



SANTA CRUZ COUNTY WORKFORCE DEVELOPMENT BOARD

# Santa Cruz County 2021 State of the Workforce

# Table of Contents

Executive Summary .....	3
Introduction .....	3
Key Findings .....	3
Recommendations .....	5
Santa Cruz County.....	7
COVID-19 Pandemic Impacts .....	8
Employment Impacts .....	8
Industry-Specific Employment Changes .....	10
Online Job Postings .....	12
Consumer Spending .....	14
Impacts on Small Businesses.....	15
Socially-Distant Occupations.....	18
Regional Economic Profile .....	19
Industry Clusters .....	19
Job Quality .....	22
Job Volatility.....	24
Regional Jobs and Workforce.....	26
Regional Demographic Profile .....	28
Race and Ethnicity.....	28
Age Profile.....	29
Educational Attainment .....	31
Housing Characteristics.....	33
Commuting Patterns .....	35
Career Pathways and Opportunities .....	36
Finance, Banking, Insurance, and Real Estate .....	37
Healthcare .....	38
Building & Design .....	39
Professional and Business Services .....	40
Growth Industries and Pathways .....	41
Information and Communications Technology .....	41
Defense, Aerospace, and Transportation Manufacturing .....	42
Occupational Gap Analysis.....	43
At-Risk Workers and Transition Opportunities .....	44
IT Occupations Outside of Tech .....	46
Appendix A: Research Methodology.....	49
Appendix B: Definitions .....	50

## Acknowledgments

BW Research and the Santa Cruz County Workforce Development Board would like to thank the local business owners, various stakeholders, and association groups for their input and feedback that was instrumental in the crafting of this report. In particular, the authors of this report would like to thank Beverley Lindberg, June Ponce, Dr. Larry DeGhetaldi, and Darren Pound for sharing their experiences through the COVID-19 pandemic.

## Executive Summary

### INTRODUCTION

The Santa Cruz County Workforce Development Board engaged BW Research Partnership to assess the State of the Workforce in 2020. This research comes at a crucial time as Santa Cruz County (the County) looks to rebuild and recover from the COVID-19 pandemic. This State of the Workforce report provides a range of data on the current state of the economy in the era of COVID-19, as well as the underlying economy and workforce that preceded COVID-19 and its connection to the County's recovery.

This research was produced using data from a range of public and proprietary data sources. Several datasets used in this report were produced specifically for tracking the impacts and outcomes of the pandemic. The analyses and discussion around secondary data were contextualized by executive interviews with representatives from the business and workforce community of Santa Cruz County.

### KEY FINDINGS

- 1. While early data suggests that the recovery is already underway, the reorganization of the labor market due to the pandemic may present challenges to an expedient rebound.** The pandemic substantially reshuffled the labor market as some parents left the labor force to care for their children, some furloughed workers left the County to live with parents, and other workers reconsidered their careers altogether. This disruption, paired with bolstered unemployment benefits and continued health concerns, have quickly transitioned the local labor market from a surplus of workers during much of the pandemic to one with a shortage of workers willing and able to return. Incentivizing a safe return to work will play an important factor in the speed of County's recovery.
- 2. The rise of remote work presents a challenge and an opportunity for Santa Cruz County.** For some industries, the possibility of a remote team can alleviate employers' difficulties finding local talent. The expansion of remote work and the County's renowned quality of life also make the region an attractive option for remote workers, and given the County's close proximity to Silicon Valley, Santa Cruz County could serve as a remote-work hub for tech workers who would still be able to make an occasion trip to headquarters. Alternatively, a new pool of remote workers moving into the County may further escalate already high housing costs, making the County less affordable for other workers, particularly those in lower paying industries.
- 3. Some of the County's most vulnerable workers have been hit hardest by the pandemic.** Tourism, Recreation, and Hospitality—the industry cluster with the lowest average earnings—

saw the greatest decline (58%) in employment between February 2020 and February 2021. This figure is even more alarming when considering that Tourism, Recreation, and Hospitality accounted for 14% of the 2019 workforce in Santa Cruz County. As businesses re-open and employers in this sector look to onboard more staff, the shift in the underlying labor market may mean that employers may have to look for talent outside of their traditional channels. See page 9 for the different employment impacts from the pandemic by working income.

- 4. Many businesses in the County have also been hit particularly hard.** Business<sup>1</sup> revenue in Santa Cruz County was 37% lower in late January 2021 than in January 2020. The smallest businesses are particularly susceptible to losses of income, as they often have less cash on hand and emergency reserves than larger businesses. These figures are also notable because 96% of business establishments in Santa Cruz County have 49 or fewer employees.<sup>2</sup> Assisting these businesses will be essential to any recovery effort. But recovery efforts should not be uniform; industries with diverse segments--such as Retail and Professional & Business Services--saw harsh declines in some areas and growth in others. For example, boutique in-person clothing stores have seen severe losses, while retailers like home improvement and hardware stores have seen a boom in demand. Tailoring recovery efforts to specific industries will ensure that efforts and resources are used where they are needed most. See pages 15 and 16 for a more detailed assessment of the impact of the pandemic on Santa Cruz County's small business ecosystem.
- 5. Before the pandemic, Santa Cruz County had seen areas of growth and advancement such as low unemployment, improvements in overall job quality, and growth in higher paying industry clusters.** Before March 2020, the Santa Cruz County economy exhibited several positive economic indicators and trends. Unemployment was low, job quality had been improving, and several industry clusters with high average earnings had grown considerably. While we have not been able to quantify the full extent of the economic impact of COVID-19 on Santa Cruz County, it is safe to say that issues like lowered labor participation and a decline in total jobs from the pandemic has hurt the County's economic landscape and particularly lowered economic opportunities, especially for lower-income residents.
- 6. There are several key industry clusters that showed strong growth going into the pandemic and resiliency through the pandemic. Clusters like Finance, Banking, Insurance, & Real Estate (FIRE), Building & Design, Healthcare, and Professional & Business Services offer a range of robust career pathways and opportunities for the local workforce already living in Santa Cruz County.** There are also some industry clusters in Santa Cruz County that are nascent but present opportunities for expansion, including Information and Communication Technology (ICT) and Defense, Aerospace, and Transportation Manufacturing (DATM). This report offers a number of career pathways in each of these industry clusters starting on page 36.

---

<sup>1</sup> This analysis uses the SBA definition of a small business and varies by industry. Generally speaking, these are firms with less than 1,200 employees or less than \$45 million in annual revenue, which account for a majority of firms in Santa Cruz County. For more information about this definition, please visit <https://www.sba.gov/document/support--table-size-standards>

<sup>2</sup> 2018 County Business Patterns. U.S. Census Bureau.

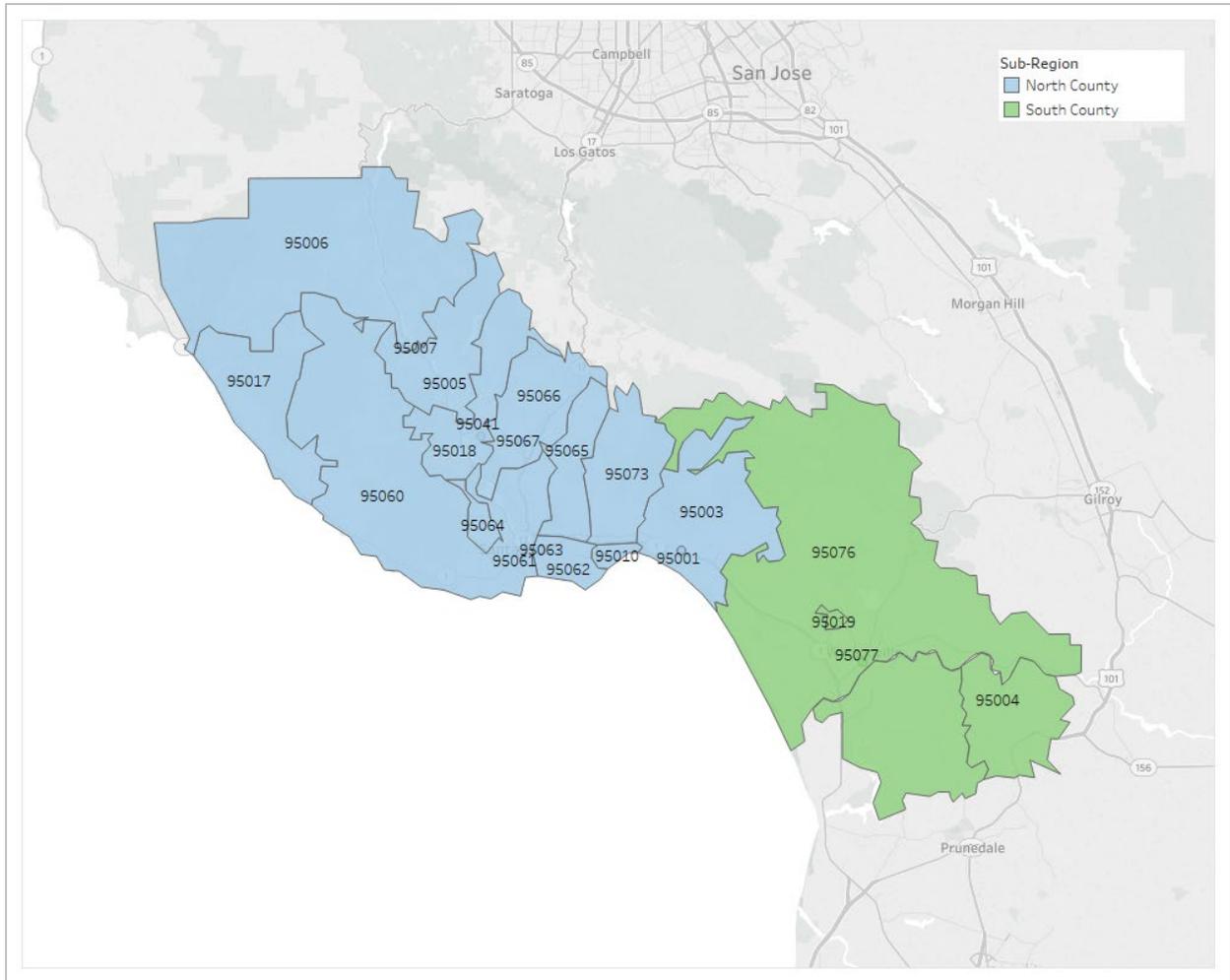
7. **Some of the losses in Tourism, Hospitality, and Recreation may be the last jobs to return, if they fully return to their pre-pandemic levels at all.** Table 9 offers a list of some of these most-at-risk occupations and some transition opportunities based on shared knowledge, skills, and abilities. Additionally, the occupational gap analysis on page 43 highlights several occupations with living wages and demand that exceeds the current supply. While transitioning all Tourism, Hospitality, and Recreation workers currently displaced is likely neither prudent nor necessary, it is important to offer viable career transition opportunities to those who seek them.
8. **While the tech industry in Santa Cruz County is relatively small, there is substantial opportunity for IT workers in industries outside of technology.** More than two-thirds (71%) of IT workers in Santa Cruz County work in non-technology industries. The largest non-technology employers of IT professionals include Professional Scientific and Technical Services; State Government; Management of Companies and Enterprises; Local Government; and Administrative and Support Services. There are 1,800 IT jobs within non-technology industries in Santa Cruz County, though these positions tend to have high education and skill requirements.
9. **Santa Cruz County's population and workforce are getting older, particularly in the North sub-region.** Seventeen percent of North sub-region residents are 65 or older, compared to 11% in the South sub-region. However, both sub-regions have seen their populations get older over the past five years. Between 2014 and 2019, the proportion of those 65 and older increased by 37% in the North sub-region and 10% in the South sub-region. A population with a growing share of older residents can dampen a region's economy as employers may struggle to find local talent.

## RECOMMENDATIONS

1. **Consider options to help employees return to work.** Between childcare demands exacerbated by the pandemic, public health concerns, and supplemented unemployment insurance, a substantial portion of the workforce has been unable or unwilling to return to work. Efforts that work to alleviate each of these barriers—whether through subsidized childcare offerings, public health measures, or the introduction of hiring bonuses—will help drive up labor force participation and re-entry into the workforce. Some workers may also be hesitant to start a new job given the fluid state of the labor market. Providing labor market information and discussion may help quell any uneasiness about returning to a shifting labor market.
2. **Coordinate with economic development partners, employers, and regional training and education providers to expand existing industry clusters and foster those that are developing.** This report highlights several key industries (Finance, Banking, Insurance, and Real Estate (FIRE); Healthcare; Building and Design; and Professional and Business Services) which offer in-demand, career pathways with living wages. There is also opportunity to work with stakeholders to foster the development of identified growth industry clusters (Information and Communication Technology (ICT), and Defense, Aerospace, and Transportation Manufacturing (DATM)) to help build these smaller growth industry clusters into more established clusters within Santa Cruz County.

- 3. Work with local, large, non-technology employers in the County to help make sure their IT needs are met.** These employers, which include universities, state and local government entities, and hospitals, employ approximately 1,800 IT workers across the County. Communication with these employers—and supporting coordination with regional training and education providers—can help improve the pipeline of local talent for these in-demand IT occupations. For more information on how to support this type of effort, see page 46 of this report.
- 4. Encourage stronger partnerships between K-12 and post-secondary educators and local employers to bolster educational attainment, particularly in the South sub-region of the County.** Educational attainment varies substantially across racial, ethnic, and geographic lines. Remedying these gaps is crucial to increasing equity and opportunity as well as supporting the greater talent pipeline in the County. Working with both educators and employers may help students better understand the education opportunities available to them and the importance of education in achieving their career and financial goals.
- 5. Support workers that are looking to transition to a new career pathway.** Over the past year, the size and dynamics of the County’s labor market have shifted considerably. This disruption in the labor market has resulted in a smaller labor force and longer durations of unemployment. Many workers may also be looking to transition to industries outside those they have experience in. Supporting these workers in inter-industry transitions will help expediate the stabilizing of the labor market.

# Santa Cruz County



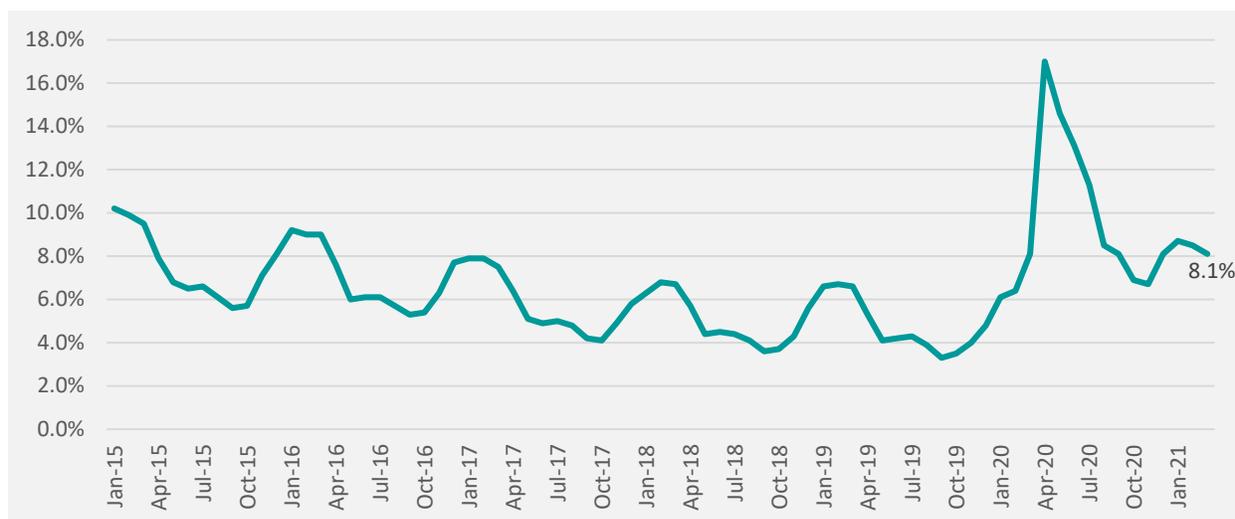
## COVID-19 Pandemic Impacts

To best showcase the dynamic economic circumstances over the course of the pandemic, this section utilizes data from the California Employment Development Department and U.S. Department of the Treasury, propriety models developed by BW Research, and propriety data aggregated and prepared by Opportunity Insights, a team of researchers at Harvard University. The Opportunity Insights data is compiled from a range of private sources, which provide a near real-time picture of national and local economies.<sup>3</sup>

### Employment Impacts

**In April 2020, the unemployment rate in Santa Cruz County reached 17%.** Though the unemployment rate has since fallen dramatically, a substantial number of workers remain unemployed. In fact, the unemployment rate in March 2021 is the same as it was one year earlier at the very beginning of the pandemic (Figure 1).

Figure 1. Monthly Unemployment Rates in Santa Cruz County (2015 – March 2021),<sup>4</sup> Not Seasonally-Adjusted



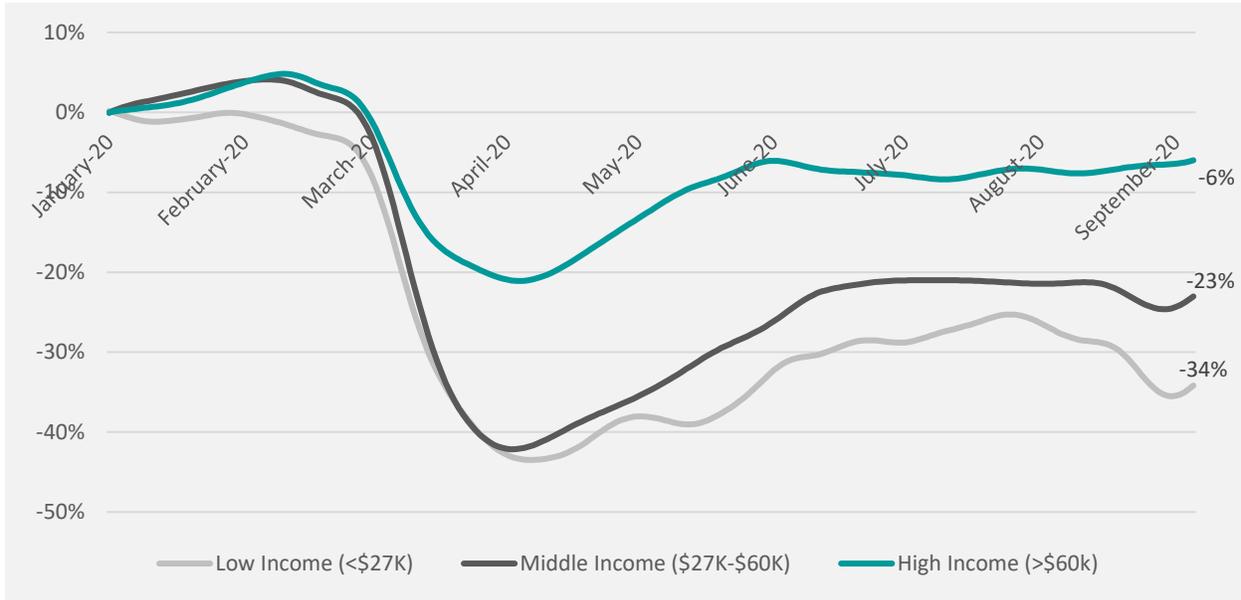
**Middle and lower-income workers have seen greater employment losses than higher-earning workers.** The quartile of lowest-income workers (those earning less than \$27,000 per year) has seen employment decline by about a third (34%). The two middle-earning quartiles (workers making between \$27,000 and \$60,000 per year) have seen employment decrease by about a quarter (23%). Conversely,

<sup>3</sup> For more information about the Opportunity Insights data and methodology, please visit <https://www.tracktherecovery.org/>

<sup>4</sup> Unemployment Rate and Labor Force Data Table. State of California Employment Development Department. Extracted December 28, 2020.

the highest-earning workers in Santa Cruz County have only seen employment decline by about 6% (Figure 2).

Figure 2. Change in Employment by Worker Income<sup>5</sup>



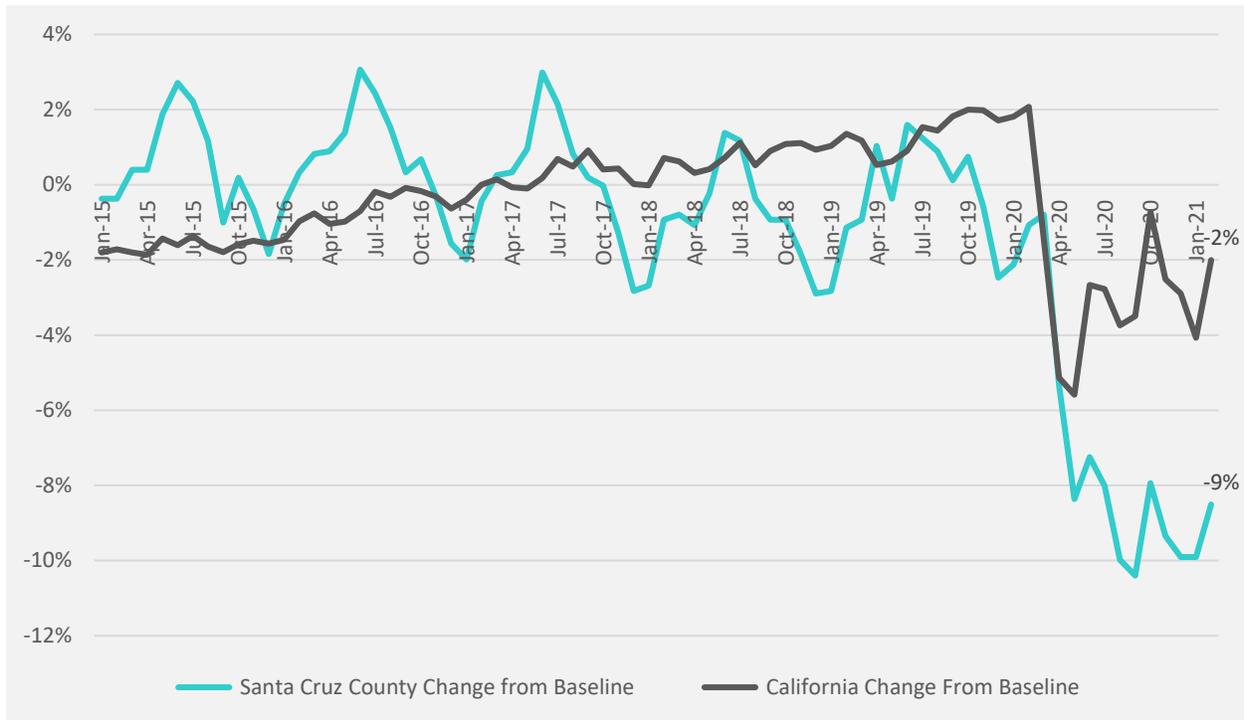
### Santa Cruz County Adapts

Like many other hotels, the sting of the pandemic has been particularly strong for the Dream Inn Santa Cruz. The stay-at-home orders in the spring had kept vacationers away and slowed a normally-bustling summer season. Out of these challenges came an idea: the vertical concert. When the concert was announced, the Inn's 165 rooms sold out in three days. A California rock band, Los Lobos, set up on the Inn's pool deck with the Pacific Ocean as their backstop and guests safely distanced on their balconies. The concert was such a resounding success that management has announced another seven similar concerts. While the pandemic has challenged businesses and workers in many ways, Santa Cruz County businesses and residents have continued to show their resilience and ingenuity.

<sup>5</sup> "The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data", by Raj Chetty, John Friedman, Nathaniel Hendren, Michael Stepner, and the Opportunity Insights Team. November 2020. Available at: [https://opportunityinsights.org/wp-content/uploads/2020/05/tracker\\_paper.pdf](https://opportunityinsights.org/wp-content/uploads/2020/05/tracker_paper.pdf)

**Declines in employment tell only part of the economic story. As of February 2021, 10,600 workers have left the labor force from February 2020.** The loss of these workers, who are subsequently not counted in unemployed figures since they are not seeking work, marks a 9% decline in labor force participation from pre-pandemic levels (Figure 3). For context, this decline is nearly twice as severe as the drop in labor force participation during the Great Recession and four times greater than the current decline in labor force participation seen statewide.

Figure 3. Labor Force Participation (2015 – February 2021)<sup>6</sup>



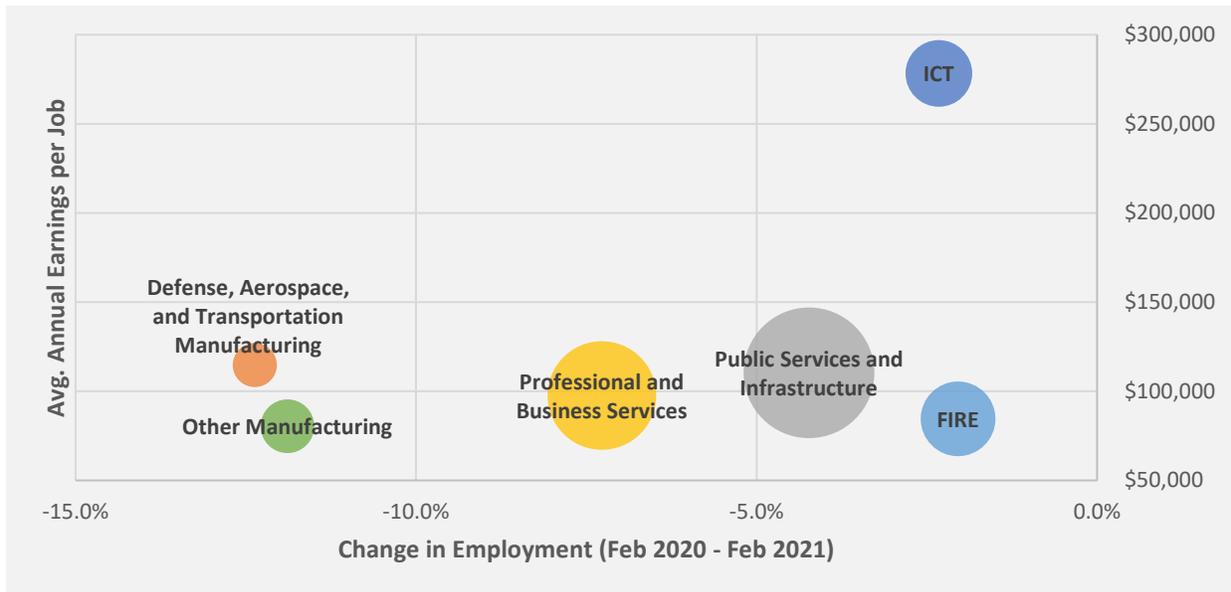
## INDUSTRY-SPECIFIC EMPLOYMENT CHANGES

BW Research developed a model to provide region-specific estimates of the labor market to better understand the industry-specific changes. These estimates, produced using data from the Bureau of Labor Statistics and local unemployment claims, showcase the disparate effects the pandemic has had on sections of the regional labor market.

**Many industry clusters with the highest average earnings have seen the mildest employment losses.** Employment losses among the highest-earning industry clusters ranged from 2% to 12%. Four of the six industry clusters highlighted in Figure 4 saw employment decreases of less than 10%, while losses among Other Manufacturing and Defense, Aerospace, and Transportation Manufacturing (DATM) were greater.

<sup>6</sup> Unemployment Rate and Labor Force Data Table. State of California Employment Development Department. Extracted December 28, 2020.

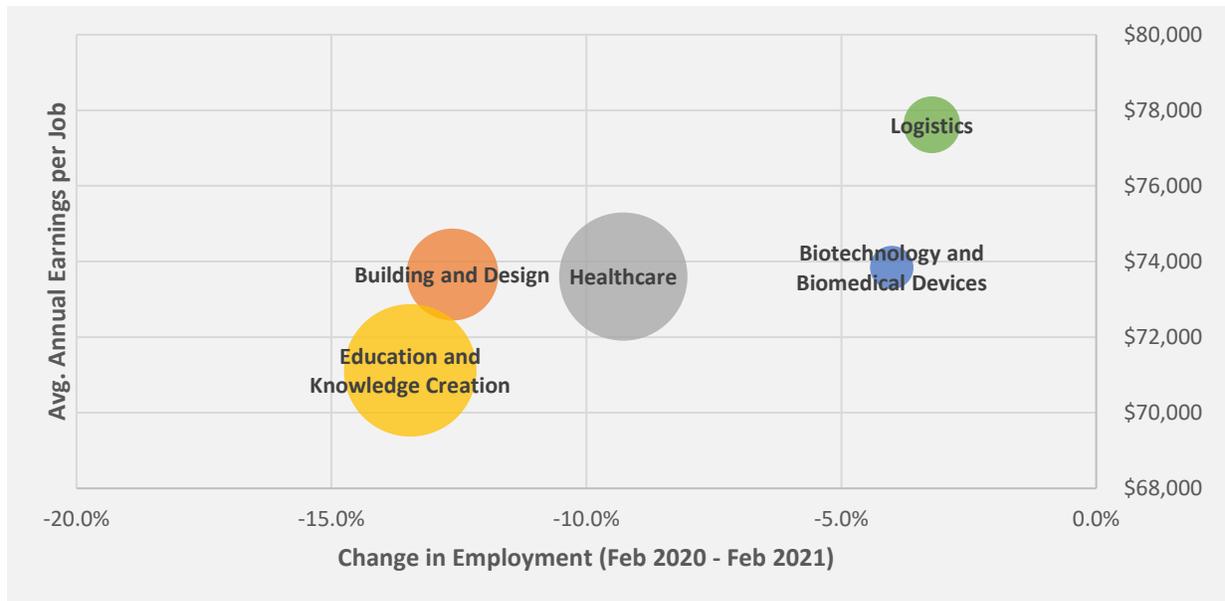
Figure 4. COVID-19 Pandemic Effects on High-Earning Industry Clusters (February 2020 – February 2021)



\*Size of Bubble Reflects Relative Size of 2019 Employment

**Healthcare and Education and Knowledge Creation, two of the largest industry clusters, have seen employment decline by 9% and 14%, respectively.** Two smaller industry clusters, Logistics and Biotechnology & Biomedical Devices have seen more moderate employment declines of -3% and -4%, respectively (Figure 5).

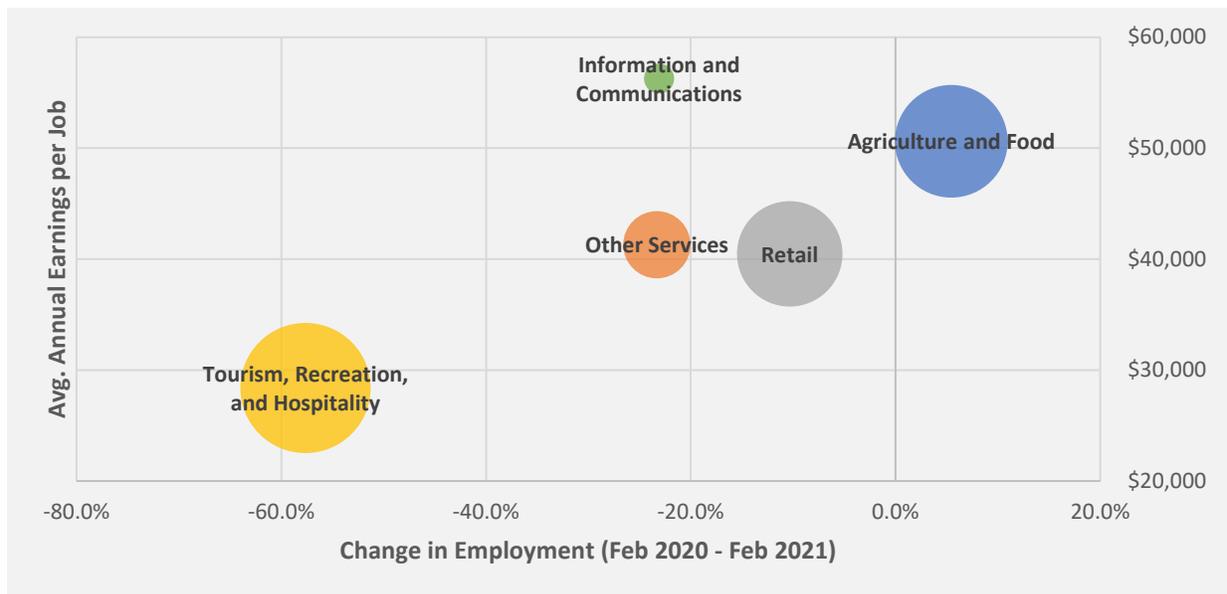
Figure 5. COVID-19 Pandemic Effects on Mid-Earning Industry Clusters (February 2020 – February 2021)



\* Size of Bubble Reflects Relative Size of 2019 Employment

**The industry clusters with the lowest average earnings per job have seen the greatest swings in employment during the pandemic.** Tourism, Recreation, and Hospitality—the second-largest industry cluster in Santa Cruz County—has lost near six out of ten (58%) of its jobs between February of 2020 and 2021 (Figure 6). In May 2020, employment losses in Tourism, Recreation, and Hospitality had been closer to eight of every ten jobs (79%).

Figure 6. COVID-19 Pandemic Effects on Low-Earning Industry Clusters (February 2020 – February 2021)

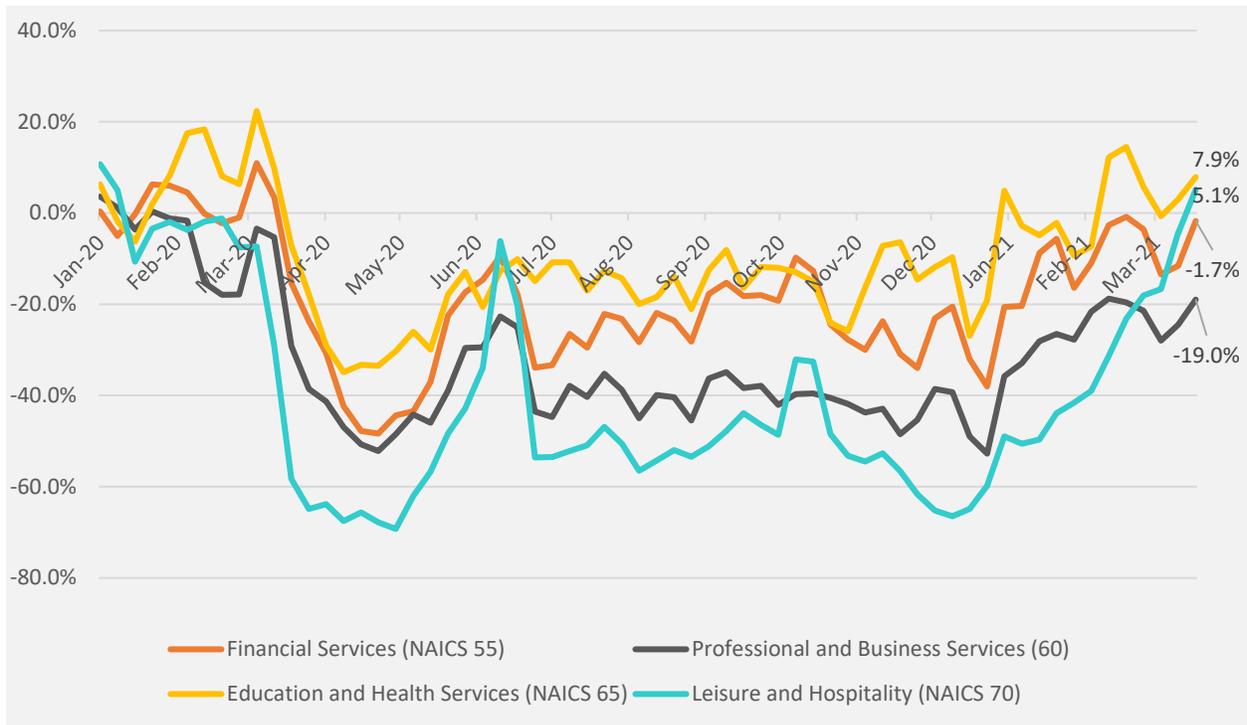


\* Size of Bubble Reflects Relative Size of 2019 Employment

## ONLINE JOB POSTINGS

**Online job postings statewide suggest that the economy continues to operate at suppressed levels.** Job postings data gathered from Opportunity Insights and Burning Glass reveals that different sectors of the economy have recovered at different paces. Statewide job posting activity suggests Financial Services has nearly recovered to pre-pandemic levels, while postings in Professional and Business Services remain a fifth (19%) lower than pre-pandemic levels. Education and Health Services as well as Leisure and Hospitality have recovered in recent months. The rate of job postings for Leisure and Hospitality went from -67% in late December 2020 to +5.1% by early April 2021, suggesting a rapid recovery among this sector (Figure 7).

Figure 7. Statewide Job Postings<sup>7</sup>

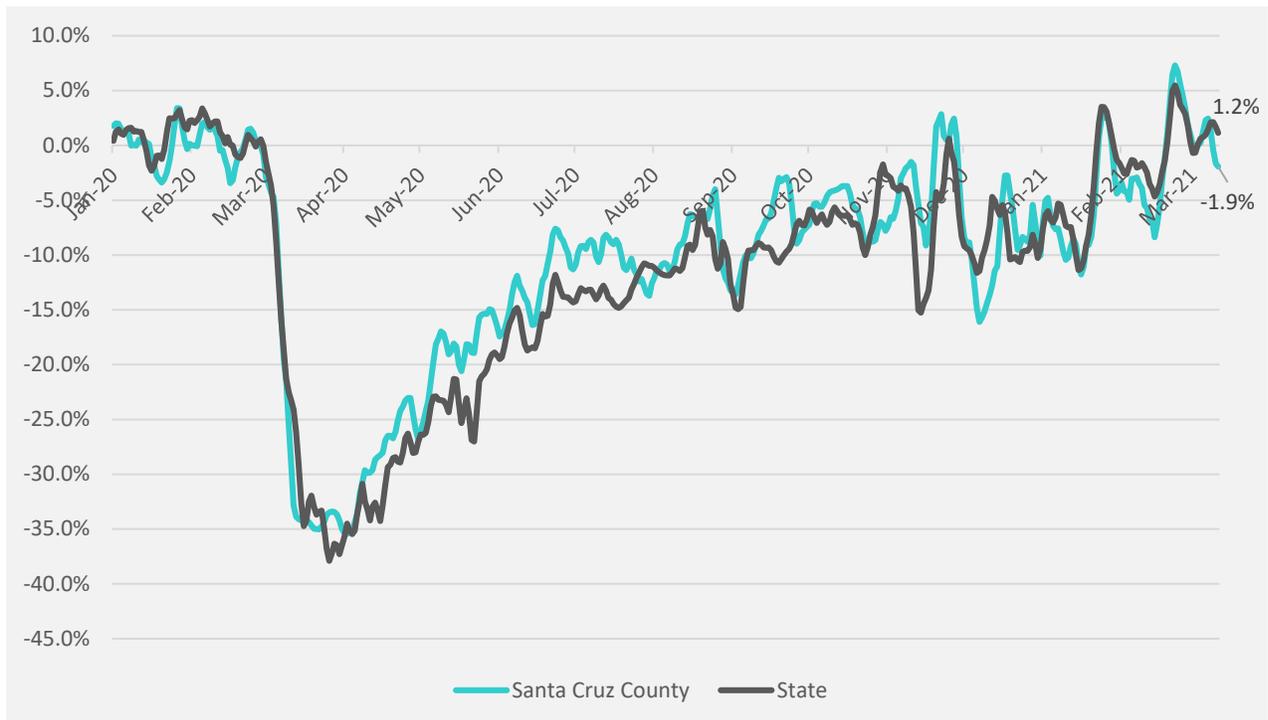


<sup>7</sup> Opportunity Insights “Tracking the Recovery”

## Consumer Spending

**Consumer spending can reflect consumer financial well-being and confidence in the future of the economy.** After steep declines in April, consumer spending in Santa Cruz County has rebounded steadily and trended closely with statewide spending patterns. In recent months consumer spending has leveled off, fluctuating around +/-5% pre-pandemic rates (Figure 8). While the return of consumer spending is a positive indicator, it is important to consider change in share of spending that occurs within the local economy in contrast to growing online-commerce.

Figure 8. Santa Cruz County Consumer Spending from January Baseline<sup>8</sup>

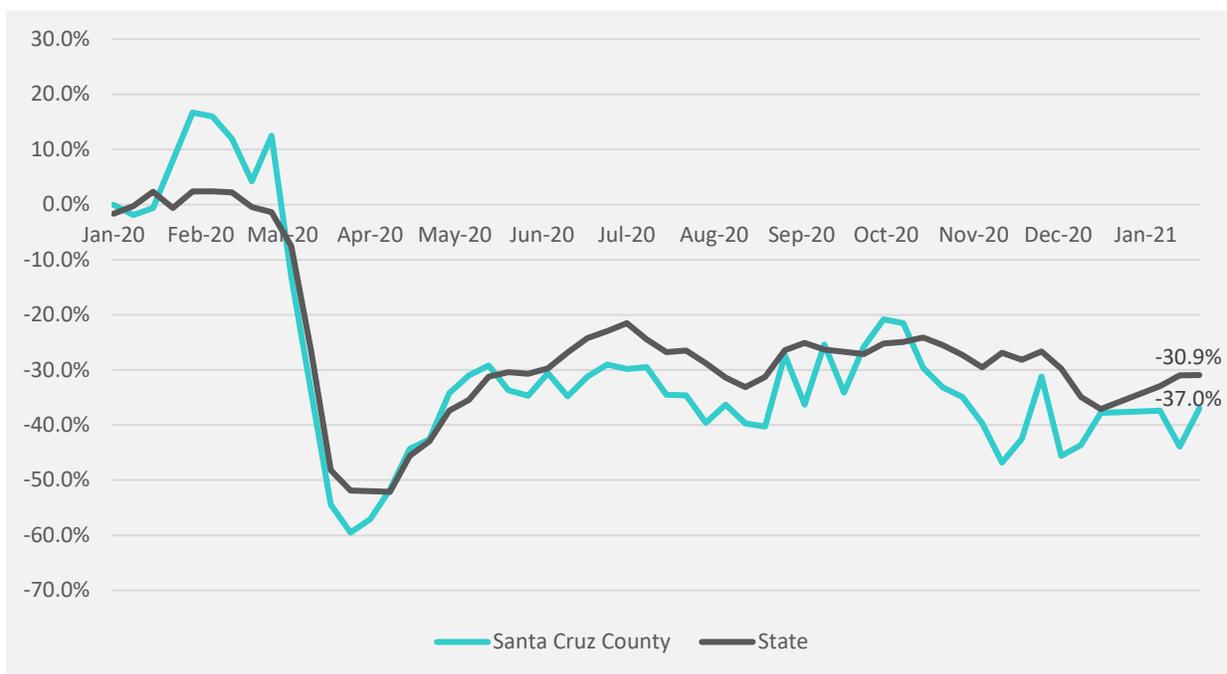


<sup>8</sup> Opportunity Insights "Tracking the Recovery"

## Impacts on Small Businesses

**Business revenues have remained at levels 20% to 50% lower than the pre-pandemic averages since May of 2020.** The businesses<sup>9</sup> included in this data--which only excludes the very largest companies in the county--are vital in the local economy and responsible for a majority of jobs in the County. With revenues that are consistently between half and two-thirds of what they were before the pandemic, businesses are undoubtedly struggling to keep their doors open if they've been able to open at all. It is also notable that business revenue losses have been more severe in Santa Cruz County than the statewide average (Figure 9).

Figure 9. Change in Business Revenue in Santa Cruz County<sup>10</sup>

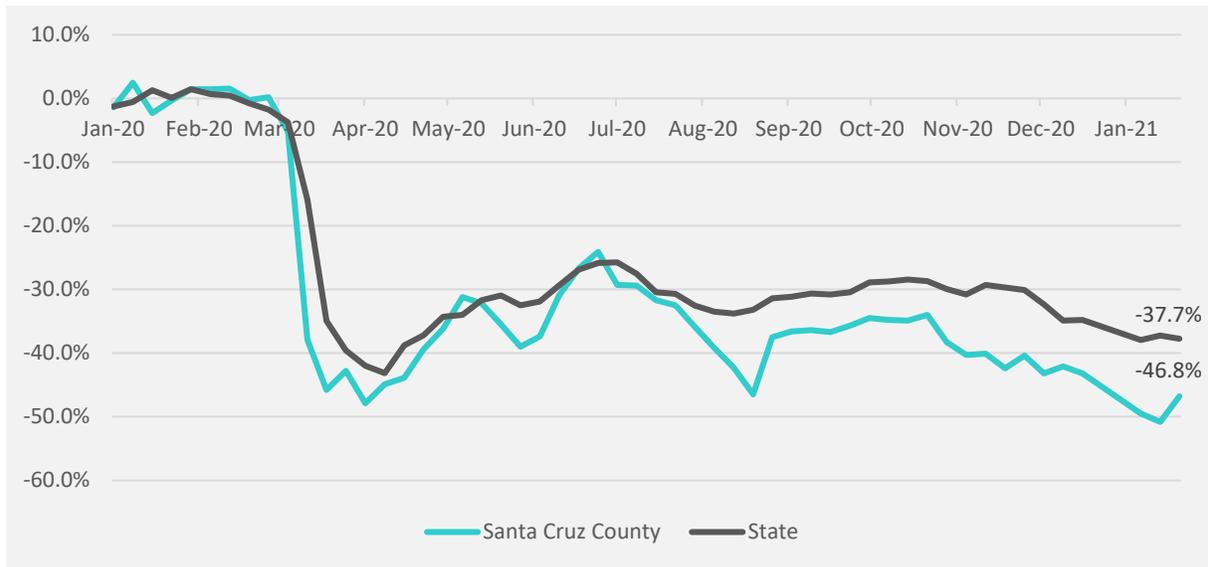


As revenues have fallen and remained diminished, more and more small businesses have closed their doors. While small business closures initially trended closely with the statewide average, Santa Cruz County has seen a greater share of small businesses close in recent months. As of the end of January 2021, nearly five of every ten Santa Cruz County businesses open in January 2020 had closed (Figure 10). While not all of these closures will be permanent, many of them will be.

<sup>9</sup> This analysis uses the SBA definition of a small business, and varies by industry. For more information about this definition, please visit <https://www.sba.gov/document/support-table-size-standards>

<sup>10</sup> Opportunity Insights "Tracking the Recovery"

Figure 10. Percent of Open Businesses from January 2020 Baseline in Santa Cruz County<sup>11</sup>



**Santa Cruz County businesses received more than \$566 million through the Paycheck Protection Program (PPP).** In the North sub-region, 3,576 businesses employing 32,260 people received just over \$356 million in loans. In the South sub-region, 972 businesses employing 17,676 people received more than \$210 million. Firms within the Agriculture and Food, Healthcare, and Tourism, Recreation, and Hospitality industry clusters received the most in total PPP loans (Figure 11).

### Disruption and Adaptation in Retail

O’Neill Surf Shop has five locations within Santa Cruz County, employing more than 60 people in Santa Cruz County. As with other retailers, the pandemic brought about a great shift in business operations and staffing. After initially closing during the stay-at-home orders, the surf shops slowly reopened offering curbside pickup, with back-of-the-house staff (those involved in accounting, sales, and HR) distributing purchases and taking payments. By June, four of the five locations had reopened at lowered capacity. While the surf shops typically increase staffing over the summer, there was no need for new hires in 2020. Some types of sales—such as tourists buying a sweatshirt while getting cold on the Santa Cruz Beach Boardwalk—disappeared, while others—such as wetsuit sales—saw huge increases. “Since people could no longer see movies or go out to eat, surfing became the one thing that everyone could do, and so we saw a huge increase in demand for surfing hardgoods, such as wetsuits and surfboards” says Beverley Lindberg, General Manager at O’Neill Surf Shop. Since the volatile early months of the pandemic, daily life at O’Neill Surf Shop has become a bit more steady. As vaccines roll out and everyone hopes for a return to normal, one thing is for sure: “flexibility is here to stay” says Beverley.

<sup>11</sup> Opportunity Insights “Tracking the Recovery”

Figure 11. Paycheck Protection Plan Loans Disbursed in Santa Cruz County

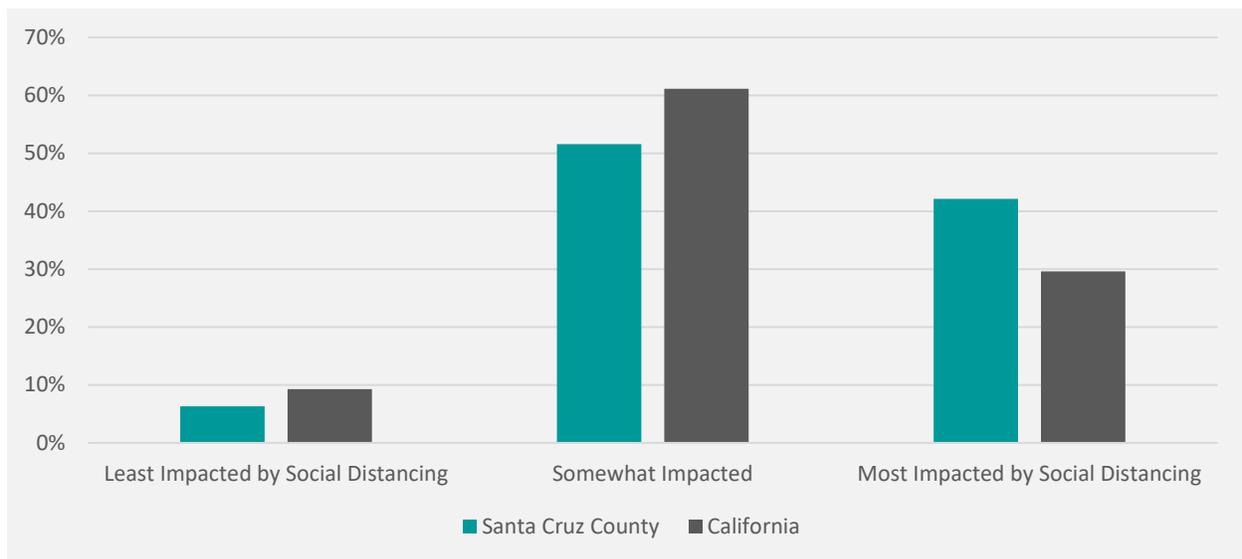


## Socially-Distant Occupations

BW Research developed an occupation-level volatility index based on an occupation's physical proximity score in O\*NET occupation data. This analysis classifies jobs into three tiers. Occupations where physical proximity to others is most important are classified as Tier 3. Tier 3 occupations, including Waitresses and Teachers, have likely seen notable volatility or disruption as a consequence of social distancing and public health mandates. Occupations with middling human-proximity needs, such as Advertising Agents and Real Estate Agents, needs are classified as Tier 2 and have likely seen some volatility and disruption but remain largely unchanged. Tier 1 jobs are occupations, ranging from Graphic Designers to Loggers, with the lowest need for physical proximity to others. These jobs have been least affected by social distancing requirements.

**The relatively high share of the workforce heavily reliant upon physical proximity likely plays a role in the economic distress in Santa Cruz County.** About four in ten jobs in the County have a high need for proximity to other people—and these jobs are the most likely to be affected by public health orders and social distancing. This ratio of most-impacted workers is notably higher than the rest of the state where only 30% of workers fall into this category (Figure 12).

Figure 12. Job Volatility Resulting from Social Distancing Requirements

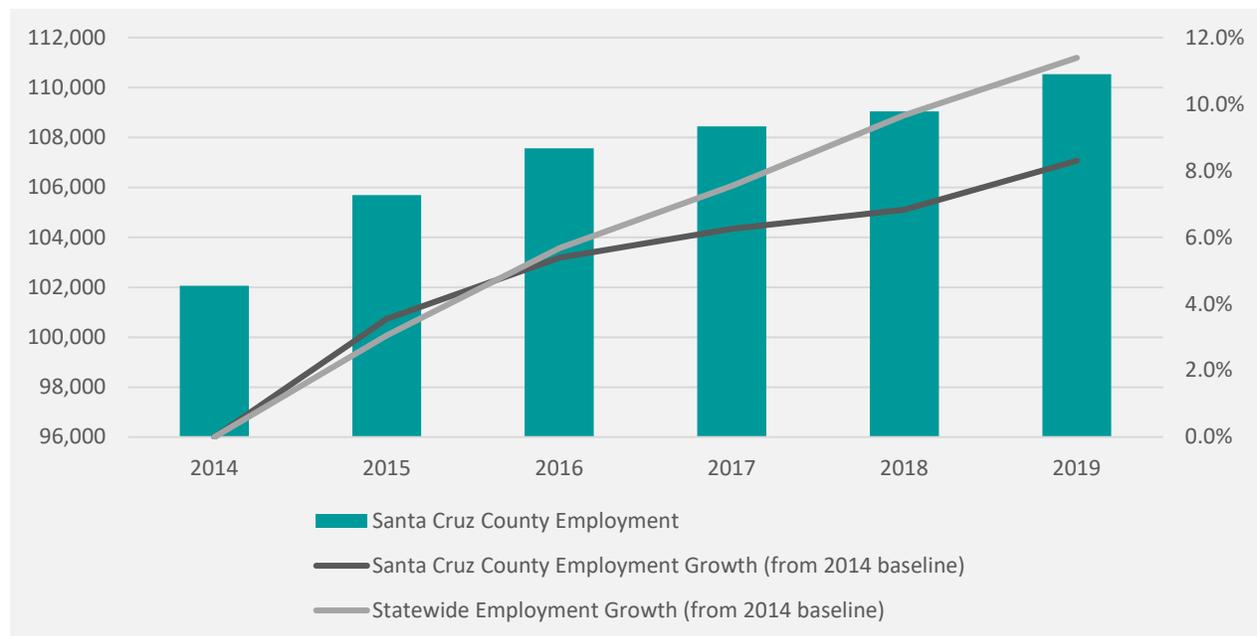


## Regional Economic Profile

The COVID-19 pandemic has had dramatic and unprecedented impacts on the economy and labor market, the full extent of which remains to be seen. As efforts are made to recover, restore opportunity, and bolster resilience, it will be crucial to examine the underlying and pre-pandemic economy to best develop strategies and allocate resources.

In the years preceding the pandemic, Santa Cruz County had seen consistent and robust growth. Figure 13 highlights consistent overall employment growth between 2014 and 2019, with the number of jobs growing 8% during this time. Though this growth rate was strong, the state saw stronger growth, expanding the number of jobs by 11% during the same time.

Figure 13. Santa Cruz County Overall Employment (2014-2019)<sup>12</sup>



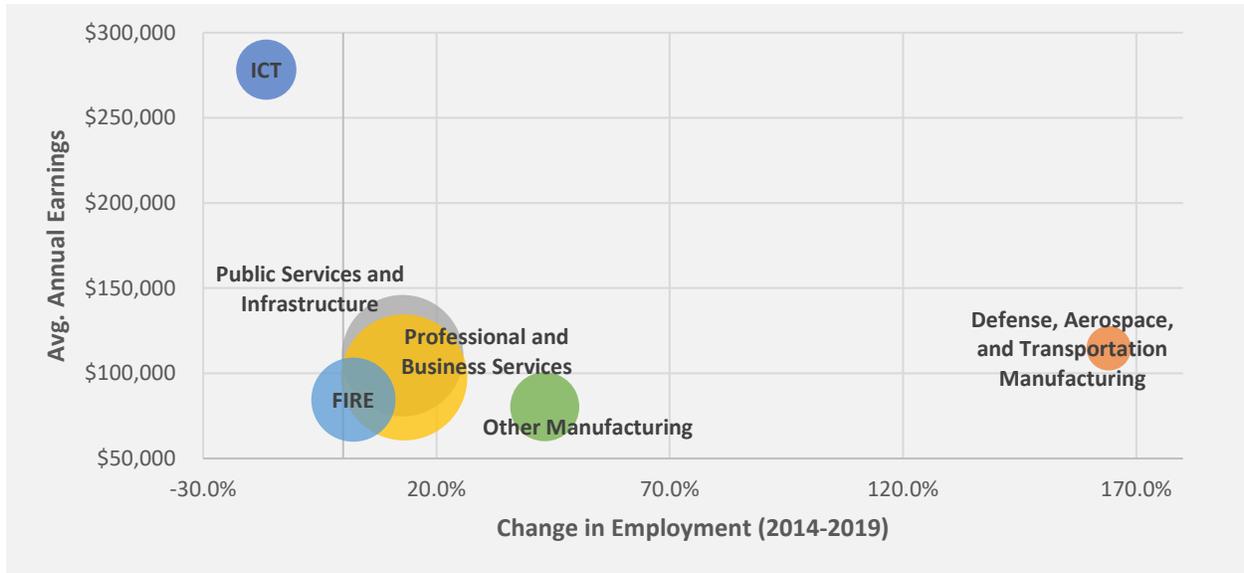
## Industry Clusters

Examining industry clusters provides a detailed understanding of the major components and driving forces of a region's economy. Industry clusters are groups of industries that share similar talent, supply chains, customers, and technologies. Industry clusters are important because they provide a coherent picture of the local economy and opportunities for development or growth. Industry clusters can also have multiplier effects, as firms within clusters attract similar workforces, strengthening the local labor market and attracting more firms of that industry.

<sup>12</sup> Emsi 2020.3

**Many industry clusters with the highest earnings per job saw substantial growth in Santa Cruz County between 2014 and 2019.** Manufacturing industry clusters in the County have shown particularly strong growth; Defense, Aerospace, and Transportation Manufacturing (DATM) employment increased by 164%, and Other Manufacturing (which includes the production of raw materials, component parts, durable and non-durable goods) saw the number of jobs increase by 43% (Figure 14).

Figure 14. Highest-Earning Industry Clusters in Santa Cruz County<sup>13</sup>

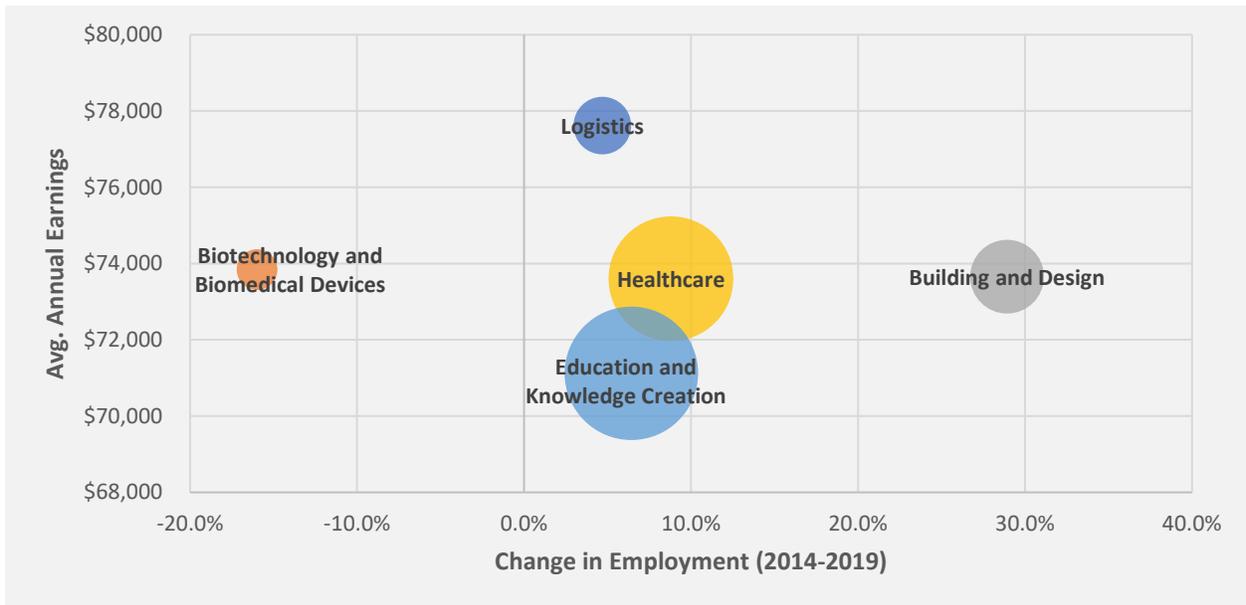


\*Size of Bubble Reflects Relative Number Employed in Industry

**Growth among mid-earning industry clusters was typically more moderate.** Two of the County’s largest industry clusters—Healthcare and Education and Knowledge Creation—increased in size by 9% and 6%, respectively. The Building and Design cluster, which includes the design and construction of buildings and other structures, saw employment increase by 29% between 2014 and 2019 (Figure 15).

<sup>13</sup> Emsi 2020.3

Figure 15. Mid-Earning Industry Clusters in Santa Cruz County<sup>14</sup>

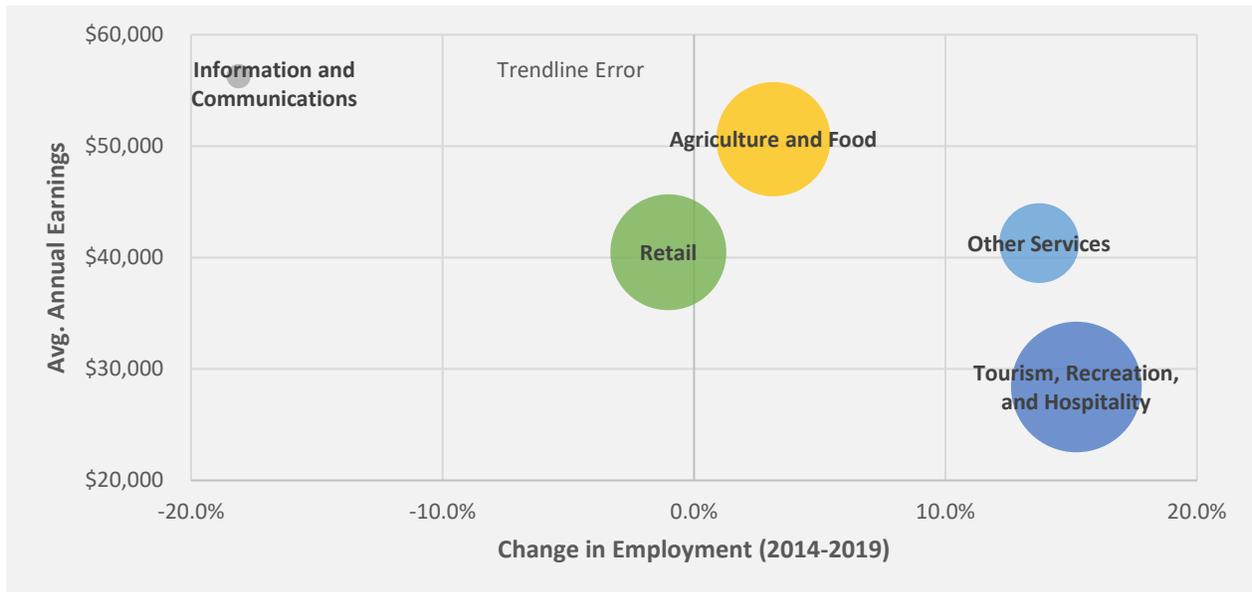


*\*Size of Bubble Reflects Relative Number Employed in Industry*

**While some of the lowest-earning industry clusters in Santa Cruz County saw low or even negative growth before the pandemic, some have seen strong growth.** Tourism, Recreation, and Hospitality and Other Services (including everything from autobody shops to nail salons) have seen strong recent growth of 15% and 14%, respectively. Alternatively, Agriculture and Food and Retail saw mild to even negative growth during this same time. Information and Communications, which includes industries around print and digital media, shrank notably between 2014 and 2019, losing 18% of the jobs in the cluster (Figure 16).

<sup>14</sup> Emsi 2020.3

Figure 16. Lowest-Earning Industry Clusters in Santa Cruz County<sup>15</sup>



\*Size of Bubble Reflects Relative Number Employed in Industry

## Job Quality

Job quality is an important measure of a region’s labor market. A region may have a lot of jobs, but if most of those jobs are pay low wages and require relatively little skill and education, the regional workforce and economy are likely to suffer. BW Research examined wage data from the Bureau of Labor Statistics’ Occupational Employment Statistics (OES) to determine job quality. Occupations within 3-digit NAICS industries were assigned tiers based on median annual earnings. Looking at occupations within specific industries allows for differentiation between occupations across industries. This captures the difference between, for example, a medical equipment sales representative and a clothing retail sales representative. Since wages are strongly correlated with a job’s skill, education, and experience requirements, wages provide an intuitive metric to assess job quality.

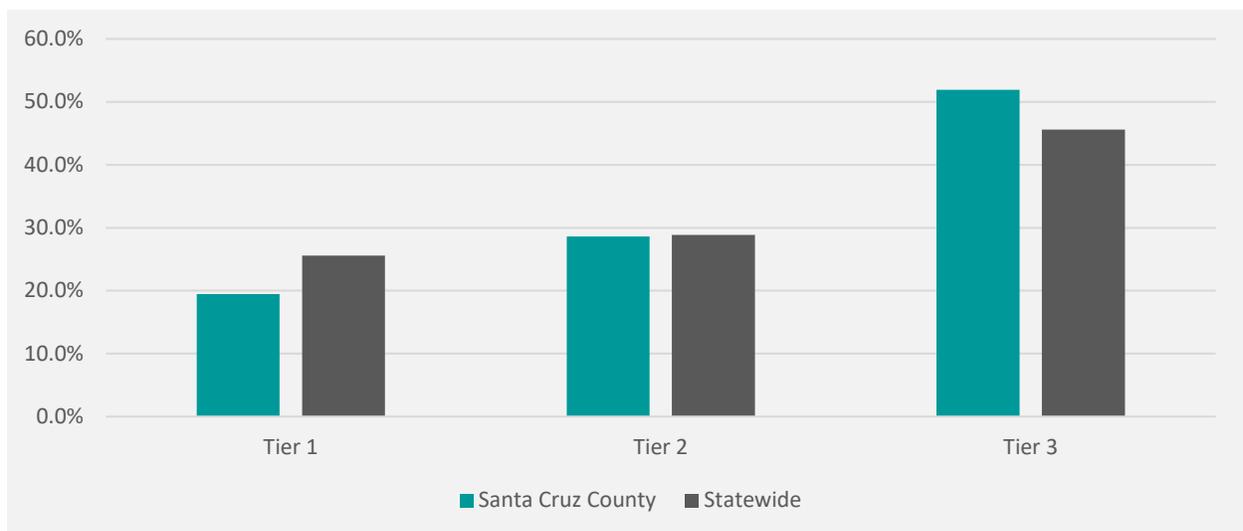
<sup>15</sup> Emsi 2020.3

Table 1. Job Quality Definitions

TIER 1 OCCUPATION	TIER 2 OCCUPATIONS	TIER 3 OCCUPATIONS
<p>Tier 1 occupations are typically the highest-paying, highest-skilled occupations in the economy. This occupational category includes positions such as managers (e.g., Chief Executives and Sales Managers), professional positions (e.g., Lawyers and Physicians), and highly skilled technology occupations, such as scientists, engineers, computer programmers, and software developers.</p>	<p>Tier 2 occupations are typically the middle-skill, middle-wage occupations. This occupational category includes positions such as technicians, teachers, office and administrative positions (e.g., Accounting Clerks and Secretaries), and manufacturing, operations, and production positions (e.g., Assemblers, Electricians, and Machinists).</p>	<p>Tier 3 occupations are typically the lowest-paying, lowest-skilled occupations that have historically provided the largest portion of employment in the region. These occupations include positions such as security guards, food service and retail positions, building and grounds cleaning positions (e.g., Janitors), and personal care positions (e.g., Home Health Aides and Child Care Workers).</p>

**Job quality is lower in Santa Cruz County than the broader state.** Compared to the statewide average, Santa Cruz County has a higher share of lower-paying, lower-skill Tier 3 jobs and a lower proportion of higher-paying, higher-skill Tier 1 jobs (Figure 17). This suggests that upward mobility and advancement opportunities within Santa Cruz County may be somewhat limited relative to the broader state.

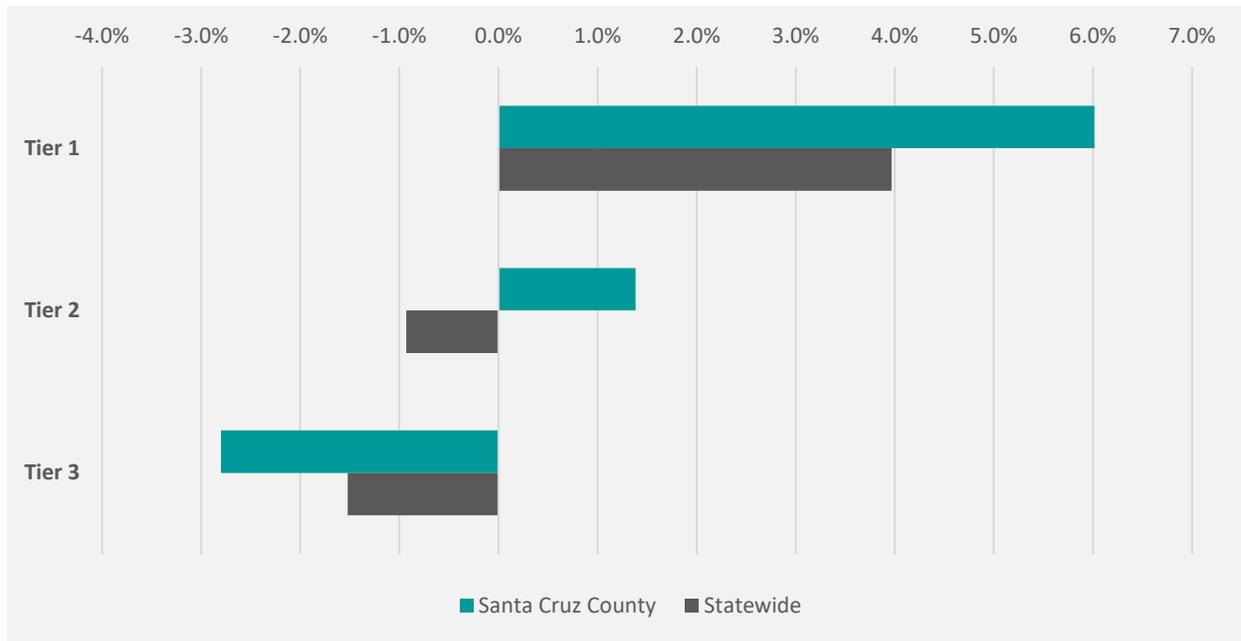
Figure 17. Job Quality (2019)<sup>16</sup>



<sup>16</sup> Emsi 2020.3

**Job quality in Santa Cruz County has improved in recent years.** Between 2014 and 2019, the share of Tier 1 and Tier 2 jobs increased, while the share of Tier 3 jobs shrank. It is also notable that job quality in Santa Cruz County grew at a faster rate than the state overall (Figure 18). Improving job quality bodes well for the County and its workforce, and continuing this trend of improving job quality should be prioritized.

Figure 18. Change in Job Quality (2014-2019) <sup>17</sup>



## Job Volatility

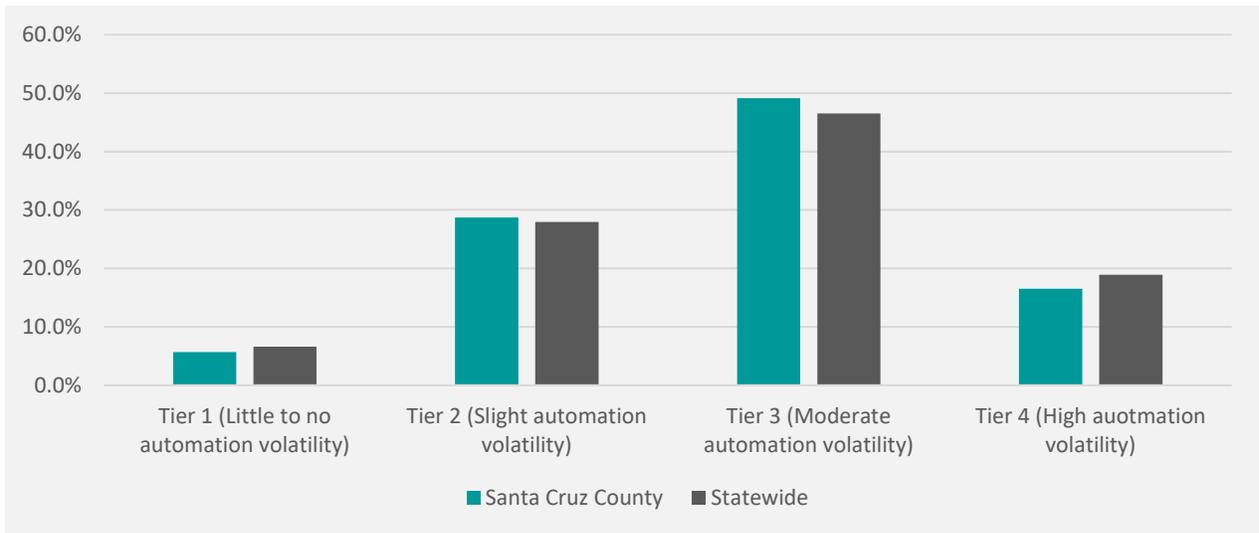
BW Research developed a job volatility index that ranks occupations based on the share of their skills and abilities that can be replaced by modern technology. To do this, the research team examined O\*NET data that contains occupation-level survey data on 26 different skills. These skills were examined on their relative importance to the job and their complexity. The scores for each of these skills were then aggregated within each occupation, resulting in a metric that demonstrates the relative risk an occupation has of change due to technological advancement.

<sup>17</sup> Emsi 2020.3

Tier 1 Automation Volatility	Tier 2 Automation Volatility	Tier 3 Automation Volatility	Tier 4 Automation Volatility
<p>Tier 1 occupations have a very low share of activities that can be replaced or heavily augmented by technology within five years. These occupations include Coaches and Scouts, Surgeons, and Chief Executives.</p>	<p>Tier 2 occupations have some tasks that can be automated, though automation will likely expand these roles rather than replace them. These occupations include Pest Control Workers, Graphic Designers, and Energy Auditors.</p>	<p>Tier 3 occupations have a moderate share of work that can be replaced by technology. These occupations include Landscaping and Groundskeeping Workers, Dishwashers, and Travel Agents.</p>	<p>Tier 4 occupations are the most at risk of automation. A large share of work activities can be replaced or heavily augmented by technology within five years. These occupations include Slaughterers and Meat Packers and Sewing Machine Operators.</p>

**Nearly half (49%) of Santa Cruz County jobs fall under the ‘moderately automatable’ category.** This category includes Home Health and Personal Care Aids, Farmworkers and Laborers, Cashiers, and Retail Salespersons. For many of these roles, automation already exists in some capacity; there are self-driving tractors, self-checkouts, and an increasing share of goods are bought online. While these technologies are unlikely to entirely replace these roles in the near future, they may suppress hiring and wages over time as technologies decline in costs. About 17% of the workforce—a smaller portion than the statewide average—fall under the ‘very automatable’ category (Figure 19), suggesting that there are few jobs that are in immediate jeopardy of significant disruption or replacement via automation.

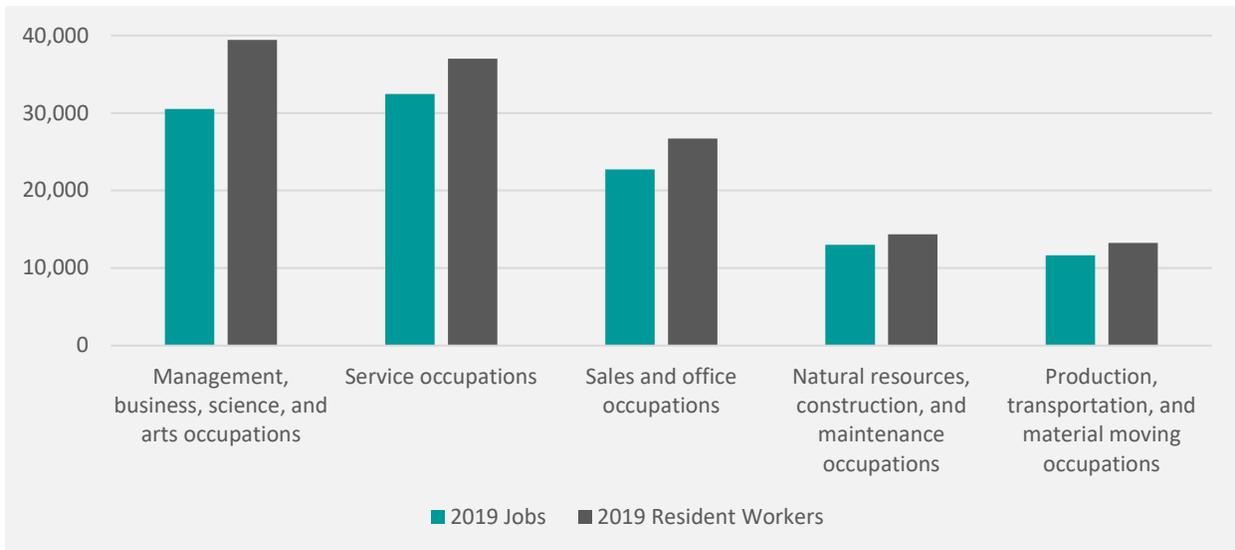
Figure 19. Occupational Volatility Due to Progressing Technology



## Regional Jobs and Workforce

**Santa Cruz County is a net exporter of talent.** In fact, there are more resident workers than jobs across each of the major occupational categories (Figure 20). Management, business, science, and arts occupations are the occupational category with the greatest number of exported jobs; there are nearly 9,000 more workers in these roles who live in the County than there are jobs in these roles. This means that nearly a quarter (23%) of residents in these occupations have to commute outside of the County for work.

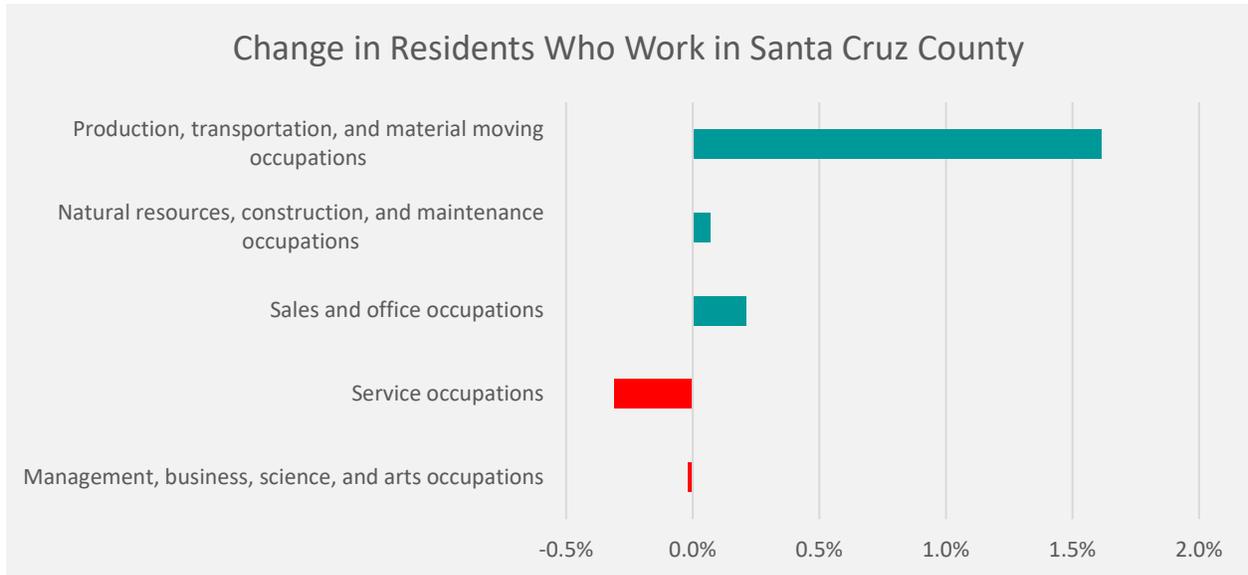
Figure 20. Working Residents and Jobs in Santa Cruz County (2019)<sup>18</sup>



<sup>18</sup> Emsi 2020.3

**Although a significant portion of residents have to travel outside of the County for their jobs, the proportion of residents who have had to do so has declined in recent years.** Between 2014 and 2019, a slightly smaller share of residents in Production, Transportation, and Mineral Moving; Natural Resources, Construction, and Maintenance; and Sales and Office occupations had to travel outside the County for their jobs. Conversely, the share of residents who work in the County declined among Service occupations, as well as among Management, Business, Science, and Arts occupations (Figure 21).

Figure 21. Change in the Proportion of Resident Who Work in Santa Cruz County (2014-2019)



### A Silver Lining

The pandemic accelerated many challenges the agriculture labor market in Santa Cruz County was already experiencing. While high costs of living meant that the pre-pandemic flow of new agriculture workers moving to the County was minimal, the pandemic reduced that flow to zero. Sun Valley Farms was relatively well positioned for this disruption, having revised their business model in 2014 to focus on smaller scale and organic farming, often carried out by workers who have been at Sun Valley for years.

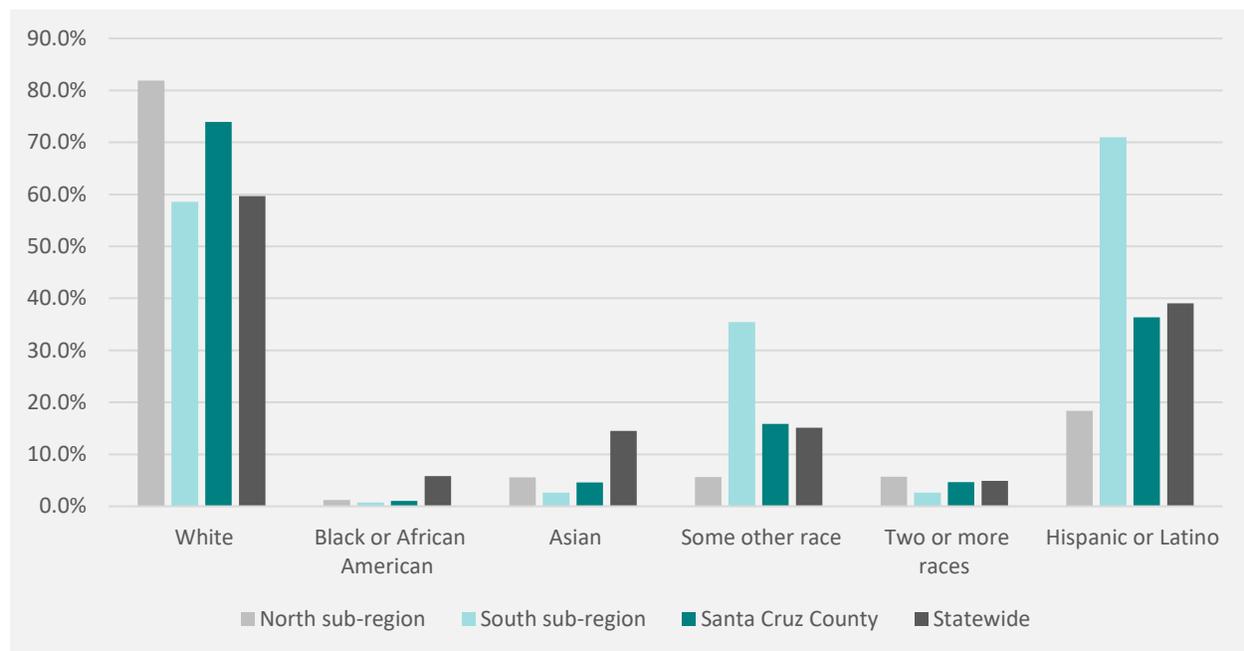
While the pandemic disrupted worker protocols and added significant volatility to demand, the smaller farm with a committed and consistent workforce was able to weather the unprecedented times. As June Ponce, owner of Sun Valley Farms noted “the silver lining of the pandemic is that it gave us a minute to pause and think about what we wanted to be, and it reinforced that we want to be stewards of the land and keep providing excellent produce to feed people and support the families that work for us.”

## Regional Demographic Profile

### Race and Ethnicity

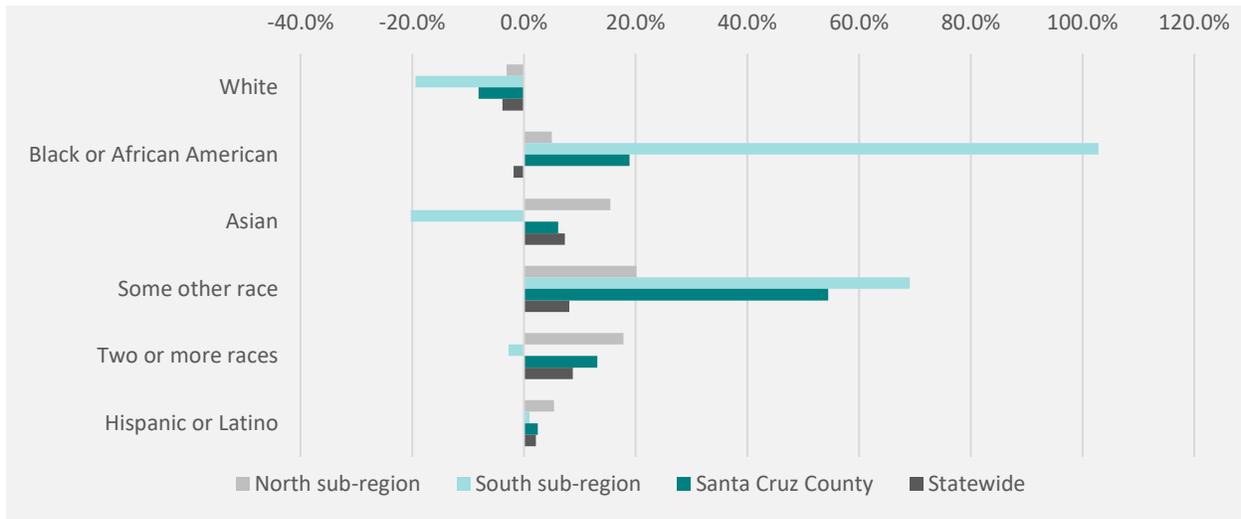
Overall, Santa Cruz County has a larger share of White residents than the statewide average, and this is particularly true in the North sub-region, in which 82% of residents are White. Conversely, the South sub-region has relatively large Hispanic or Latino and Some Other Race populations (Figure 22). The share of White residents in the South sub-region has also declined in recent years; between 2014 and 2019, the share of White residents declined by 19%. The North sub-region has also seen a slight decrease (-3%) in its proportion of White residents, while Asian, Some Other Race, and Two or More Races residents have increased by 16% or more (Figure 23).

Figure 22. Race and Ethnicity of Santa Cruz County (2019)<sup>19</sup>



<sup>19</sup> American Community Survey 5-Year Estimates (2014-2019). United States Census Bureau.

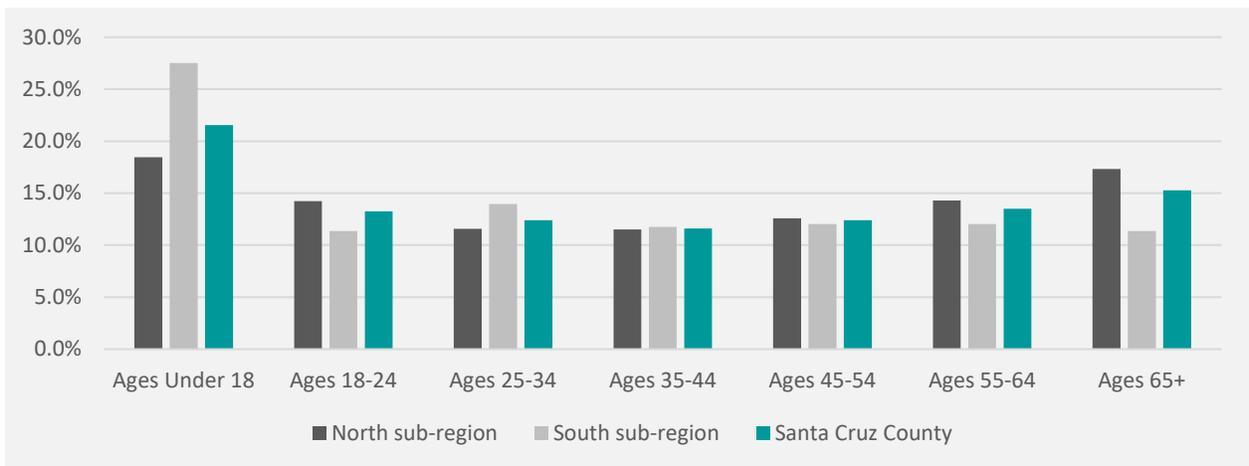
Figure 23. Change in Race and Ethnicity of Santa Cruz County (2014-19)<sup>20</sup>



## Age Profile

**The North sub-region of the County is significantly older than the South sub-region.** More than a quarter (28%) of the South sub-region’s population is under 18, compared to only 19% in the North sub-region. Conversely, nearly a third (32%) of the North sub-region is 55 or older, compared to 23% of the South sub-region (Figure 24). These differences suggest that a larger share of the North sub-region’s population is exiting prime working age, while a notable share of the South sub-region will soon be entering prime schooling and working age.

Figure 24. Age Distribution of Santa Cruz County (2019)<sup>21</sup>

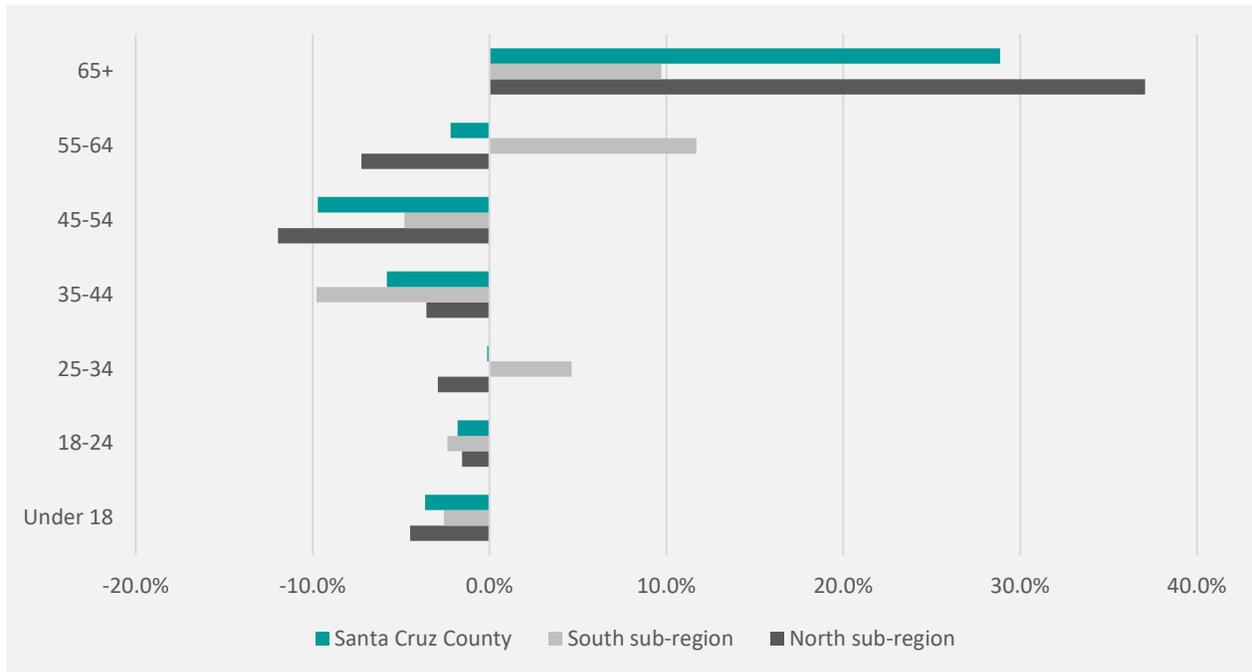


<sup>20</sup> American Community Survey 5-Year Estimates (2014-2019). United States Census Bureau.

<sup>21</sup> American Community Survey 5-Year Estimates (2014-2019). United States Census Bureau.

Between 2014 and 2019, the North sub-region saw significant growth in the share of residents 65 and older. This highlights that a large portion of the North sub-region’s population is exiting prime-working age. While the South sub-region also saw substantial population growth among older cohorts (55 and older), the trend was lesser in magnitude (Figure 25).

Figure 25. Change in the Age Distribution of the Santa Cruz County Population (2014-19)<sup>22</sup>

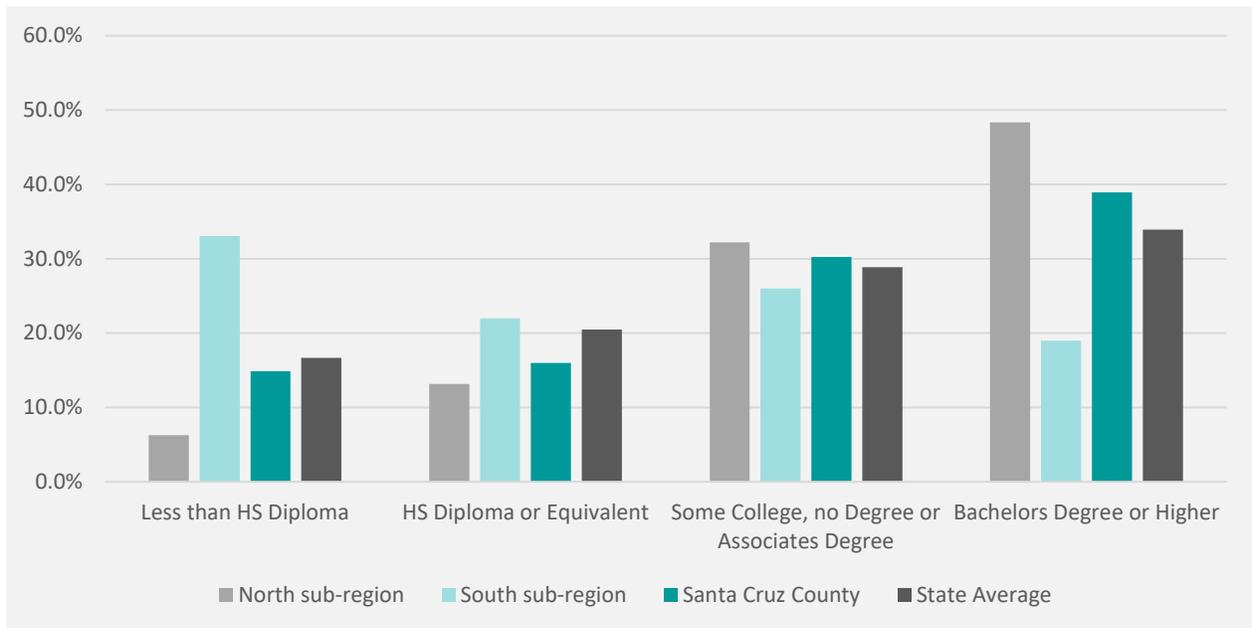


<sup>22</sup> American Community Survey 5-Year Estimates (2014-2019). United States Census Bureau.

## Educational Attainment

**While Santa Cruz County as a whole has higher educational attainment rates than the state, there are stark differences within the County.** Within Santa Cruz County, the South sub-region has lower educational attainment rates while the North sub-region has educational attainment rates that far surpass the state average. About a third of the population 25 and older in the South sub-region does not have a high school diploma or equivalent. Conversely, nearly half (48%) of the population 25 and older in the North sub-region has a Bachelor's degree or higher (Figure 26).

Figure 26. Educational Attainment (Population Ages 25+) (2019)<sup>23</sup>



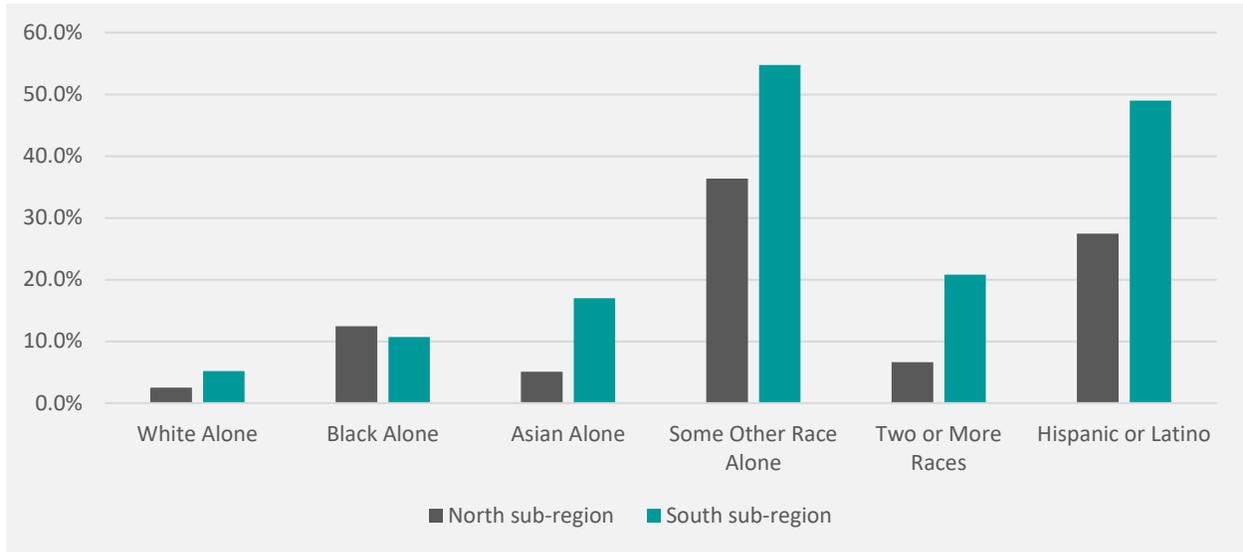
### **Educational attainment disparities exist across race and ethnicity as well as geographic sub-region.**

Figure 27 highlights that racial and ethnic minorities are substantially more likely not to have a high school diploma than their White counterparts. In some cases, these differences are in order of magnitude: individuals in the South sub-region who identify as “Some Other Race”<sup>24</sup> are ten times more likely not to have a high school diploma than White residents. Similarly, Hispanic or Latino residents are 9.4 times more likely not to have a high school diploma.

<sup>23</sup> American Community Survey 5-Year Estimates (2014-2019). United States Census Bureau.

<sup>24</sup> This includes “some other race,” “Native Hawaiian and Other Pacific Islander,” and “American Indian or Alaskan Native.”

Figure 27. Less Than a High School Diploma (or Equivalent) by Race and Ethnicity (Population Ages 25+) (2019)<sup>25</sup>



<sup>25</sup> American Community Survey 5-Year Estimates (2014-2019). United States Census Bureau.

## Housing Characteristics

Sixty percent of residents in Santa Cruz County own their home. Of the 40% that rent, half (50%) spend 35% or more of their income on housing. Among homeowners with a mortgage, about 30% spend 35% or more. Spending on housing is roughly the same across sub-regions, though a slightly larger share of renters in the South sub-region spend 35% or more on rent (Figure 29) than the North sub-region (Figure 28).

### **The State of the Healthcare Workforce in Santa Cruz County**

The pandemic has catalyzed three substantial changes in the healthcare industry in Santa Cruz County. One such change is the rapid digitization of patient care. The sudden demand for telehealth pushed workers to learn new systems, software, and regulations. Many providers were able to scale up systems they already had in place. The increased reliance on telehealth has also elevated the importance of reliable internet access, something that is “tremendously important, especially for underserved populations” says Dr. Larry DeGhetaldi, Sutter Health Palo Alto Medical Foundation Santa Cruz division president.

The pandemic’s shift in the types of services demanded has also constrained budgets for many healthcare providers. Pandemic-related care has increased, often with limited compensation, while elective operations and procedures have ground to a near-halt. These budget constraints have put healthcare providers in a tough spot, simultaneously slowing hiring and reducing headcount to manage expenses, while facing heightened workloads.

The arrival of effective vaccines has led to a third transformation. A pandemic-weary workforce is now tasked with the additional challenge of a rapid vaccination rollout and regulations restrict who can administer the vaccines. While regulators are working on alleviating these requirements, the colossal challenge of vaccinating hundreds of thousands of residents looms large. These forces have undoubtedly changed the shape of the healthcare industry and workforce and will likely have lasting effects.

Figure 28. Share of Income Residents Spend on Housing in North Sub-Region (2019)<sup>26</sup>

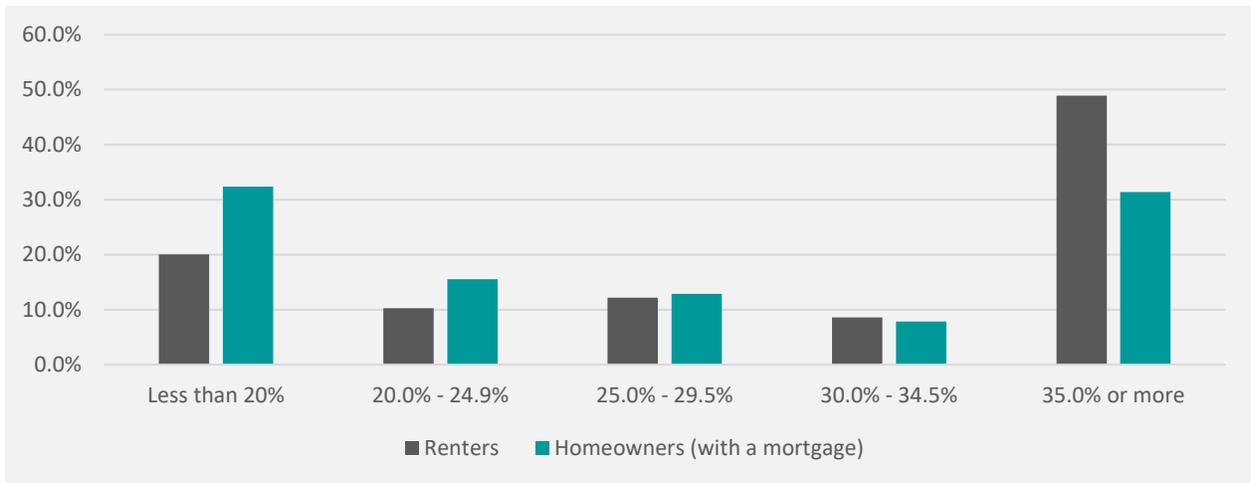
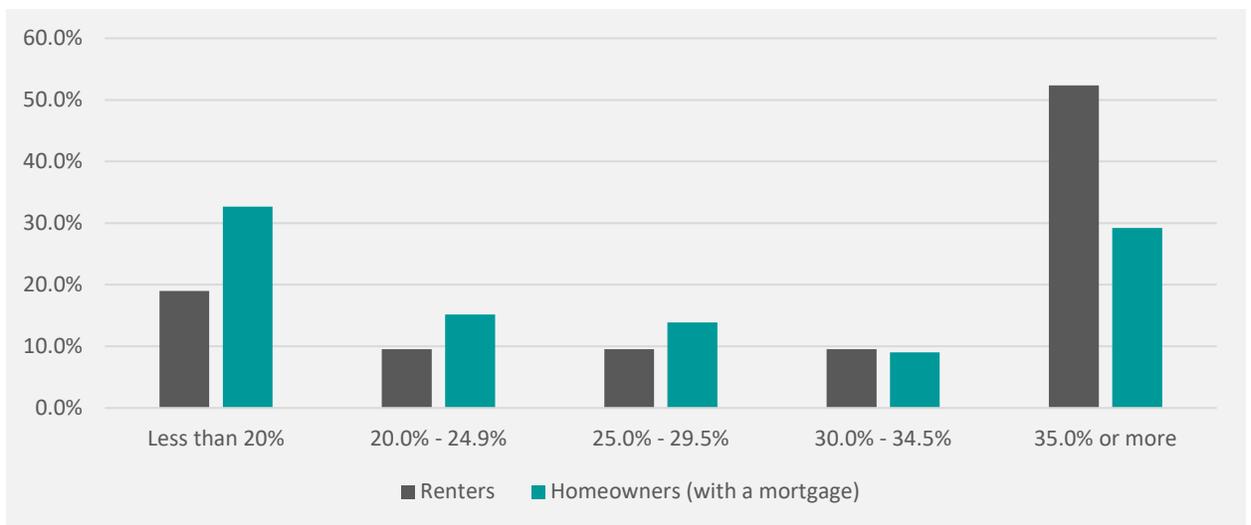


Figure 29. Share of Income Residents Spend on Housing in South Sub-Region (2019)<sup>27</sup>

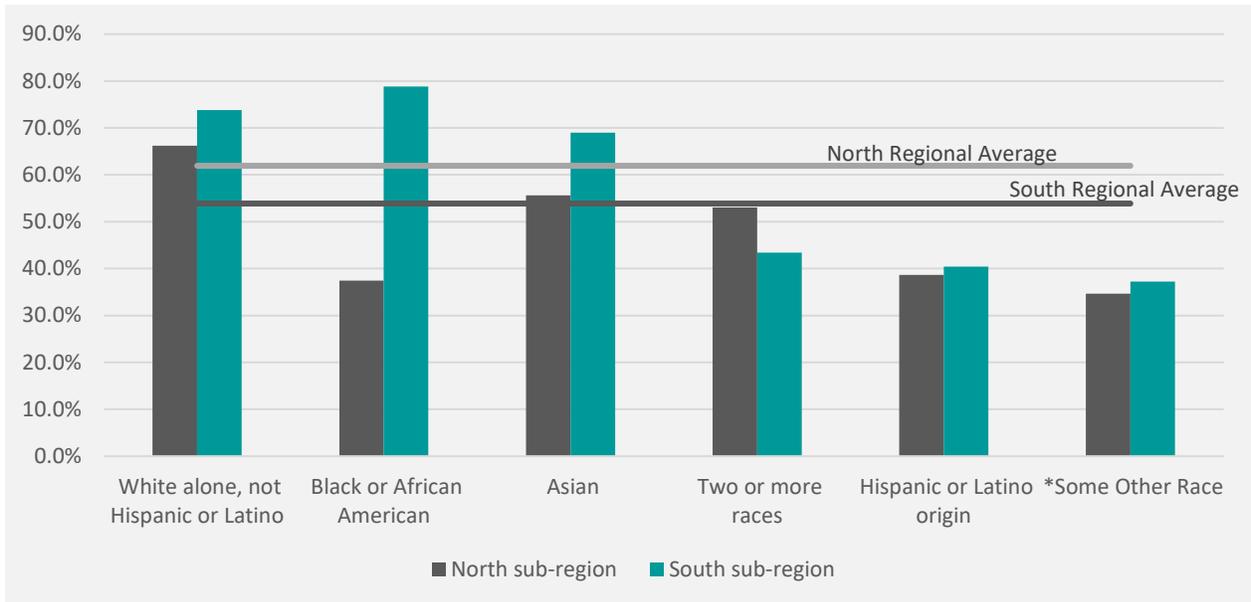


**High housing costs also play a role in equity and economic mobility in the region.** Figure 30 highlights that Black or African American, Hispanic or Latino, and residents who identify as some other race are more likely to rent than own a home. Given that renters tend to spend greater proportions of their incomes on housing, it is evident that high housing costs can reinforce inequities and hinder economic mobility.

<sup>26</sup> American Community Survey 5-Year Estimates (2014-2019). United States Census Bureau.

<sup>27</sup> American Community Survey 5-Year Estimates (2014-2019). United States Census Bureau.

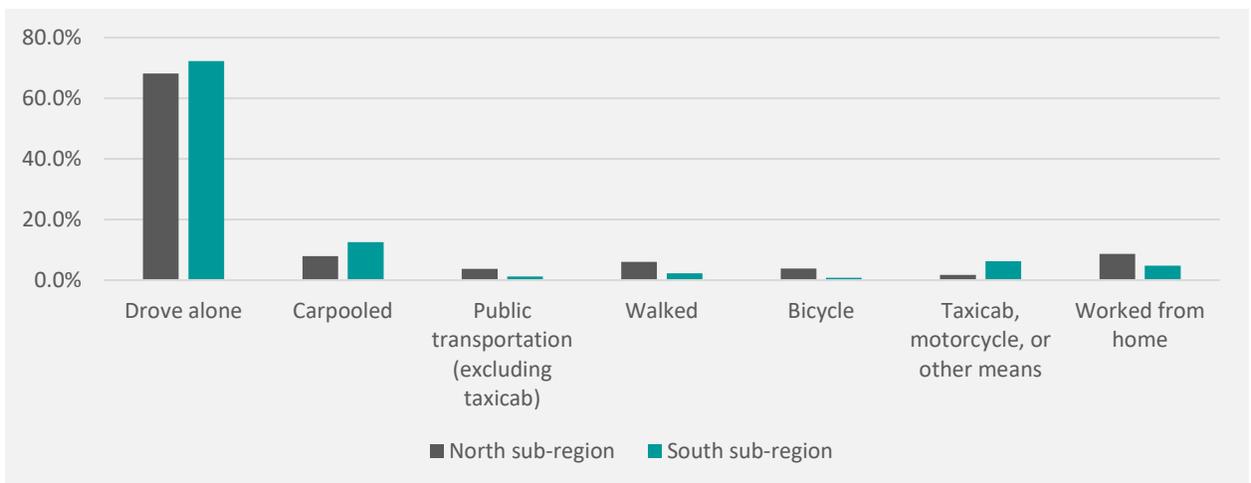
Figure 30. Share of Homeownership by Race and Ethnicity (2019)<sup>28</sup>



## Commuting Patterns

Driving alone remains the predominant means of traveling to work across Santa Cruz County. Residents in the North sub-region are more likely to walk, take public transit, bike, or work from home, while South sub-region residents are more likely to drive alone, carpool, or take a motorcycle, taxi, or rideshare (Figure 31).

Figure 31. Typical Means of Transportation to Work (2019)<sup>29</sup>

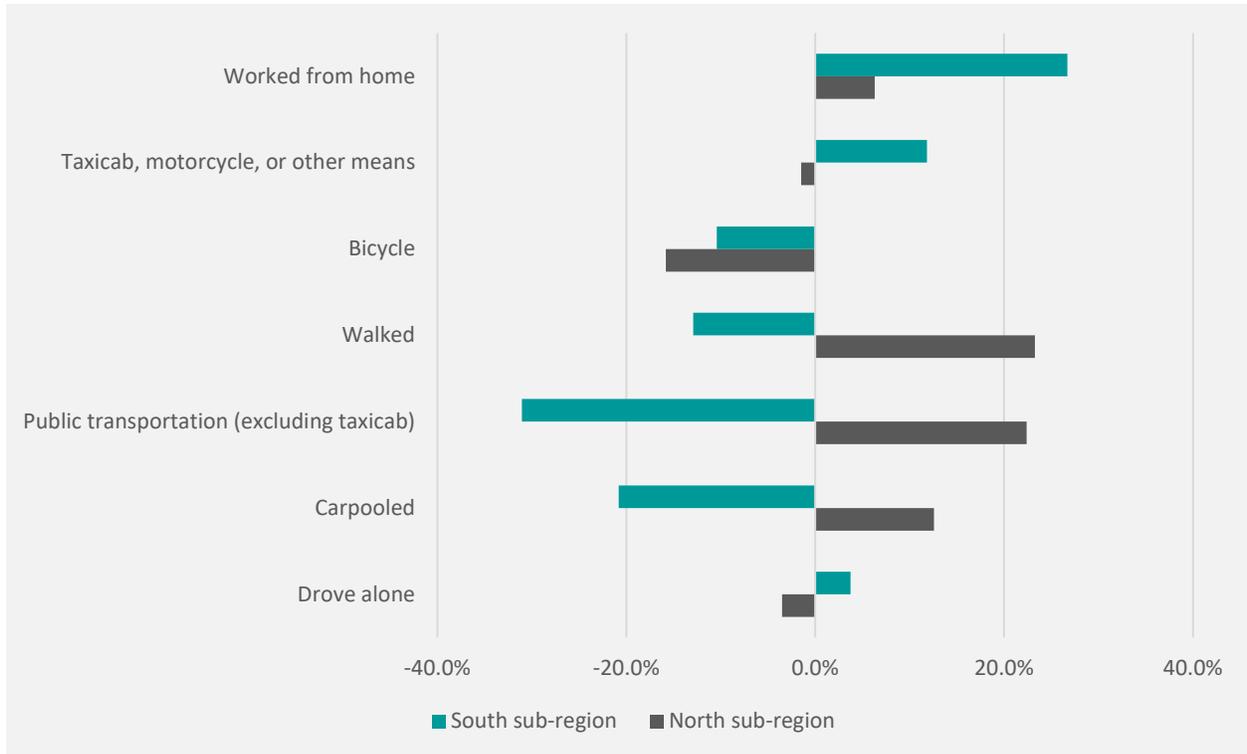


<sup>28</sup> American Community Survey 5-Year Estimates (2014-2019). United States Census Bureau.

<sup>29</sup> American Community Survey 5-Year Estimates (2014-2019). United States Census Bureau.

**Residents in the South sub-region have become less likely to walk, bike, or take public transit to work and more likely to work from home or take a motorcycle or rideshare.** This could be because employers have become more flexible about work from home, jobs have moved further away, or traffic and commuting has gotten worse, so fewer are willing to travel further or longer. Alternatively, the North sub-region has seen increased walking, public transit, and carpooling, suggesting that jobs may be more locally available or residents have gained an interest in more eco-friendly transportation.

Figure 32. Change in Means of Transportation to Work (2014-2019)<sup>30</sup>



## Career Pathways and Opportunities

While the COVID-19 pandemic has reshaped national and regional economies, there remain several pathways and opportunities in resilient industries and occupations for workers entering, re-entering, or advancing in the workforce. The following analysis highlights some of the key occupations and career pathways within key industries, selected for their pre-pandemic growth, wages, resilience, and upward mobility.

<sup>30</sup> American Community Survey 5-Year Estimates (2014-2019). United States Census Bureau.

## FINANCE, BANKING, INSURANCE, AND REAL ESTATE

The Finance, Insurance, Banking, and Real Estate industry cluster includes industries and firms that specialize in financial management and transactions, insurance and actuarial activities, and real estate transactions.

**Number of Jobs in Santa Cruz County: 3,500**

Table 2. Finance, Banking, Insurance, and Real Estate (FIRE) Career Pathways <sup>31</sup>

	ENTRY-LEVEL	MID-LEVEL	SENIOR LEVEL
<p><b>Banking</b> This segment includes the staff that work at banks, credit unions, and other financial institutions available to the public</p>	<p><b>Tellers</b></p> <p><b>\$16.32</b> Median Hourly Earnings</p> <p>Typical Education: High school diploma or equivalent</p>	<p><b>Loan Officer</b></p> <p><b>\$26.90</b> Median Hourly Earnings</p> <p>Typical Education: High school diploma or equivalent</p>	<p><b>General &amp; Operations Manager</b></p> <p><b>\$51.19</b> Median Hourly Earnings</p> <p>Typical Education: Bachelor's degree</p>
<p><b>Real Estate</b> This segment includes activities centered around real estate transactions</p>	<p><b>Real Estate Sales Agent</b></p> <p><b>\$29.12</b> Median Hourly Earnings</p>	<p><b>Property, Real Estate &amp; Community Association Managers</b></p> <p><b>\$37.19</b> Median Hourly Earnings</p> <p>Typical Education: High school diploma or equivalent</p>	<p><b>Real Estate Brokers</b></p> <p><b>\$53.23</b> Median Hourly Earnings</p> <p>Typical Education: High school diploma or equivalent</p>
<p><b>Insurance</b> This segment includes roles within the insurance industry</p>	<p><b>Insurance Claims and Policy Processing Clerks</b></p> <p><b>\$21.26</b> Median Hourly Earnings</p> <p>Typical Education: High school diploma or equivalent</p>	<p><b>Insurance Sales Agents</b></p> <p><b>\$21.13</b> Median Hourly Earnings</p>	<p><b>Claims Adjusters, Examiners, and Investigators</b></p> <p><b>\$32.31</b> Median Hourly Earnings</p> <p>Typical Education: Bachelor's degree</p>

<sup>31</sup> EMSI 2020.3

## HEALTHCARE

The Healthcare industry cluster includes industries and firms that provide medical diagnoses and treatment and includes allied health roles.

**Number of Jobs in Santa Cruz County: 14,700**

Table 3. Healthcare Career Pathways <sup>32</sup>

	ENTRY-LEVEL	MID-LEVEL	SENIOR LEVEL
<p><b>Patient Services</b> <i>This segment includes workers who attend and provide medical care to patients</i></p>	<p><b>Certified Nurse Assistant CNA</b>  <b>\$18.29</b> Median Hourly Earnings  Typical Education: Postsecondary nondegree award</p>	<p><b>Licensed Practical and Licensed Vocational Nurses</b>  <b>\$30.71</b> Median Hourly Earnings</p>	<p><b>Registered Nurse</b>  <b>\$68.72</b> Median Hourly Earnings  Typical Education: Bachelor’s degree</p>
<p><b>Medical Administration</b> <i>This segment includes activities centered around the administration of healthcare activities</i></p>	<p><b>Medical Secretaries and Administrative Assistant</b>  <b>\$19.68</b> Median Hourly Earnings  Typical Education: High school diploma or equivalent</p>	<p><b>Health Technologists and Technicians</b>  <b>\$25.85</b> Median Hourly Earnings</p>	<p><b>Administrative Services and Facilities Managers</b>  <b>\$39.63</b> Median Hourly Earnings  Typical Education: Bachelor’s degree</p>
<p><b>Diagnostic Services</b> <i>This segment works to find and diagnose the root causes of medical ailments</i></p>	<p><b>Medical Assistants</b>  <b>\$21.00</b> Median Hourly Earnings  Typical Education: Postsecondary nondegree award</p>	<p><b>Radiological Technologists and Technicians</b>  <b>\$40.33</b> Median Hourly Earnings</p>	<p><b>Physician’s Assistant</b>  <b>\$63.57</b> Median Hourly Earnings  Typical Education: Master’s degree</p>

<sup>32</sup> EMSI 2020.3

## BUILDING & DESIGN

The Building & Design industry cluster consists of firms and industries that design, construct, and repair buildings and infrastructure.

**Number of Jobs in Santa Cruz County: 5,100**

Table 4. Building and Design Career Pathways <sup>33</sup>

	ENTRY-LEVEL	MID-LEVEL	SENIOR LEVEL
<p><b>Design and Pre-Construction</b> <i>This segment includes the drafting, designing, and planning stages of the construction process</i></p>	<p><b>Architectural and Civil Drafters</b>  <b>\$32.99</b> Median Hourly Earnings  Typical Education: Associate's degree</p>	<p><b>Project Management Specialists</b>  <b>\$32.52</b> Median Hourly Earnings</p>	<p><b>Civil Engineer</b>  <b>\$55.30</b> Median Hourly Earnings  Typical Education: Bachelor's degree</p>
<p><b>Construction</b> <i>This segment includes the foundation work, wiring, and building process</i></p>	<p><b>Construction Laborers</b>  <b>\$19.83</b> Median Hourly Earnings  Typical Education: No formal education credential</p>	<p><b>Electrician</b>  <b>\$27.68</b> Median Hourly Earnings</p>	<p><b>Construction Managers</b>  <b>\$56.05</b> Median Hourly Earnings  Typical Education: Bachelor's degree</p>
<p><b>Maintenance &amp; Operations</b> <i>This segment includes maintenance, repair, and operational activities required to maintain facilities and infrastructure</i></p>	<p><b>General Maintenance and Repair Workers</b>  <b>\$20.58</b> Median Hourly Earnings  Typical Education: High school diploma or equivalent</p>	<p><b>First-Line Supervisors of Mechanics, Installers, and Repairers</b>  <b>\$34.65</b> Median Hourly Earnings</p>	<p><b>General and Operations Managers</b>  <b>\$51.19</b> Median Hourly Earnings  Typical Education: Bachelor's degree</p>

<sup>33</sup> EMSI 2020.3

## PROFESSIONAL AND BUSINESS SERVICES

Firms in Professional and Business Services industries provide a range of services, including legal, accounting, landscaping, consulting, and other specialty services.

**Number of Jobs in Santa Cruz County: 8,000**

Table 5. Professional and Business Services Career Pathways <sup>34</sup>

	ENTRY-LEVEL	MID-LEVEL	SENIOR LEVEL
<p><b>Legal</b> <i>This segment includes careers that provide legal services to individuals and organizations</i></p>	<p><b>Legal Secretaries and Administrative Assistants</b></p> <p><b>\$23.57</b> Median Hourly Earnings</p> <p>Typical Education: High school diploma or equivalent</p>	<p><b>Paralegals and Legal Assistants</b></p> <p><b>\$19.63</b> Median Hourly Earnings</p>	<p><b>Lawyers</b></p> <p><b>\$66.07</b> Median Hourly Earnings</p> <p>Typical Education: Doctoral or professional degree</p>
<p><b>Administrative</b> <i>This segment includes the support and administrative services provided to a wide range of companies</i></p>	<p><b>Billing and Posting Clerk</b></p> <p><b>\$22.54</b> Median Hourly Earnings</p> <p>Typical Education: High school diploma or equivalent</p>	<p><b>Project Management Specialist</b></p> <p><b>\$32.71</b> Median Hourly Earnings</p>	<p><b>General and Operations Managers</b></p> <p><b>\$51.91</b> Median Hourly Earnings</p> <p>Typical Education: Bachelor's degree</p>
<p><b>Accounting</b> <i>This segment includes accounting, bookkeeping, and auditing services</i></p>	<p><b>Bookkeeping, Accounting, and Auditing Clerks</b></p> <p><b>\$23.56</b> Median Hourly Earnings</p> <p>Typical Education: High school diploma or equivalent</p>	<p><b>Project Management Specialist</b></p> <p><b>\$32.52</b> Median Hourly Earnings</p>	<p><b>Accountants and Auditors</b></p> <p><b>\$36.26</b> Median Hourly Earnings</p> <p>Typical Education: Bachelor's degree</p>

<sup>34</sup> EMSI 2020.3

## Growth Industries and Pathways

The following industry clusters and career pathways are highlighted because they currently employ a relatively small share of the workforce, but their recent growth, wages, and innovative fields make these industry clusters potential growth opportunities for the region.

### INFORMATION AND COMMUNICATIONS TECHNOLOGY

While the Information and Communications Technology (ICT) industry cluster has seen an overall employment decline in recent years, specific industries within the cluster have seen strong growth and offer opportunities for niche specialization.

**Number of Jobs in Santa Cruz County: 1,800**

Table 6. Information and Communication Technologies Career Pathways <sup>35</sup>

	ENTRY-LEVEL	MID-LEVEL	SENIOR LEVEL
<p><b>Computer Systems</b> <i>This sector includes the design, testing, creation, and support for various computer systems.</i></p>	<p><b>Computer User Support Specialists</b></p> <p style="text-align: center;"><b>\$29.01</b></p> <p>Median Hourly Earnings</p> <p>Typical Education: Some college, no degree</p>	<p><b>Web Developers and Digital Interface Designers</b></p> <p style="text-align: center;"><b>\$48.14</b></p> <p>Median Hourly Earnings</p>	<p><b>Software Developers and Software Quality Assurance Analysts and Testers</b></p> <p style="text-align: center;"><b>\$51.04</b></p> <p>Median Hourly Earnings</p> <p>Typical Education: Bachelor's Degree</p>
<p><b>Sales</b> <i>This segment includes the sales and support services provided to the computer service providers</i></p>	<p><b>Customer Service Representatives</b></p> <p style="text-align: center;"><b>\$19.14</b></p> <p>Median Hourly Earnings</p> <p>Typical Education: High school diploma or equivalent</p>	<p><b>Sales Representatives of Services</b></p> <p style="text-align: center;"><b>\$26.16</b></p> <p>Median Hourly Earnings</p>	<p><b>Sales Managers</b></p> <p style="text-align: center;"><b>\$46.37</b></p> <p>Median Hourly Earnings</p> <p>Typical Education: Bachelor's Degree</p>

<sup>35</sup> EMSI 2020.3

## DEFENSE, AEROSPACE, AND TRANSPORTATION MANUFACTURING

Defense, Aerospace, and Transportation Manufacturing (DATM) has a growing footprint within Santa Cruz County. Much of the employment in this industry cluster is centered around the manufacturing of navigation and guidance systems, aircraft parts, and missile and space vehicle systems.

**Number of Jobs in Santa Cruz County: 1,000**

Table 7. Defense, Aerospace, and Transportation Manufacturing Career Pathways<sup>36</sup>

	Entry-Level	Mid-Level	Senior Level
<p><b>Engineering</b> <i>This sector includes the design, prototyping, and production of aerospace and defense goods.</i></p>	<p><b>Machinists</b>  <b>\$23.77</b> Median Hourly Earnings  Typical Education: High school diploma or equivalent</p>	<p><b>Aircraft Structure, Surfaces, Rigging, and Systems Assemblers</b>  <b>\$25.71</b> Median Hourly Earnings</p>	<p><b>Aerospace Engineers</b>  <b>\$53.32</b> Median Hourly Earnings  Typical Education: Bachelor's Degree</p>
<p><b>Sales</b> <i>This segment includes the sales and support services provided to the manufacturers</i></p>	<p><b>Parts Salespersons</b>  <b>\$14.94</b> Median Hourly Earnings  Typical Education: No formal education required</p>	<p><b>Sales Representatives</b>  <b>\$29.15</b> Median Hourly Earnings</p>	<p><b>Sales Managers</b>  <b>\$46.37</b> Median Hourly Earnings  Typical Education: Bachelor's degree</p>

<sup>36</sup> EMSI 2020.3

## Occupational Gap Analysis

When considering a region’s changing workforce and highlighting opportunities, it is important to consider regional talent supply. Table 8 highlights the 25 most common occupations in Santa Cruz County that earn a living wage;<sup>37</sup> currently have more regional openings than relevant regional education program completions;<sup>38</sup> and are projected to grow 5% or more between 2019 and 2024.<sup>39</sup> For example, there are about 1.5 annual openings in Santa Cruz County for Registered Nurses for every completion of a relevant education program in the region. Registered Nurses also have median annual earnings of \$142,938 and are projected to grow by 6% between 2019 and 2024.

The occupations in Table 8 offer a range of opportunities in nearly every industry and across all education backgrounds. Within this list, there are a number of healthcare occupations, food service roles, and manufacturing and production roles. Bolded occupations are commonly found in one or more key industry clusters identified previously in this report, suggesting that those occupations may provide particularly strong opportunities for workers in Santa Cruz County.

Table 8. 25 Undersupplied Occupations<sup>40</sup>

	Regional Openings per Completion	Median Annual Earnings	Typical Entry-Level Education	Projected Growth (2019-2024)
<b>General and Operations Managers</b>	1.3	\$106,475	Bachelor's degree	6.2%
<b>Registered Nurses</b>	1.5	\$142,938	Bachelor's degree	6.0%
<b>Project Management Specialists and Business Operations Specialists, All Other</b>	-	\$67,642	Bachelor's degree	5.2%
<b>Accountants and Auditors</b>	-	\$75,421	Bachelor's degree	7.0%
<b>Medical and Health Services Managers</b>	-	\$144,414	Bachelor's degree	10.4%
<b>Market Research Analysts and Marketing Specialists</b>	-	\$58,198	Bachelor's degree	10.2%
<b>Electricians</b>	-	\$57,574	High school diploma or equivalent	6.0%
<b>Financial Managers</b>	-	\$119,621	Bachelor's degree	11.7%
Police and Sheriffs Patrol Officers	1.6	\$108,805	High school diploma or equivalent	6.1%
<b>First-Line Supervisors of Production and Operating Workers</b>	-	\$60,258	High school diploma or equivalent	14.4%

<sup>37</sup> Based on a living wage of \$26.95 per hour. This is an average of values provided by the MIT Living Wage Calculator.

<sup>38</sup> Or more than 10 openings annually if regional completions are not available. Programs matched by TOPS code.

<sup>39</sup> Projections are produced by the Department of Labor

<sup>40</sup> EMSI 2020.3

Heating, Air Conditioning, and Refrigeration Mechanics and Installers	-	\$74,880	Postsecondary nondegree award	5.5%
Licensed Practical and Licensed Vocational Nurses	-	\$63,877	Postsecondary nondegree award	10.0%
Physicians, All Other; and Ophthalmologists, Except Pediatric	-	\$457,044	Doctoral or professional degree	11.4%
Financial and Investment Analysts, Financial Risk Specialists, and Financial Specialists, All Other	-	\$80,330	Bachelor's degree	7.2%
First-Line Supervisors of Mechanics, Installers, and Repairers	-	\$72,072	High school diploma or equivalent	7.8%
Computer Systems Analysts	2.1	\$92,498	Bachelor's degree	12.7%
Industrial Machinery Mechanics	-	\$56,347	High school diploma or equivalent	17.6%
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	-	\$59,405	High school diploma or equivalent	8.6%
Training and Development Specialists	-	\$96,075	Bachelor's degree	9.2%
Clinical Laboratory Technologists and Technicians	-	\$64,522	Bachelor's degree	18.4%
Psychiatric Technicians	-	\$96,644	Postsecondary nondegree award	6.1%
Mechanical Engineers	-	\$111,509	Bachelor's degree	8.6%
Compliance Officers	-	\$77,730	Bachelor's degree	6.8%
Marketing Managers	-	\$137,030	Bachelor's degree	6.8%
Human Resources Managers	-	\$139,069	Bachelor's degree	5.0%

## At-Risk Workers and Transition Opportunities

This section seeks to identify the occupations most at risk of long-term or permanent job loss and discuss transferrable skillsets and opportunities. Once these at-risk roles and their potential transitions are identified, training or transition programs can be established or customized to support this transitioning workforce.

Fifteen industries,<sup>41</sup> including movie theaters, hotels, caterers, spectator sports, and convention centers were identified to be at considerable long-term risk for job displacement under any of the scenarios highlighted in the report previously. While activity in these industries will someday resume, these will likely be the last industries to return to normal. Table 9 highlights the ten most-common occupations among these 15 industries and some transition opportunities that match their current skillsets. It is also

<sup>41</sup> Please see Appendix B for industry definitions.

notable that many of these occupations are common in other industries not included in this analysis but bearing the brunt of the pandemic, including restaurants, bars, and wineries.

Table 9. Most At-Risk Occupations and Transition Opportunities

	2019 Jobs	Transition Occupations <sup>42</sup>
<b>Fast Food and Counter Workers</b>	3,495	<ul style="list-style-type: none"> <li>- Nonfarm Animal Caretakers</li> <li>- Order Fillers, Wholesale and Retail Sales</li> <li>- Maids and Housekeeping Cleaners</li> </ul>
<b>Waiters and Waitresses</b>	2,228	<ul style="list-style-type: none"> <li>- Childcare Workers</li> <li>- Nursing Assistants</li> <li>- Pharmacy Aides</li> </ul>
<b>Cooks, Restaurant</b>	1,556	<ul style="list-style-type: none"> <li>- Dietetic Technicians</li> <li>- Shipping, Receiving, and Traffic Clerks</li> <li>- Mail Clerks and Mail Machine Operators</li> </ul>
<b>Maintenance and Repair Workers, General</b>	1,074	<ul style="list-style-type: none"> <li>- Solar Photovoltaic Installers</li> <li>- Aircraft Structure, Surfaces, Rigging, and Systems Assemblers</li> <li>- Pipelayers</li> </ul>
<b>Maids and Housekeeping Cleaners</b>	783	<ul style="list-style-type: none"> <li>- Packers and Packagers</li> <li>- Stock Clerks (Stockroom, Warehouse, or Storage Yard)</li> <li>- Laundry and Dry-Cleaning Workers</li> </ul>
<b>Bartenders</b>	647	<ul style="list-style-type: none"> <li>- Childcare Workers</li> <li>- Library Assistants</li> <li>- Occupational Therapy Aides</li> </ul>
<b>Dining Room and Cafeteria Attendants and Bartender Helpers</b>	612	<ul style="list-style-type: none"> <li>- Graders and Sorters</li> <li>- Painting, Coating, and Decorating Workers</li> <li>- Nursery Workers</li> </ul>
<b>Hotel, Motel, and Resort Desk Clerks</b>	284	<ul style="list-style-type: none"> <li>- General Office Clerks</li> <li>- Tellers</li> <li>- Customer Service Representatives</li> </ul>
<b>Lodging Managers</b>	100	<ul style="list-style-type: none"> <li>- Education Administrators</li> <li>- Administrative Services Managers</li> <li>- Loss Prevention Managers</li> </ul>
<b>Ushers, Lobby Attendants, and Ticket Takers</b>	98	<ul style="list-style-type: none"> <li>- Stock Clerks</li> <li>- Order Fillers, Wholesale and Retail Sales</li> <li>- Pharmacy Aides</li> </ul>

<sup>42</sup> Identified through EMSI's Skills Transferability Tool which compares and matches knowledge, skills, and abilities.

## IT Occupations Outside of Tech

Though many of the IT jobs in Santa Cruz County fall under traditional “tech” industries, there are dozens of industries outside of technology that hire IT staff.<sup>43</sup> Table 10 highlights the 20 non-technology industries that employ the greatest number of IT occupations. While this list contains a broad list of industries, five main industries hire the most IT-related positions:

- Professional Scientific, and Technical Services
- State Government
- Management of Companies and Enterprises
- Local Government
- Administrative and Support Services

This list of major industries is somewhat intuitive, as these industries have substantial scale requiring IT support, database management, network support, and other IT-related services. Aside from the 20 industries listed in Table 10, an additional 159 industries in Santa Cruz County are estimated to have at least one IT worker.

*Table 10. Top 20 Non-Technology Industry Employers of IT Occupations<sup>44</sup>*

Industry	Number of IT workers in Industry (2019)
<i>Colleges, Universities, and Professional Schools (State Government)</i>	285
<i>Corporate, Subsidiary, and Regional Managing Offices</i>	232
<i>Local Government, Excluding Education and Hospitals</i>	96
<i>Office Administrative Services</i>	69
<i>Colleges, Universities, and Professional Schools (Local Government)</i>	55
<i>Direct Health and Medical Insurance Carriers</i>	52
<i>Research and Development in Biotechnology (except Nanobiotechnology)</i>	46
<i>General Medical and Surgical Hospitals</i>	36
<i>Environmental Consulting Services</i>	34
<i>Elementary and Secondary Schools (Local Government)</i>	32
<i>Engineering Services</i>	32
<i>Administrative Management and General Management Consulting Services</i>	32

<sup>43</sup> IT occupations include: Computer Occupations, All Other, Computer Systems Analysts, Computer Network Support Specialists, Computer User Support Specialists, Computer Network Architects, Computer Programmers, Computer Hardware Engineers, Computer and Information Systems Managers, Network and Computer Systems Administrators, Desktop Publishers, Information Security Analysts, Software Developers and Software Quality Assurance Analysts and Testers, Database Administrators and Architects, Computer and Information Research Scientists, Web Developers and Digital Interface

<sup>44</sup> Emsi 2020.3

<i>Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)</i>	30
<i>Commercial Banking</i>	25
<i>Guided Missile and Space Vehicle Manufacturing</i>	22
<i>Other Scientific and Technical Consulting Services</i>	21
<i>Crop Production</i>	20
<i>Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables</i>	19
<i>State Government, Excluding Education and Hospitals</i>	19
<i>Temporary Help Services</i>	19

**The fifteen most-common IT positions within non-technology industries account for 1,800 jobs in Santa Cruz County.** All of these occupations offer \$28 or more in median hourly earnings, and all but four are projected to increase in demand through 2024. However, education requirements present a barrier for some. Nearly all of these occupations typically require a Bachelor’s degree for entry-level positions, though the education requirements are somewhat lower for Computer User Support Specialists, Web Developers and Digital Designers, and Computer Network Support Specialists (Table 11).

Table 11. Top IT Occupations Within Non-Technology Industries

	2019 Jobs	% Change (2014 - 2019)	% Change (2019 - 2024)	Median Hourly Earnings	Typical Entry-Level Education
<b>Software Developers and Software Quality Assurance Analysts and Testers</b>	389	15%	9%	\$51.04	Bachelor's degree
<b>Computer User Support Specialists</b>	266	5%	4%	\$29.01	Some college, no degree
<b>Computer Occupations, All Other</b>	232	35%	1%	\$31.01	Bachelor's degree
<b>Computer and Information Systems Managers</b>	183	37%	5%	\$63.42	Bachelor's degree
<b>Computer Systems Analysts</b>	142	14%	6%	\$44.47	Bachelor's degree
<b>Network and Computer Systems Administrators</b>	141	(4%)	(0%)	\$38.46	Bachelor's degree
<b>Graphic Designers</b>	110	11%	6%	\$28.44	Bachelor's degree
<b>Web Developers and Digital Interface Designers</b>	73	38%	4%	\$48.14	Associate's degree
<b>Computer Network Support Specialists</b>	64	0%	5%	\$34.78	Associate's degree
<b>Database Administrators and Architects</b>	58	18%	10%	\$47.55	Bachelor's degree

<b>Computer Hardware Engineers</b>	56	(5%)	(3%)	\$66.03	Bachelor's degree
<b>Computer Programmers</b>	54	(8%)	(6%)	\$43.18	Bachelor's degree
<b>Computer Network Architects</b>	28	(3%)	4%	\$70.23	Bachelor's degree
<b>Information Security Analysts</b>	19	137%	27%	\$56.52	Bachelor's degree
<b>Data Scientists and Mathematical Science Occupations, All Other</b>	<10	37130%	(11%)	\$56.54	Bachelor's degree

## **Appendix A: Research Methodology**

Population and demographic figures at the zip code and County level were obtained from the U.S. Census Bureau, 2014-2019 American Community Survey 5-Year Estimates.

BW Research utilized EMSI for employment and regional education completion figures. EMSI updates data quarterly. The 2020.3 dataset was used for this report.

To capture the most up-to-date data available on the impacts of the COVID-19 pandemic, BW Research drew from a range of data sources. Employment and unemployment claims data were collected from the California Employment Development Department, and small business loan data retrieved from the U.S. Department of the Treasury. Another substantial source of COVID-19 impact data was retrieved from Opportunity Insights, a team of researchers at Harvard University led by Raj Chetty. The Opportunity Insights data is compiled from a range of private sources, which provide a near real-time picture of national and local economies. For more information about the Opportunity Insights data and methodology, please visit <https://www.tracktherecovery.org/>

## Appendix B: Definitions

### MOST AT-RISK INDUSTRY CLUSTERS

The most at-risk industry clusters are based on the assumption that business travel and activities at crowded--and often indoor—venues will be the last activities to return to pre-pandemic levels.

NAICS Code	Definition
512131	Motion Picture Theaters (except Drive-Ins)
561920	Convention and Trade Show Organizers
711110	Theater Companies and Dinner Theaters
711130	Musical Groups and Artists
711211	Sports Teams and Clubs
711212	Racetracks
711219	Other Spectator Sports
711310	Promoters of Performing Arts, Sports, and Similar Events with Facilities
711320	Promoters of Performing Arts, Sports, and Similar Events without Facilities
711510	Independent Artists, Writers, and Performers
721110	Hotels (except Casino Hotels) and Motels
721120	Casino Hotels
722310	Food Service Contractors
722320	Caterers
722330	Mobile Food Services