4%
Mixed/Other	11.0%	8.5%	-2.5%	21.9%	17.1%	-4.8%
<b>By Ethnicity</b>						
Hispanic or Latino	14.8%	11.8%	-3.1%	22.6%	17.2%	-5.4%
Not Hispanic or Latino	5.8%	5.0%	-0.8%	13.0%	11.2%	-1.8%

Source: U.S. Bureau of Census, 1-year ACS

## Health Outcomes

As of 2019, the leading causes of death in the U.S. were heart disease and cancer. According to CDC data, pre-pandemic mortality rates for both heart disease and cancer were lower among Asians, Blacks, and Hispanics in Ventura County than mortality rates for the same groups in California. Lower mortality rates for heart disease and cancer correspond to longer life expectancy for Asians and Hispanics living in Ventura County. Hispanics currently enjoy a life expectancy that is 3.2 years longer than the life expectancy of Whites living in Ventura County. Life expectancy for Ventura County Asians is an astounding 7.8 years longer than the life expectancy of Whites (Exhibit A5.10).

### Exhibit A5.10: Life Expectancy in Ventura County Relative to California and United States (2017-2019)

	Ventura County	California	United States
All Races & Ethnicities	82.5	81.7	79.2
<b>By Race</b>			
White	81.5	80.5	78.8
Black	80.8	76.2	74.7
American Indian and Alaska Native	81.5	78.3	N/A
Asian	89.3	87.7	N/A
<b>By Ethnicity</b>			
Hispanic or Latino	84.7	83.8	81.8

Source: National Center for Health Statistics

## Housing Market

Prior to the COVID-19 pandemic, Ventura County's housing market was faltering. Home price appreciation slowed for six consecutive years prior to the pandemic with the median existing home price declining in nominal terms in 2019.

The onset of the pandemic appears to have made Ventura County look newly appealing to high income urban professionals seeking escape to an ex-urban environment. Ventura County's median existing home price jumped 9.7 percent in 2020, as demand for houses suddenly surged. Home prices declined by only 4.3 percent from the pre-pandemic peak to the trough of the pandemic recession. Home prices have climbed dramatically since then. Median single family home price reached \$865,000 in April 2021, an increase of 28.1 percent in just 13 months (Exhibit A5.11).

### Exhibit A5.11: Current Year Housing Trends in Ventura County Single-family detached, not seasonally adjusted

	Median Home Price	Date	Percent Change
Pre-Great Recession Peak	\$710,910	August 2006	
Great Recession Trough	\$359,630	February 2009	-49.4%
Pre-Covid Peak	\$705,000	March 2020	
Covid Trough	\$675,000	April 2020	-4.3%
Post-Covid Peak	\$865,000	April 2021	28.1%*
Most Recent Month	\$815,000	August 2021	20.7%*

Note: \*Change from Covid Trough

Source: California Association of Realtors

While rapid home price appreciation may be welcome to incumbent homeowners, it bodes ominously for housing affordability and ultimately underscores increasing economic weakness and growing economic inequality. As documented in past updates, the lack of affordable workforce housing was one of the primary drivers of the county's poor economic performance prior to the pandemic.



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