



**Sonoma County EDB
Economic Impacts from COVID-19 on Sonoma County Economy**

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Executive Summary

This study, commissioned by Sonoma County Economic Development Board (EDB), considers the economic impacts of COVID-19 on Sonoma County's economy through three scenarios from 2020 to 2023. Data at the industry-sector level by city and the unincorporated areas of the county are aggregated to county totals to provide detail as to the effects on specific industries and places. Different risks exist for different industries and municipalities in Sonoma County. The estimated impacts are driven by potential job losses for local employers, affecting local residents and the capacity of the local economy to generate income and tax revenues. The estimated economic impact for 2020 for lost jobs, lost gross regional product (value-added income) and state/local tax revenues are (in terms of planning, this study's data provide similar estimates for 2021, 2022 and 2023):

Economic Impact from COVID-19 in 2020: Jobs Lost, Reduced Incomes and Tax Revenues

Scenario	Jobs Lost	Income Lost	S/L Tax Revenue Lost
Better	20,700	\$1,539,700,000	\$328,596,000
Median	30,135	\$2,421,800,000	\$613,917,000
Worse	48,451	\$4,134,600,000	\$811,518,000

Note: The jobs estimates include self-employed and payroll workers

There will be lingering impacts from COVID-19 on the county economy as recession leads to recovery. Holding all other concerns constant, Sonoma County's economy should not expect to have recovered to 2019 year-end jobs levels before 2023 (median scenario has a return in 2024, hence the four-year economic impact). Residential employment levels and unemployment rates follow the county jobs counts at its employers (businesses, non-profits and government employers). Unfortunately, there is likely to be a net loss of employers in Sonoma County by 2023.

To 2023, the estimated cumulative impacts in 2020 dollars for the median recovery scenario are:

- Jobs Lost from Dec 2019 on annual average: 19,880 jobs below Dec 2019 level;
- Total Gross Regional Product (GRP) lost 2020-2023: \$6.157 Billion;
- Total State and Local Tax Revenues lost 2020-2023: \$1.685 Billion; and
- Estimated loss of employers by 2023 as -6.9 percent for the median scenario, with a range between -1.5 and -15.6 percent for the better and worse scenarios respectively.

The national economy has begun to recover as of August 2020; if that recovery continues and California follows, the better scenario becomes more likely. Interest rates are similar to their levels in 2009 based on aggressive Federal Reserve policy to stimulate growth. Spending by the federal government on households, employers and governments has been relatively large and ubiquitous. Job losses are reversing due to these policies meant to stimulate economic growth and the gradual lifting of social policy. Both California and Sonoma County have experienced unprecedented losses of jobs across all industries; while jobs are slowly returning, this recession's depth and breadth likely makes recovery a matter of years and not months.

Specific industries remain at risk as do some cities and unincorporated areas in Sonoma County under any of the three scenarios. Between March 2020 and July 2020, industries that have experienced job losses from the previous year of close to or more than 20% job losses included:

- Retail stores including auto sales (outside of grocery), affecting sales tax revenues;
- Hotels and motels (Accommodation), affecting transient occupancy tax (TOT) revenues ;

- Bars and Restaurants (affecting sales tax revenues);
- Other Services (salons, non-profits not associated with healthcare, fitness centers, etc.).

Healthcare employers, even with front-line responders standing by, saw job cuts because many procedures and visits were not possible due to physical distancing concerns. Manufacturing and construction, as of July 2020, are now growing from July 2019, and leading the county’s economic recovery. Farm jobs are also up from July 2019 as of July 2020.

At the city level, the percentage change in residents working remains below 10-percent lower than July 2019 levels as of July 2020 for:

- Cloverdale; Healdsburg; Sebastopol; Town of Sonoma; Windsor.

Home prices have moved very little, and in fact have increased as of July 2020 from July 2019 for many of Sonoma County’s cities; Healdsburg and the unincorporated areas of Sonoma County are down slightly from last year. Home prices falling and large numbers of businesses closing are the largest threats to local economic recovery from COVID-19’s social policies and negative economic impacts. Commercial real estate values and vacancy are likely to see more uncertainty under any scenario to 2023. Property taxes should follow current estimates if home prices remain stable.

EDB also ran weekly surveys of businesses in Sonoma County, asking questions about the effects of COVID-19 and the current recession on their businesses from a few different angles. Summary data are provided in presentations and available from EDB. The following conclusions can be drawn:

- Hours reduced across industries and municipalities:
 - Rohnert Park was the sole exception on average;
 - Unincorporated Sonoma County hurt marginally more initially than any of the cities.
- Revenues decreased across all industries and municipalities:
 - Unincorporated Sonoma County losses continued to be large relative to cities;
 - Windsor rebounded quicker on average, perhaps due to construction and grocery/essential retail and office opening more quickly there.

Looking forward, some challenges and opportunities for Sonoma County’s economy are as follows:

Challenges	Opportunities
<ul style="list-style-type: none"> • Retail, restaurant demand for workers; • Housing affordability for low-wage workers if fewer jobs in their industry remain after 2020; • Tourism employment opportunities, especially hotels, after 2020; • Breadth of businesses in retail, restaurant and personal services based on estimated business closures; • Goods resilience (food, beverage, medical supplies, etc.) if there are regional natural disasters during a time of increased COVID-19 caseloads. 	<ul style="list-style-type: none"> • Goods resilience: <ul style="list-style-type: none"> ○ More local manufacturing and farming to provide goods and food production breadth; ○ More storage and processing; ○ Regional distribution outlets to complement supra-regional channels; • Workforce development for permanently-displaced workers: <ul style="list-style-type: none"> ○ Manufacturing, especially in life sciences given regional cluster in place; ○ Construction; ○ STEM-Related fields; and ○ Healthcare.

1. Introduction

This study was commissioned by Sonoma County Economic Development Board (EDB). In February 2020, economists and politicians in the United States began to become concerned about the worldwide spread of COVID-19, a novel (new) coronavirus. Regional transmission came to parts of Europe after starting in Asia. Countries affected by the rising number of cases and the potential detriment to healthcare systems placed their countries and sometimes entire regions on social hibernation, where business and economic interactions slowed or stopped per normal. By March 2020, it became apparent that the United States would need to follow similar measures seen elsewhere to control possible overloading of healthcare systems and also reduce the number of potential deaths. By the end of March, much of the American, California and Sonoma County economies ceased to function normally because of social measures meant to constrain the spread of COVID-19 at the opportunity cost of reducing economic activity.

This time is different as to how recession began. Many of the same outcomes as previous recessions are occurring with jobs and incomes lost; jobs are slowly coming back as lower interest rates and government spending and more complete lifting of social policy is generating more hiring by employers and consumer demand. One of the key differences is that the foundations of the national, state and local economies were relatively strong close to the timing of the recession's cause. In theory, such strength can help recovery be quicker and more robust. Like other recessions, strong efficacy of fiscal and monetary policy to sustain workers through the tough, transition period and ultimately provide consumer, investor and employer confidence is needed for sustained recovery. That challenge awaits the remainder of 2020 and the next three to four years for the national and state economies.

Sonoma County's economy depends on regional, state and national economic recovery. As we see throughout this report, many of the important industries in Sonoma County depend on broader economic connections providing income and job opportunities for Sonoma County businesses and residents. The loss of commercial activity, lower pay levels, lost jobs, or a mix have reduced household income levels and spending. Some local businesses, especially those that rely on visitors coming to Sonoma County wineries, beaches and restaurants, will not survive this recession. City and county governments, providing services to nine cities and the unincorporated county, are going to face challenges of both rising expenses from increased services demand and falling government revenues in fiscal year 2020-21 at the minimum. Our economic impact analyses estimate those lost revenues.

This study has the following sections. Section 2 looks at the main economic effects of COVID-19 to August 2020 that reflect the initial effects and also a macroeconomic view on recovery from recession. Section 3 looks at key local effects as a way to build assumptions for the economic impact analyses. Those analyses are in Section 4, estimating job losses, loss of local income, and tax revenues to 2023 on an annual basis. Three scenarios are provided. Section 5 provides a summary of those scenarios, followed by references and appendices. It is important to see this study as one way to view the future, based on data available as of August 2020, as a preliminary look at an evolving situation.

2. The Macroeconomic Environment Before and After COVID-19

The economic effects of COVID-19 on Sonoma County can be summarized in five, categorical ways:

- Lost jobs;
- Lost businesses;
- Reduced revenues for surviving businesses;
- Reduced revenues and rising expenses for local government; and
- Price pressure on local housing and commercial real estate markets due to the above.

Global and national forecasts have provided some considerations as to what may assist the national economic recovery (or create continued struggles in some industries if recovery is slow) through the end of 2023:

1. Social policies to close businesses are no longer needed after December 2020;
2. Child care and in-person schooling becomes available again for working families as to not lead to marginal decisions between going back to work versus providing child care;
3. Restrictions are lifted that allow pre-COVID volumes (what we will call “normal” from here) of tourism, events (theaters or concerts), and other business opportunities where people gather;
4. No other major economic or social events that could disrupt economic recovery take place before mid-2021;
5. A vaccine emerges and generalizes in use before Q2 2021 **globally to minimize** the virus threat.

These assumptions combine to provide background for the scenario analyses and economic impact estimates in this report. Let’s now look at some macroeconomic variables as of August 2020.

The Macro Environment

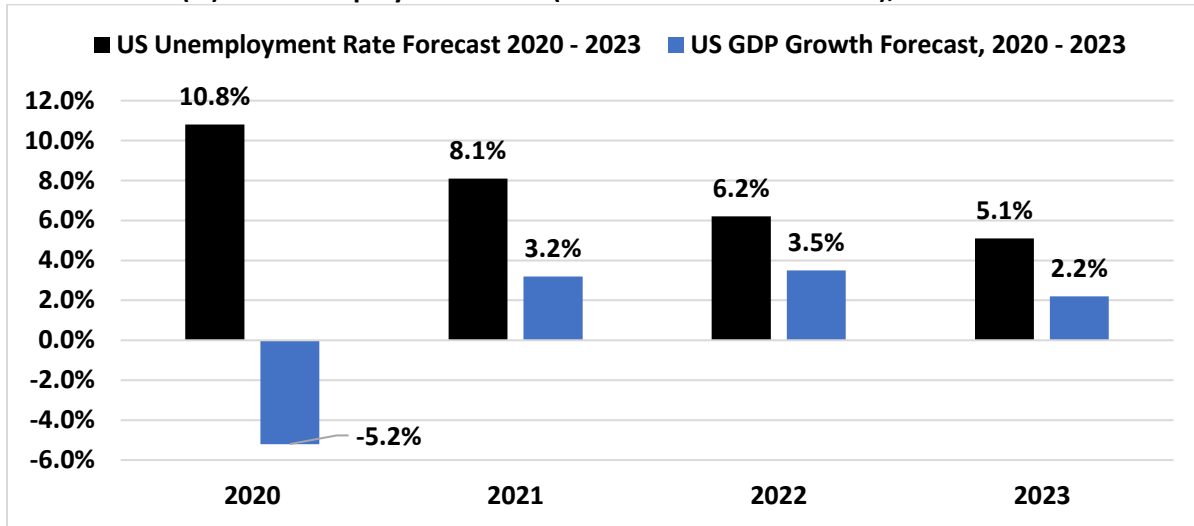
Policy makers are trying to avoid a deep recession and one that lasts a long time. While the American economy is historically resilient, the expectation of economic recovery where a quick fall in employment is matched by a quick return to January 2020 jobs levels does not have historic precedent.¹ To track the US economy’s evolution, the Philadelphia Federal Reserve Branch has a quarterly survey of 40 forecasters.² Figure 1’s data provide a four-year forecast of gross domestic product (GDP) growth on a seasonally-adjusted, annualized basis and also unemployment rates to 2023 as of August 2020 as a median (most likely) forecast. Full economic recovery is unlikely before 2024, given data available as of August 2020.

These current forecast data suggest a similar emergence from this recession as the Great Recession (2008-10), albeit not forecasting a housing market decline of similar magnitude. The forecast window used for our study is also from 2020 to 2023.

¹ See a recent paper by economist Hall and Kudlyak (2020) and a co-author on this issue. A simple overview is at voxeu.org.

² See <https://www.philadelphiafed.org/research-and-data/real-time-center/survey-of-professional-forecasters/> for more details.

Figure 1: US Economy Forecast Summary, Philadelphia Federal Reserve Branch, August 2020, GDP Growth Rates (%) and Unemployment Rates (Year-End % of Labor Force), 2020 to 2023



Sources: Philadelphia Federal Reserve Branch and EFA

The California Department of Finance (DOF) forecast for the May 2020 Revise of the Governor’s Budget have the same quarterly forecast window as our study (to 2023).³ As of July 2020, the unemployment rate in California initially peaked at a seasonally-adjusted rate of 16.4 percent and is 13.7 percent as of July 2020; for the US economy, the seasonally-adjusted unemployment rate peaked in April 2020 at 14.7 percent, 10.3 percent in July 2020 and 8.8 percent in August 2020. Lower interest rates, based on aggressive movements by the Federal Reserve in March 2020 after three interest rate cuts in 2019, helped restore investor confidence, and lay groundwork for general economic recovery as in past recessions.

Lower interest rates, consumers, businesses and housing markets

Lower interest rates help Sonoma County’s economy in four key ways:

- Reduce the cost of credit to households and increase consumer confidence;
- Reduce the cost of credit to businesses and increase business confidence;
- Provide investor confidence in equity markets due to the above; and
- Reduce the cost of borrowing to finance federal stimulus spending (the CARES Act, for example), likely providing more resources to states, counties and cities through 2020.⁴

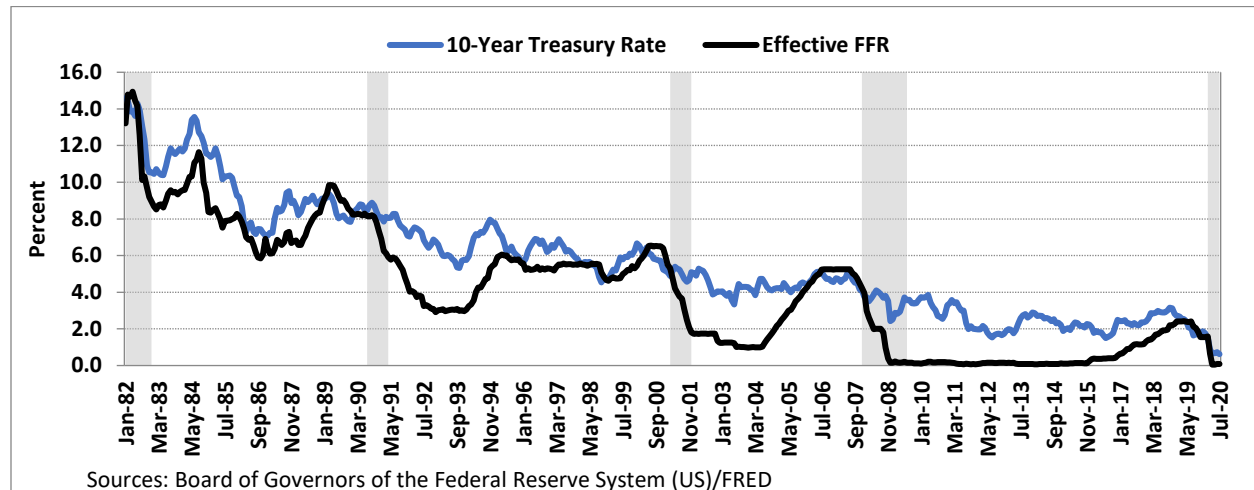
The Federal Reserve’s aggressive movements on policy rates (the “Effective Federal Funds Rate” is shown in Figure 2, the rate at which banks and credit unions trade money with each other based on the where the Federal Reserve sets a policy rate range) forced other interest rates down. The prime interest

³ See the [updated forecast](#) in May 2020 for the May Revise from the original forecast in January 2020 at California Department of Finance.

⁴ See the US Treasury for an overview of the CARES Act spending in April 2020: <https://home.treasury.gov/policy-issues/cares>

rate, the rate that business loans begin for the least-risky business borrowers, is tied directly to the Federal Funds Rate (3.25 percent as of August 2020). The interest rate on 10-year Treasury debt, which affects how mortgage markets determine rates, has fallen to historic lows also as of August 2020. Monetary policy is now doing similar work as in late 2008 and 2009 with the same goals of providing economic recovery fuel. Lower interest rates also help reduce the cost of federal stimulus spending as the government expands our national debt's levels.

Figure 2: Effective Federal Funds Rate and 10-Year Treasury Rate, 1982 – July 2020, Percent, Shaded Areas are Recessions



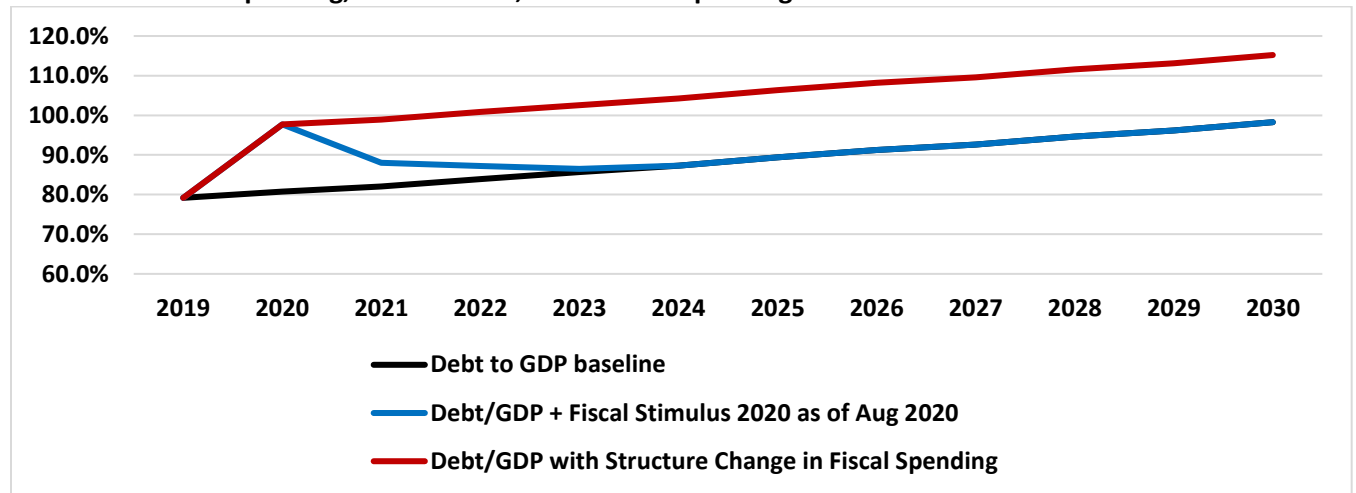
The year 2020 has seen historic amounts of federal spending activity. As in 2009 with the American Recovery and Reinvestment Act (ARRA) stimulus, acronyms such as PPP and EIDL became part of our daily news feeds. Many households, under a certain income level and in many cases with children or both, received direct transfer payments as part of the initial federal stimulus spending in 2020. Further, unemployment benefits were augmented and extended to dates past normal to help both households and businesses. For businesses specifically (but indirectly for workers), the Paycheck Protection Plan (PPP) lending through the Small Business Administration (SBA) came with the promise of becoming a grant (basically a tax refund) to a business that meets specific criteria of having workers remain in their current jobs.⁵ Economic Injury Disaster Loan (EIDL) funds were also made available, similar to natural disaster lending supporting businesses with good terms and lower interest rates.

For Sonoma County as of June 2020, there were 7,757 PPP loans made under \$150,000 for a total of just over \$298 million for local employers; the average loan size was \$38,433. If all this is converted to grants, one of the promises of the PPP program, it is similar to a \$298 million injection of fiscal spending coming to 7,757 businesses in Sonoma County. In Sonoma County, there were also 1,408 loans larger than \$150,000, 89 percent of which were below \$1 million. The federal stimulus' ultimate outcomes are to create a multiplier effect on the national economy, where that spending going directly to businesses and then spent on workers and vendors becomes even more spending. This support leads to

⁵ See [sba.gov/funding-programs/loans/coronavirus-relief-options/paycheck-protection-program](https://www.sba.gov/funding-programs/loans/coronavirus-relief-options/paycheck-protection-program) for SBA's website on PPP loans. Sonoma County's total PPP loans over \$150,000 were not initially reported by the US Treasury.

business and worker spending can generate additional tax revenues at all levels of government. Figure 3 shows a forecast by the Congressional Budget Office (CBO), revised in July 2020 from their January 2020 estimates of national debt levels as a percentage of gross domestic product (GDP). As the percentage rises toward 100 percent, there are voluminous and decades-long debates about how financial markets may react to rising debt levels beyond that threshold without resolution. Spending in 2020 has accelerated the American economy's path toward that number. As of August 2020, the timing of this writing, components of additional fiscal stimulus were still being debated in the US Congress.

Figure 3: CBO Forecast of National Debt to GDP, 2020 Pre-COVID, With May 2020 Stimulus, and Structural Shift in Spending, 2020 to 2030, 2019 Actual Spending



Source: Congressional Budget Office, July 2020 report and EFA

Summary of Broader Economic Conditions and Importance for Sonoma County

As of August 2020, the economic fallout from COVID-19 and the social policies that restricted the national and state economy is still unfolding. There are four major effects:

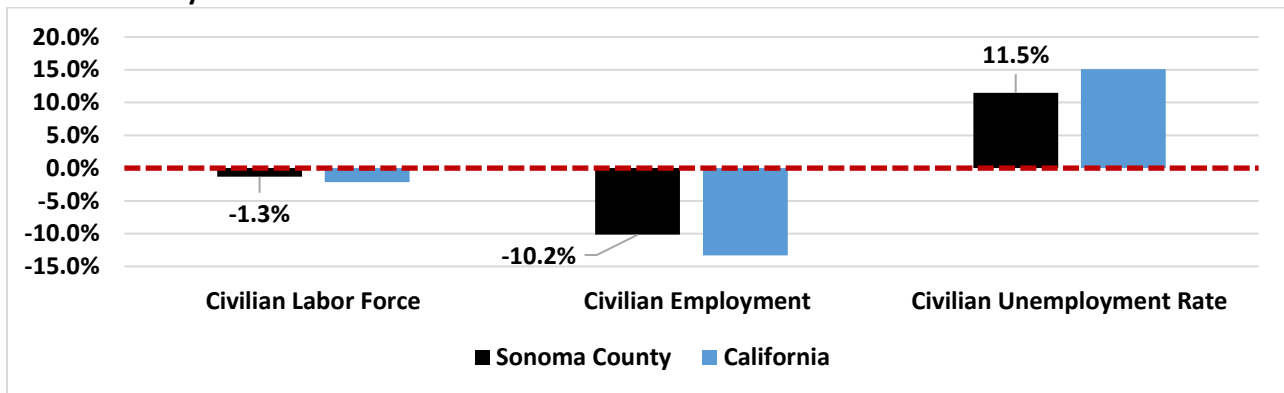
- Job losses are likely to be slow to come back because of business closures and consumer confidence rising slowly due to continued economic uncertainty;
- Business closures reduce the economy's capacity to produce personal incomes, jobs, spending and taxable sales;
- Interest rates are back at 2009 levels (much like the end of the Great Recession), and fiscal spending has generated more business and consumer spending and recovery momentum as of August 2020; and
- COVID-19 caseloads and spread are going to continue to dictate specific industry restraints until below public-health determined limits, which have multiplicative effects on other industries that may not face restrictions due to jobs and spending losses during the restriction period.

While equity markets (the S&P 500 as a specific indicator) have shown a strong recovery after initial sell-offs and lost value, regional housing markets have been resilient to date in 2020 and are performing close to original predictions, if not exceeding expectations slightly. Let's now look at data describing Sonoma County in the initial stages of COVID-19.

3. Initial Effects of COVID-19: Sonoma County Industries and Communities

Figure 4 shows the local labor market concerning local residents (versus those that work at employers in Sonoma County, which include some amount of county residents as well): labor force; employment levels; unemployment levels; and the unemployment rate.

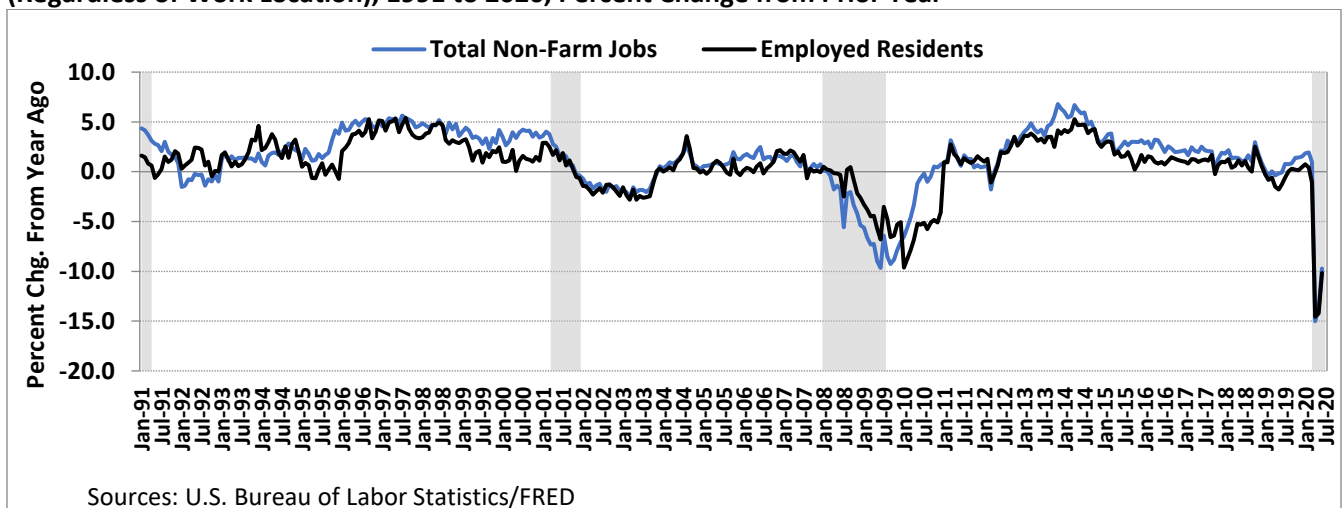
Figure 4: Residential Labor Force Data, Percent (%) Change in Selected Data, July 2019 –July 2020, Sonoma County and California



Sources: California EDD and EFA

Job losses mean lower incomes, further feeding an economic downturn. This shifts household budgets to staying in a home and away from retail, restaurant, travel, and other personal services demand. The shift down in household income can also reduce demand locally such that businesses perhaps not hurt initially by the shock to spending become affected in its secondary and tertiary rounds. Also, communities not affected by the initial change in spending may be affected in those later rounds of change. This is why the economic impacts are important to consider in both directions: we are all connected economically. Figure 5 shows the connection between employed residents and jobs in Sonoma County outside of farming from January 1991 to July 2020.

Figure 5: Jobs in Sonoma County, Non-Farm (Employed in Sonoma County) and Employed Residents (Regardless of Work Location), 1991 to 2020, Percent Change from Prior Year



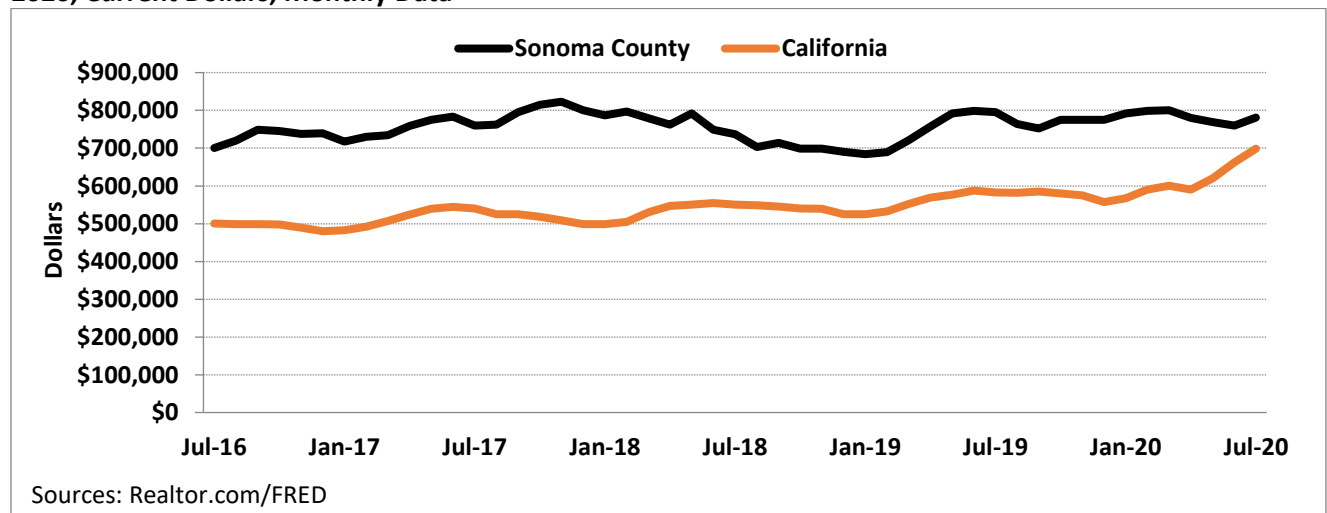
Sources: U.S. Bureau of Labor Statistics/FRED

Housing and Commercial Real Estate

What should concern elected officials, businesses and residents of Sonoma County is a potential shock to housing. The Great Recession (2008 to 2010 in Sonoma County) affected almost every household by either job loss, reduced wealth in their homes, rising rents, or some combination. Rental vacancy was reduced during between 2008 to 2011 in Sonoma County. Rental homes being available help homeowners sell a home and not have to leave the area if not purchasing a new home immediately. By filling that rental vacancy, rents increase, making rental prices more expensive for those in rental before the crisis. A big question for this recession is: will the woes of that period return?

The listing prices when homes are offered for sale are data to watch in terms of real estate agent and owner confidence. Figure 6 shows the median listing prices for homes for sale from July 2016 to July 2020 for Sonoma County and California, where rising listing prices suggest more housing market confidence in 2020; notice the upward movement in 2020 as of July 2020.

Figure 6: Median Listing Prices, Homes for Sales, Single-Family and Condominiums, July 2016 to July 2020, Current Dollars, Monthly Data



For commercial real estate, vacancy rates and transactions depend on how workers come back to the office for work (or not) and if classic “brick-and-mortar” businesses are lost and their market absorbed by a warehousing to home-delivery model. Forecasts for commercial real estate outcomes likely depend on how local jobs return by industry and the type of commercial property in question. Notice the data in Figure 7 are unsure about the office submarket for now. There may be some structural changes in the number of businesses that remain as a result of this crisis. The subsequent change in the labor market may or may not be tied to physical space. There are multiple categories of commercial spaces, and each may have slightly different outcomes:

- Office;
- Industrial;
- Retail;

- R&D/Flex; and
- Apartments for Rent (Multifamily).

It is in the residential real estate market that local cities and the County of Sonoma may have the most concern given the experience of the Great Recession (2008 to 2010) on property tax rolls and general revenues to the County. Avoiding a downturn in the housing market is a critical component to both sustaining recovery but also not creating additional uncertainty for housing developers and construction workers.

Figure 7: Office Space Market, All Office, 2020 Q2 Comparisons

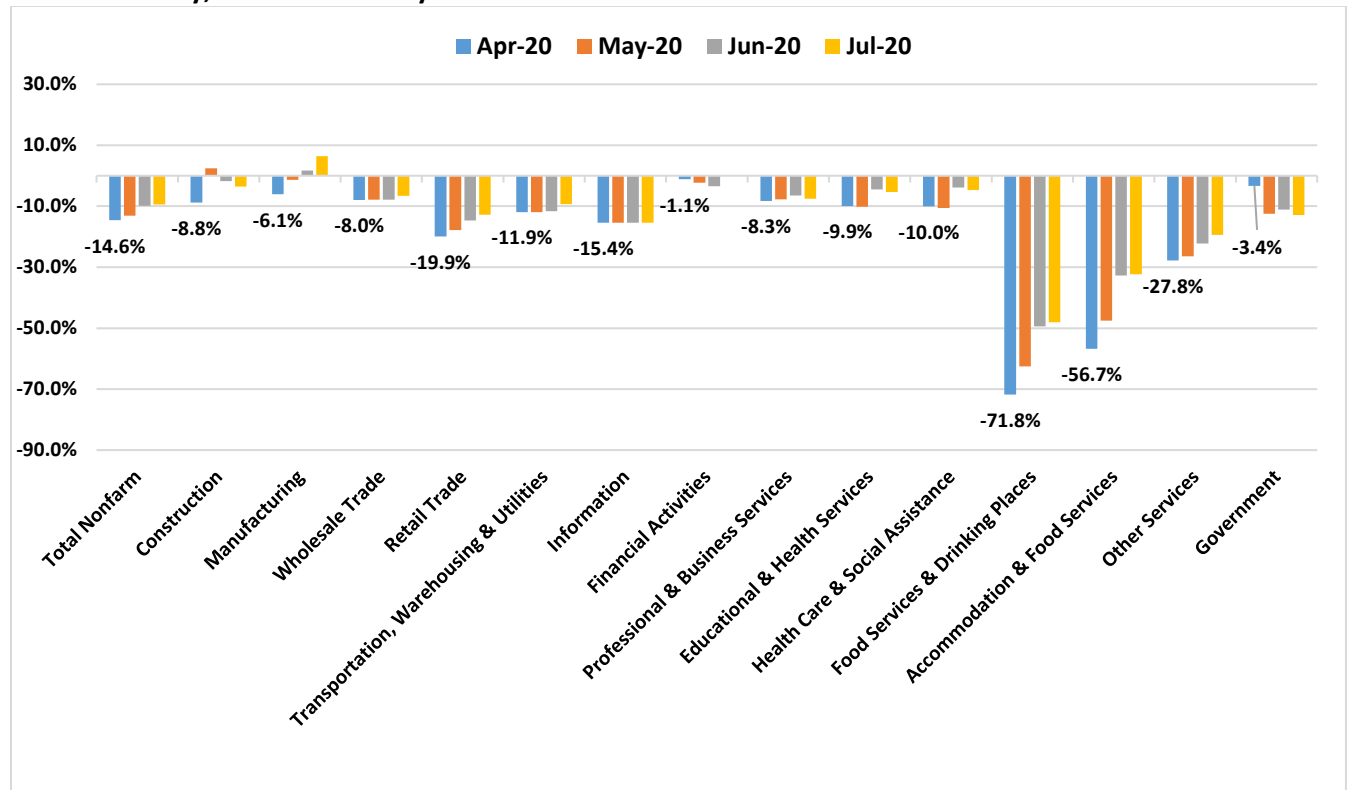
MARKET SUMMARY				
	Current Quarter	Prior Quarter	Year Ago Period	12 Month Forecast
Total Inventory	7.2M SF	7.2M SF	8.0M	↔
Vacancy Rate	13.5%	12.5%	11.9%	↔
Quarterly Net Absorption	-147K SF	18K SF	-39.0K	↔
Direct FS Asking Rent	\$1.91/SF	\$1.90/SF	\$1.89/SF	↔
Under Construction	?	?	881,840	↑
Deliveries	?	?	0	↔

Source: Newmark Knight Frank Commercial

Jobs

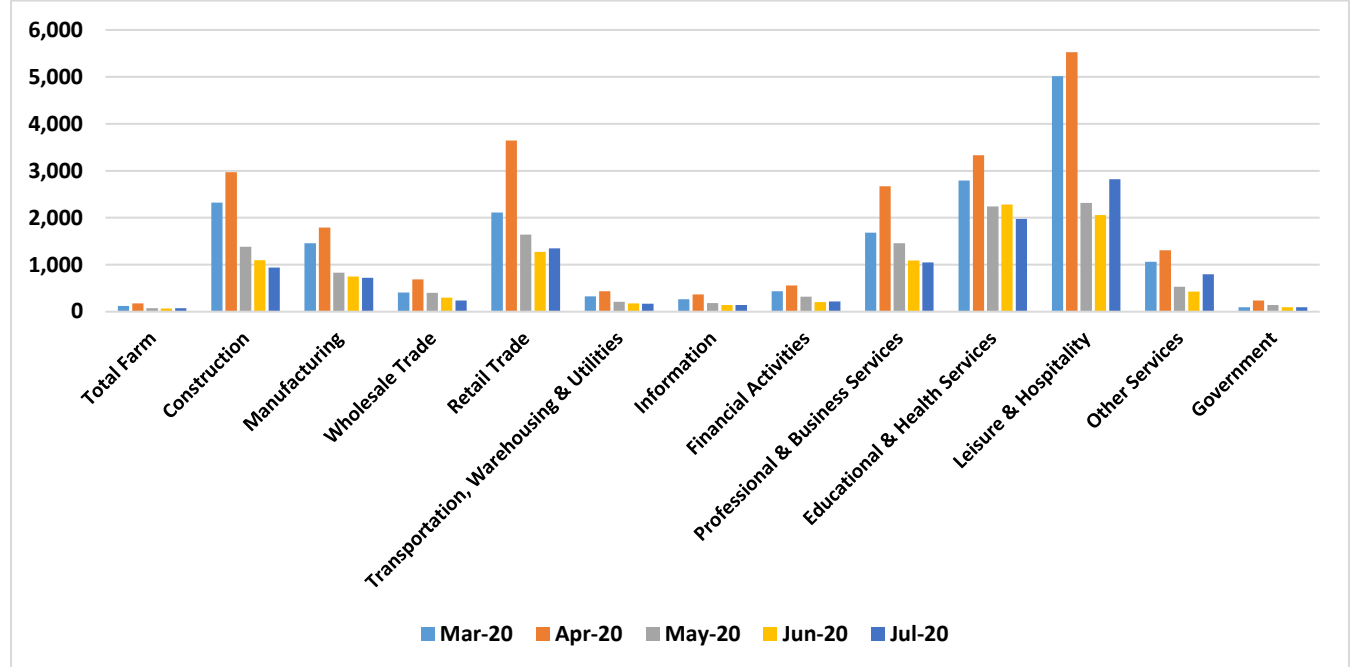
Figure 8 shows the percentage of jobs lost from the same month in 2019, helping to estimate the depth of loss by industry to inform our forecasts later. Figure 9 shows a forward-looking variable in initial claims for unemployment insurance. These data, as they rise, act as a portent to rising unemployment rates or a slowdown in the economy and the fall in unemployment rates from recent high levels.

Figure 8: Industry Level Changes in Jobs, Percent Change from Prior Year, April 2020 to July 2020, Sonoma County, Selected Industry Sectors



Sources: California EDD and EFA

Figure 9: Initial Claims for Unemployment by Industry Sector (NAICS-2), March 2020 to July 2020, Number of Workers (data available as of August 2020)



Sources: California EDD and EFA

Summary as of August 2020

- 10.2 percent of residents that had jobs in July 2019 are not working in July 2020;
- The unemployment rate for Sonoma County is 11.5 percent in July 2020, approximately two (2) percentage points lower than the state on average, not seasonally adjusted;
- Housing prices have grown since 2020 started, and COVID-19 has not shown any direct effects on housing markets as of August 2020;
 - Regional fires in August 2020 may change markets, confounding the COVID-19 effects on housing regionally;
- Commercial real estate is at risk, with office and retail markets experiencing rising vacancy rates and uncertain futures; and
- As of July 2020, reversals of job losses by industry have begun, signs of economic recovery.

Risks to Specific Industries in Sonoma County

Some of the assumptions we need to make in forecasting Sonoma County’s economic recovery at the industry level include how doing business in each industry sector may change as a result of COVID-19. Most industries face increases in the costs of doing business, coupled with uncertain future revenues. Specific changes in use of spaces and expenses are forming:

- **More frequent and costly maintenance, including cleaning;**
- **Shifts in use and configuration of commercial real estate;**
- **Need to provide personal protection equipment (PPE) to employees;**
- **Needs to manage employees at remote locations (home);**

- **General employee resistance to coming back to work (kids at home with limited to no daycare options) and concerns over infections.**

We now provide some details where possible by industry as a way to further consider assumptions for the forecasts and economic impact estimates below. We start with hospitality industries: hotel and events; followed by restaurants.

Hotels and Events

Figure 10 shows data from July 2020 comparing hotel occupancy rates and subsequent revenue per available room or RevPAR for Sonoma County and other places throughout California. These data are important with respect to recovery in that when below the previous year, the lower revenues and increased costs of conforming to public health regulations act as a double problem for maintaining staffing levels and also re-hiring over time. For Sonoma County’s cities and the county government overall, transient occupancy tax (TOT) revenues that come directly from overnight stays suffer in proportional to the movement of RevPAR data. Reduced ability to have events where people gather is yet another factor in hotel stays, especially weddings at county event facilities.

Figure 10: Comparisons of Occupancy Rates (Occ Rate) and Revenue per Available Room (RevPAR), as of August 2020 compared to August 2019, Sonoma County and Selected Areas

	Occ Rate	Occ Rate	RevPAR	RevPAR
Place	2020	2019	2020	2019
Palm Springs, CA	40.5%	48.4%	\$48	\$56
Napa County, CA	47.8%	84.6%	\$164	\$333
Monterey County, CA	63.6%	90.2%	\$126	\$356
Sonoma County, CA	63.3%	82.5%	\$91	\$167
South Lake Tahoe, CA	64.8%	76.5%	\$90	\$107

Sources: Smith Travel Research (data provided from various tourism organizations regionally) and EFA

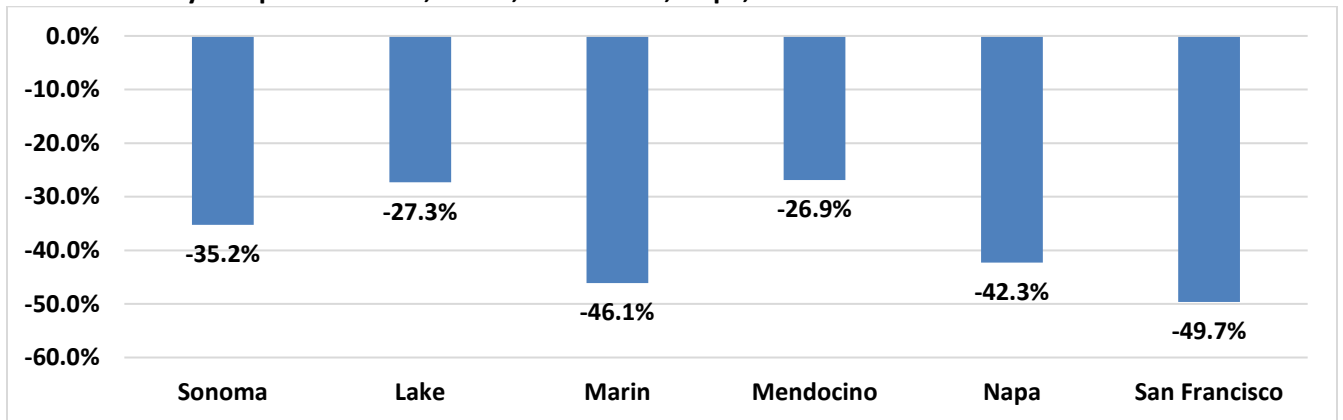
Restaurants: Related and Not Related to Visitors

Restaurants may have one of the tougher roads out of the COVID-19 downturn, especially due to their link to visitors coming to Sonoma County. The basic restaurant business model is one of utilizing tables in specific, weather-indifferent areas to maximize the revenue of patrons. Part of that is making the tables close enough to allow for room while eating while not making each table its own suite. Then the issue is the number of times the tables are used individually per night, the so-called “turns”. The ability of the restaurant to up-sell diners and also have a certain number of turns generates the revenue side of the restaurant model. The shelter-in-place orders eliminated that model in some cases or converted restaurants to a take-away model where the tables are not utilized and waiting for the social policy lift or there is no revenue at all.

From a market-size standpoint, many of Sonoma County’s restaurants depend on some flow of visitors to help increase revenue opportunities. If the summer 2020 tourism season is slower and dramatically so in Sonoma County, that adds risk to the restaurant industry’s structure locally and the number of jobs that

may return. Different from other recessions, there may be medium- to long-term changes to cost structure and the configuration of restaurants that may change the local landscape; we should also expect change in terms of innovation and new restaurant models to address consumers wanting to have dining-out options with fewer brick-and-mortar restaurants. Figure 11 shows the evolution of restaurant businesses since 2019 in Sonoma County and California based on the number per 1,000 residents.

Figure 11: Restaurants and Bars, Taxable Sales Comparisons, Percentage Change, 2019 Q1 to 2020 Q1, Sonoma County compared to Lake, Marin, Mendocino, Napa, and San Francisco Counties.



Sources: [California Department of Tax and Fee Administration](#), EFA

Restaurants are one complement to visitor spending, retail is another.

Retail: Related and Not Related to Visitors

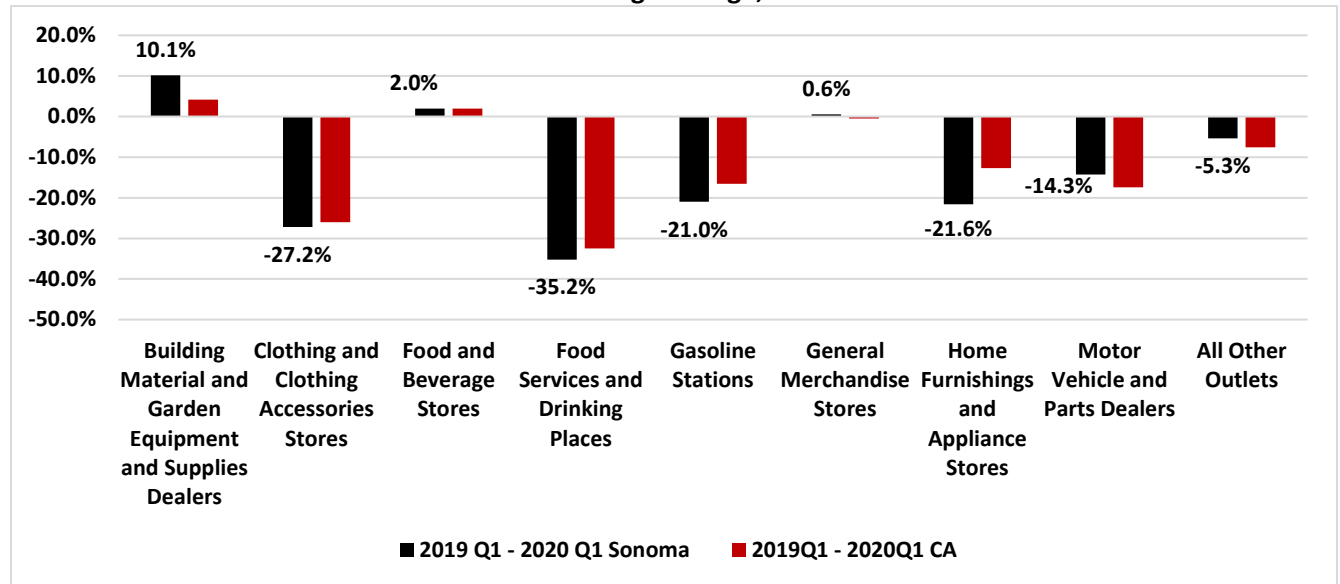
Not all retailers have suffered during the initial stages of the COVID-19 recession, as some were declared essential versus non-essential. Essential retailers included: grocery/food stores, building materials, auto dealerships. Retail otherwise was very limited due to public health orders. The reduction in retail sales that came from these temporary closures had effects on retail jobs starting in March 2020. In April 2020, the real harm in retail became apparent and has affected jobs to July 2020 (the latest data).

Job losses in retail may be among the most difficult to re-hire due to a reduced number of local retailers remaining and shifts to more online shopping by force. Data for how much online retail sales increased since mid-March 2020 as of August 2020 for Sonoma County are still emerging. As online sales rise, local retailers face rising costs of doing business to conform to public health regulations and growing competition simultaneously and basically overnight from February 2020. As retail re-opens slowly in August and September 2020, consumer demand may remain at lower levels or shifted to online not to return; the medium- to long-term viability of local retail remains in question for many merchants.

Visitors not coming to Sonoma County at the expected volume for spring and summer 2020 also shifted forecasts for local retail demand. Visitors to Sonoma County spend on hotel rooms, restaurant meals, an array of retail items when they come, increasing overall retail sales for Sonoma County. While the visitor counts are not followed consistently by any entity, we can use overall data on taxable sales and

hotel stays to consider what may be the spending gaps in 2020, assuming some percentage reduction in visitors from 2019. Taxable sales are connected to sales tax revenues from retail. Even in food stores, taxable sales take place. Figure 12 provides comparisons across major sales tax categories and the beginning of COVID-19's effects on retail and restaurant businesses.

Figure 12: Taxable Sales Comparisons, Sonoma County and California, 2019 Q1 to 2020 Q1, Restaurants and bars and Selected Retail. Percentage Change, Current Dollars



Source: [California Department of Fee and Tax Administration](https://www.sfta.ca.gov/) and EFA

Similar to TOT revenues for the local municipalities, these percentage changes are directly related to downturns in sales tax revenues as compared to previous time periods. On a per-capita basis, Sonoma County ranked 10th and 12th in 2019 and 2020 respectively in terms of taxable sales per capita of the 58 counties in California; Napa County was 3rd highest and 4th highest out of California's 58 counties over the same time, suggesting some dependence on the flow of outsiders to drive taxable sales. Marin County, with almost double the median household income as Sonoma County, was 9th and 11th highest.

Agriculture, including cannabis

Agriculture, based on its supply-chain links, has a mixed outlook as COVID-19 shelter in place orders end and may be among the more complex industries to consider in terms of the next two years. The mix of effects depends on how restaurants open and how competitive supply chains become for goods if the final stop on that chain is smaller than before. The reverberations from retail back to farmer affects crop farmers and livestock ranchers alike, where the specific industries depend on what types of restaurants and grocery retail patterns emerge as residents and businesses slowly get back to work. For example, with more people working from home, lunch-time restaurant meals may see lower demand and a shift to home delivery or grocery. On a positive note, the July 2020 labor-market data show Sonoma County farm jobs are up from July 2019, suggesting recovery has started.

However, some general themes exist for farming and ranching in Sonoma County as COVID-19 has had mixed effects;

- For local grocery, farmer's markets and community-supported agriculture, job and income losses seem to be small so far;⁶
- Shifts in restaurant demand has trickled back to local farmers and wineries through lower distributor demand and direct-to-restaurant sales;
- A lack of local processing, for both livestock and crops, underscores regional farmers' vulnerability to supply-chain problems nationally and internationally; and
- Schools, junior colleges, and universities not having students back on campus reduce the amount of restaurant and quasi-restaurant meals being served, reducing local food production demand.

For livestock and dairy farmers, a lack of local processing, warehousing and distribution created shortages in local grocery in some cases and wastage of products. These should also be seen as potential opportunities as the local economy recovers from COVID-19 to help farmers. Considering some reductions in regulation to allow more local and mobile processing likely allows local farmers to produce more, remain viable for a longer period of time, and also help on local food resiliency.

For wineries and vineyards, supply-chain issues exist throughout California, which represents about 90 percent of national wine production.⁷ Concerns include:

- Labor availability problems due to labor-force shifts to other areas and continued health concerns;
- Undocumented workers that may be utilized in vineyard and winery work that have left the local area to find work elsewhere once shelter-in-place began;
- Rising revenues for wine sold through direct-to-consumer (DTC) channels may not last, affecting plans for harvest yields in 2020 affecting vineyard-owner revenues; and
- Costs of doing business to rise for wineries across harvesting, bottling and tasting room units.

For cannabis farming, there are three, major challenges:

- Like vineyards, labor availability given the local labor market opportunities otherwise, may be difficult to find even with relatively-high unemployment rates;
- Cannabis demand may be rising while the costs of farming and compliance continue to rise; and
- Due to rising workplace compliance costs and rising demand, more production may go underground, short of nationalization.

Healthcare providers have seen a mix of results, due to some procedures and visits not being available due to public health decrees alongside of rising acute care planning and needs based on COVID-19.

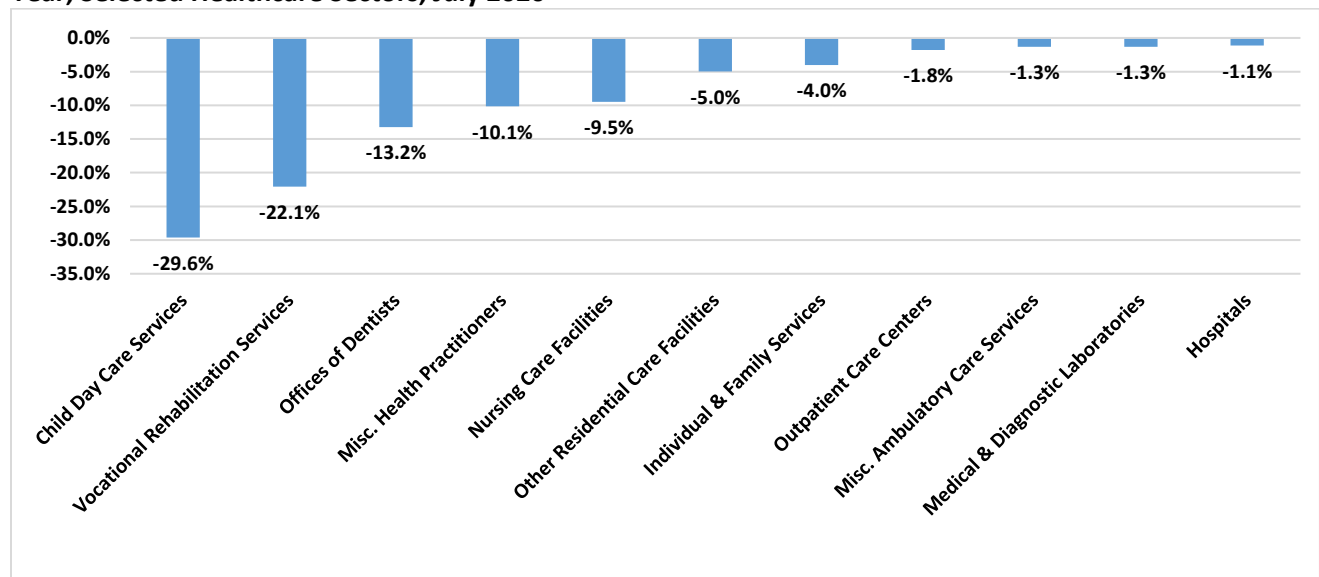
⁶ EFA is engaged with Sonoma County Ag and Open Space to look more deeply at the economic effects of COVID-19 on Sonoma County food producers. Interviews were done with specific food producers across crops and livestock to provide perspective. That report is forthcoming in 2020.

⁷ The Wine Institute provided initial estimate of losses for the US Wine Industry in late April 2020: <https://wineinstitute.org/press-releases/us-wine-losses-from-covid-19-could-reach-5-94-billion/>.

Healthcare and Public Health

While parts of the healthcare system prepared to assist with COVID-19 cases and preparedness, other parts of the healthcare system were put on hold similar to personal services otherwise due to proximity and needs to take on safety protocols. Initial jobs data suggest net, local job losses in healthcare. Similar to natural disasters otherwise, we should see most healthcare providers and related industries emerge from this crisis well. Some of this is continued demographic needs; older populations tend to demand more healthcare services. Second, there is likely to be an initial surge in demand as those that can afford (or are insured) to seek regular medical and dental maintenance will want to go soon after it is available again. Figure 13 is the July 2020 data for California across selected health-care industries that experiences the most, negative changes in jobs.

Figure 13: Healthcare and Social Assistance Industry Jobs in California, Percent Change from Previous Year, Selected Healthcare Sectors, July 2020



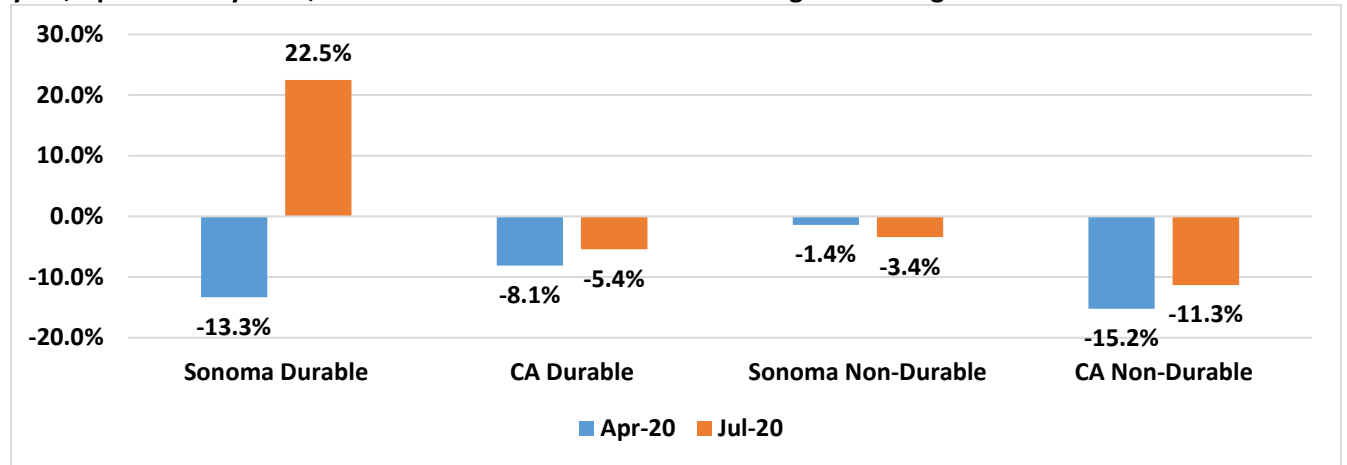
Sources: California EDD and EFA

Manufacturing

Sonoma County has a wide array of manufacturing taking place, some of it linked to local supply chains, and others to global markets. Below are data on the percentage change in jobs for April 2020 and July 2020 (the latest data) versus the same month in 2019. Manufacturing is generally split into two major subgroups. Figure 14 shows durable (heavy and more advanced manufacturing of equipment and other technology, such as life-sciences products) versus non-durable (food, beverages and clothing primarily). Manufacturing wages are generally higher than local averages (as 2019 ended, Sonoma County employers in manufacturing paid approximately \$1,808 per week on average versus \$1,201 for the county overall, a 50.5 percent difference for manufacturing). Figure 14 shows a strong bounce back in

durable manufacturing for Sonoma County versus the state overall. Non-durable manufacturing jobs are performing better (in terms of percentage job lost) than the state on average of July 2020.⁸

Figure 14: Manufacturing Jobs in Sonoma County and California, Percentage Change from the Previous year, April and July 2020, Durable vs Non-Durable Manufacturing Jobs Changes



Sources: California EDD and EFA

Construction

The Great Recession (2008 to 2010) was a time of change for construction industries in many ways. Figure 15 compares California and Sonoma County permits to build new housing units, and generally three concerns defined the 2006 to 2017 period in Sonoma County housing and construction:

- Reduction in jobs in construction, mainly in-home projects, that lasted nearly a decade;
- Housing markets did not recover from large declines 2008 until 2015, though construction jobs started to come back in 2013 due to increased renovation demand; and
- Housing and rental vacancies moved to very low levels because of rising populations against available housing stock.

The 2017 wildfires destroyed almost 9,000 structures in Sonoma County. Construction jobs and incomes in Sonoma County was provided a dubious boost due to these losses being partially replaced. Rebuilding continues in the county, but building permits for new housing rose much more quickly in 2018 and 2019 versus the trend after the Great Recession. While building permits for new houses have fallen from recent high levels in Sonoma County, that change was expected after the 2017 fires rebuilding effects began to fade; the early months of COVID-19 effects do show a slowdown in housing permits in Sonoma County similar to the state on average.⁹

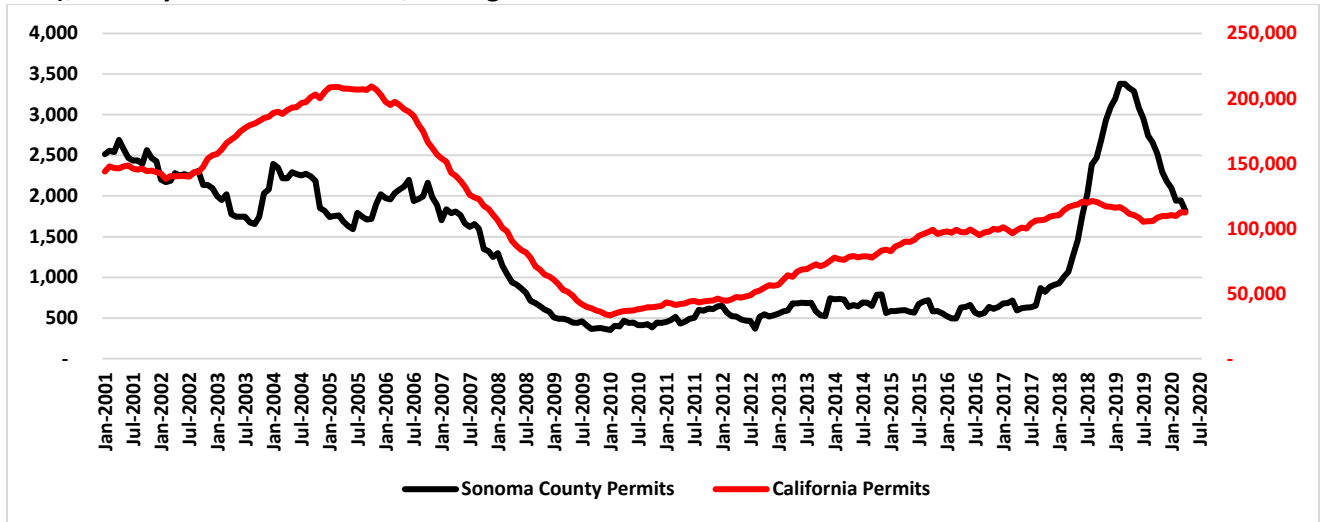
Construction jobs have shown less of a contraction than other industries (see Figures 8 and 9). Per the July 2020, labor-market data for Sonoma County, construction jobs are above their July 2019 levels, suggesting construction has fared better than other industries in the early stages of this recession. The

⁸ See Quarterly Census of Employment and Wages for California, California EDD, June 2020.

⁹ See Census Bureau Building Permits Survey (www.census.gov/construction/bps) for more.

trades provide jobs that are naturally, physically distant and outside in some cases. Lower interest rates and projects already funded likely support a quick return to work in construction through summer and fall 2020 in Sonoma County. Figure 15 shows permits data for new homes as a 12-month rolling sum from January 2001 to June 2020 for Sonoma County and the State of California.

Figure 15: Building Permits for New Housing Units, Sonoma County (Left Axis), and California (Right Axis), January 2001 to June 2020, Rolling 12-month Sum



Sources: Census Bureau Building Permits Survey (www.census.gov/construction/bps) and EFA

Other Services and Non-Profits outside of Healthcare/Social Assistance

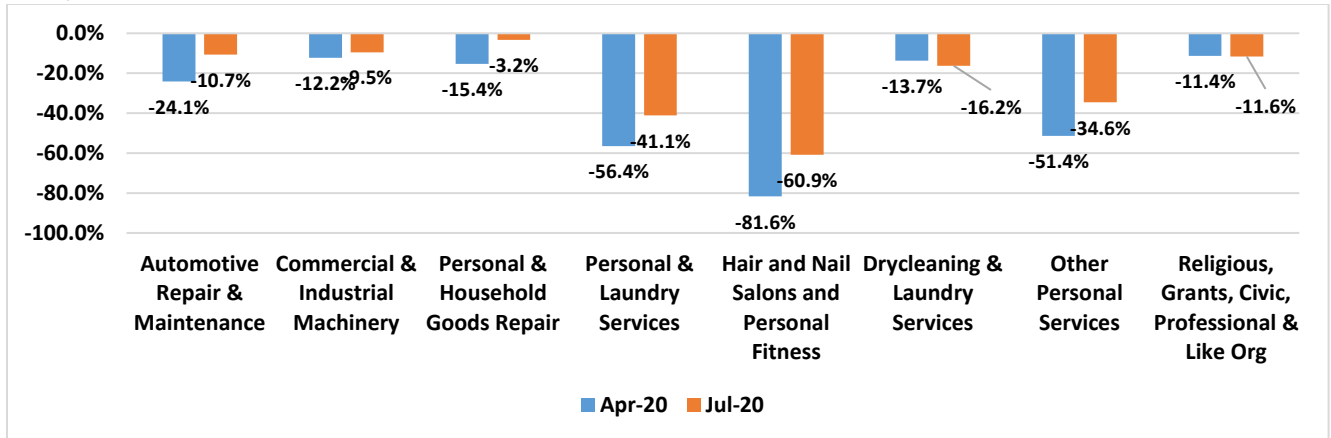
As of July 2020, approximately 3.3 percent of the jobs at Sonoma County employers were in an array of industries called “Other Services”. These employers were among the largest jobs losses in terms of percentage change in Sonoma County, California and the United States. Included in these jobs are hair salons, nail salons, fitness centers, business and civic associations, as well as religious organizations. Similar to healthcare and social assistance, employment data for Sonoma County is not available month-by-month for these subindustries; the state-level data is available and shown in Figure 16 comparing April 2020 and July 2020 (the latest data available as of this writing) to the previous year. Our local non-profit organizations provide a large amount of services for our lower-income workers and communities of need. During recessions, reductions of philanthropy or shifts of giving to specific non-profits and missions or both versus general giving compromise overall resources available.

Government

The May 2020 revise of the State of California budget for fiscal year 2020-21 showed the beginnings of a painful one to two years for state, county and city governments. All these municipal governments are tied together by property and sales tax measures and legislation, as well as the reallocation of personal income and capital gains tax revenues that come to the state and then are used for an array of services throughout the state. As of August 2020, government personnel cuts in Sonoma County have started (according to California EDD, there are -12.9 percent fewer jobs at all levels of government as of July 2020 versus July 2019 in Sonoma County; statewide that figure is -6.7 percent). There will likely be more

voluntary or involuntary reductions in overall, full-time equivalent government employees. We will see in Section 4 estimated fiscal impacts of COVID-19 on state and local tax revenues. These changes can affect the ability of Sonoma County’s cities to provide services across an array of areas.

Figure 16: Other Services Jobs in California, Percentage Change from the Previous Year, April and July 2020, Selected Sectors



Sources: California EDD and EFA

Summary on Industries Effects

Figure 17 provides the most recent data available as of August 2020, summarizing the considerations above in terms of industry-sector riskiness to help determine how the forecast scenarios below show certain industries recovering faster than others. Figure 17 also provides, a “location quotient” or LQ is used to provide a snapshot of relative industry risk. Normally, LQs (and sister statistic “Shift Share”) are used by economic development professionals to focus resources on “clusters” of businesses that may have a natural reason to stay and grow in an area.¹⁰ Industry LQs are ratios of an industry’s local employment level to the total, local (Sonoma County) employment level as the numerator; the denominator is the same ratio for a larger comparative area (for example, employment in retail for California overall divided by total industry employment for California overall). A LQ above or below 1.0 is not necessarily good or bad, it is a way to measure the relative risk of engaging economic development efforts around industries that have concentrated businesses and employment. New firms may be attracted and retained by similar employers locally that form a regional cluster of potential employees as well.

When jobs are lost, especially in a general way as with COVID-19, LQs greater than 1.0 can also represent local risk in industries of concentrated job losses versus other parts of the state. For our purposes, we will use the LQ as a way to suggest more risk of a longer recovery period than other industries, especially if there are also larger, relative job losses than other local industries. For now, the industry-level effects of COVID-19 on Sonoma County’s economy are following state and national trends. Because job losses may linger, the Sonoma County economy may more slowly climb back to where it

¹⁰ See https://www.economicmodeling.com/wp-content/uploads/2007/10/emsi_understandingshiftshare.pdf for more on this topic.

started 2020 versus the state on average because important industries lost a larger number of jobs. For example, construction slowly came back after the Great Recession, and it took the Sonoma County economy five years to get back to 2008 Q4 employment levels (it was not until 2013 Q4 that there was a return), and our scenarios below have four years of recovery as the median outcome. Recovery may be quicker, it may be longer, and much depends on how local residents and local workers get back to work in specific industries.

Figure 17: Jobs in July 2019 and July 2020 and Relative Risk of Recovery, Sonoma County

Industry	Jobs July 2020 Number of Workers	Jobs July 2019 Number of Workers	Change Jobs 2019-20 Number of Workers	% Change Since July 2019	LQ (as an inverse measure of local risk)
Accommodation and Food Services	15,100	21,300	-6,200	-29.1%	1.06
Public Administration	23,700	29,900	-6,200	-20.7%	0.90
Health Care and Social Assistance	32,100	35,800	-3,700	-10.3%	1.14
Retail Trade	21,100	24,100	-3,000	-12.4%	1.21
Other Services	5,800	7,100	-1,300	-18.3%	1.05
Professional, Scientific, Tech Services	22,000	22,900	-900	-3.9%	0.60
Administrative and Waste Management	10,300	11,200	-900	-8.0%	0.87
Wholesale Trade	7,100	7,600	-500	-6.6%	1.49
Information	2,200	2,600	-400	-15.4%	0.39
Educational Services	1,900	2,300	-400	-17.4%	0.59
Transport, Logistics and Warehousing	3,200	3,450	-250	-7.2%	0.45
Real Estate and Rental and Leasing	3,900	4,100	-200	-4.9%	1.10
Natural Resources	200	200	0	0.0%	0.61
Management of Companies	2,100	2,100	0	0.0%	0.71
Utilities	700	650	50	7.7%	1.10
Finance and Insurance	4,900	4,700	200	4.3%	0.73
Arts, Entertainment, and Recreation	4,000	3,800	200	5.3%	1.01
Construction	16,400	15,800	600	3.8%	1.59
Agriculture	7,300	6,400	900	14.1%	1.19
Manufacturing	25,000	22,900	2,100	9.2%	0.91

Sources: California EDD, EFA

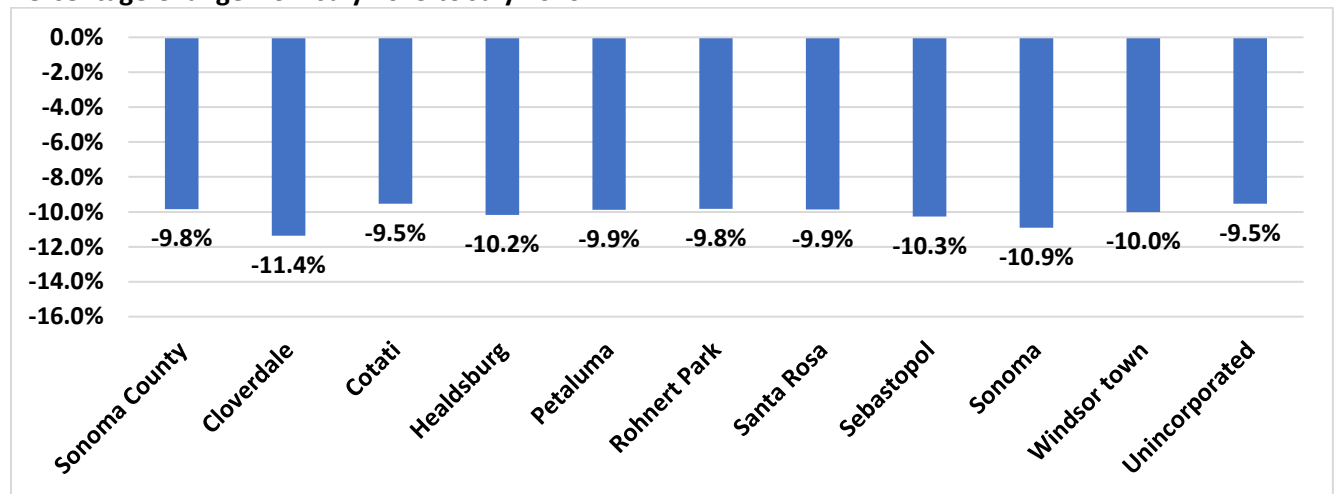
City-Level Considerations

Because county economies are made of incorporated cities and unincorporated areas, this report builds scenarios for each city or town and the unincorporated areas by industry sector, adding up to the full county scenario. Each of these areas have unique industry mixes of both employers and jobs that employ local residents (who may work outside the county in some cases). We show the data currently available on industry mix by city from both Census Bureau and California EDD data, and then forecast data for each of the areas forward to 2023 as part of the scenario analysis below.

The main data to be used are employment data by industry sector and then data describing the residents of each city. The residential employment data are updated monthly and provide a way to think about local income levels and spending; the industry data show the types of local employers and the number of employees in each industry sector. As COVID-19 has effects on both local residents **and** local employers, economic and workforce development effort addressing lost jobs may need to consider where residents work (inside or outside the local area) and where local businesses derive their workers from generally (workers live in the same city, Sonoma County, otherwise, or outside the county), as there may be opportunities to retrain workers for careers with Sonoma County employers and convert commuting workers otherwise.

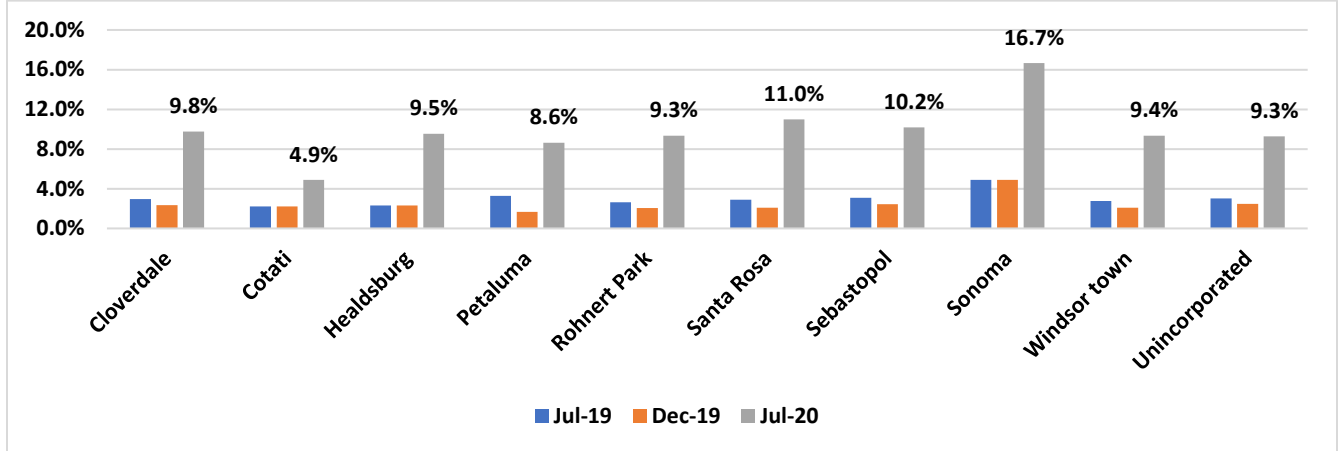
Like the county as a whole, the cities have certain risks from COVID-19 that are potentially structural. Being a place where visitors come and thus multiple industries depend on hotel stays and visitor spending, certain cities thrive from increased visitor activity. How these key tourism areas are affected by COVID-19 affects the county overall. Areas with winery tasting rooms, beaches, restaurants, and other recreation assets, have different risks than other areas of Sonoma County. The unincorporated areas in particular also act as a place where many people live (as of January 2020, approximately 28.1 percent of Sonoma County’s population). Figures 18 to 22 show different perspectives on the city economies in Sonoma County: jobs changes, changes in taxable sales and housing market changes.

Figure 18: Employment Level Comparisons, Sonoma County Cities and Unincorporated Areas, Percentage Change from July 2019 to July 2020



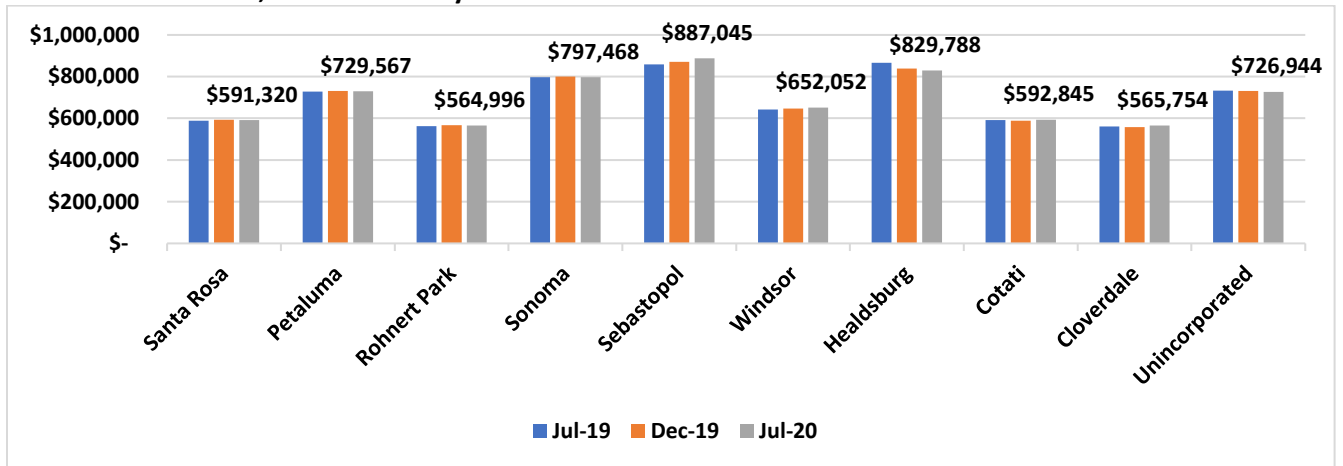
Sources: California EDD and EFA

Figure 19: Unemployment Rate Comparisons, Sonoma County Cities and Unincorporated Areas, July 2019, Jan 2020 compared to July 2020, Percentage of Labor Force



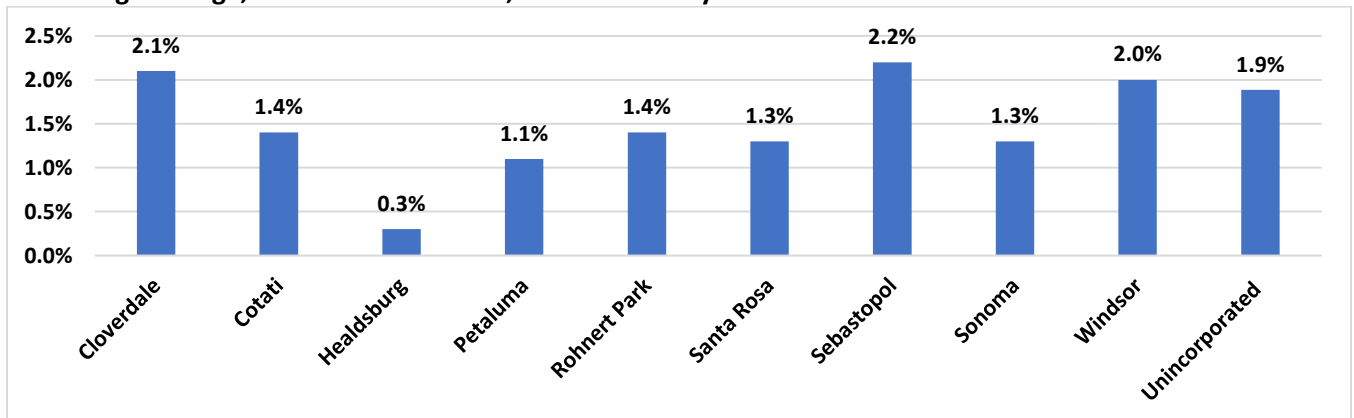
Sources: California EDD and EFA

Figure 20: Median Home Prices, Zillow™ Research, July 2010, July 2019 and July 2020, Current Dollars, Median Home Prices, Sonoma County



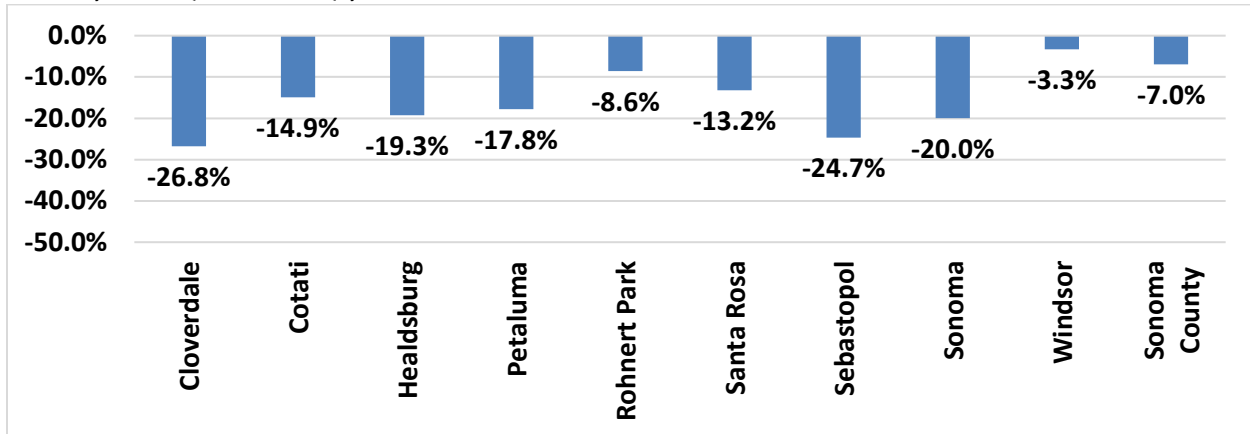
Sources: Zillow™ Research and EFA

Figure 21: City and Unincorporated Area Forecast, Zillow™ Research, July 2020 to July 2021, Percentage Change, Median Home Prices, Sonoma County



Source: Zillow™ Research and EFA

Figure 22, Percentage Change in Taxable Sales, Sonoma County, Incorporated Cities and County Overall, 2019 Q1 to 2020 Q1, Total Taxable Transactions



Source: California Department of Tax and Fee Administration and EFA

Summary of City-Level Considerations

For Sonoma County, the city and unincorporated county effects have shown some differential effects for data available as of August 2020.

- The percentage of local residents that have lost their jobs from July 2019 to July 2020 (the latest data) is relatively similar across all municipalities;
- Unemployment rates are highest in the town of Sonoma and Santa Rosa as of July 2020;
- Median home prices are down in Healdsburg since January 2020, and all other municipalities are up slightly or basically the same level as January 2020;
 - All municipalities have rising home prices since July 2019, so any changes in the post-COVID world have yet to affect Sonoma County in terms of housing prices;
- Taxable sales are down across the county from 2019, where Cloverdale, town of Sonoma, Sebastopol, Healdsburg, and Petaluma have seen drops near 20 percent or more in 2020 Q1;
 - 2020 Q2 will be worse when the data are fully available later this year on taxable sales.

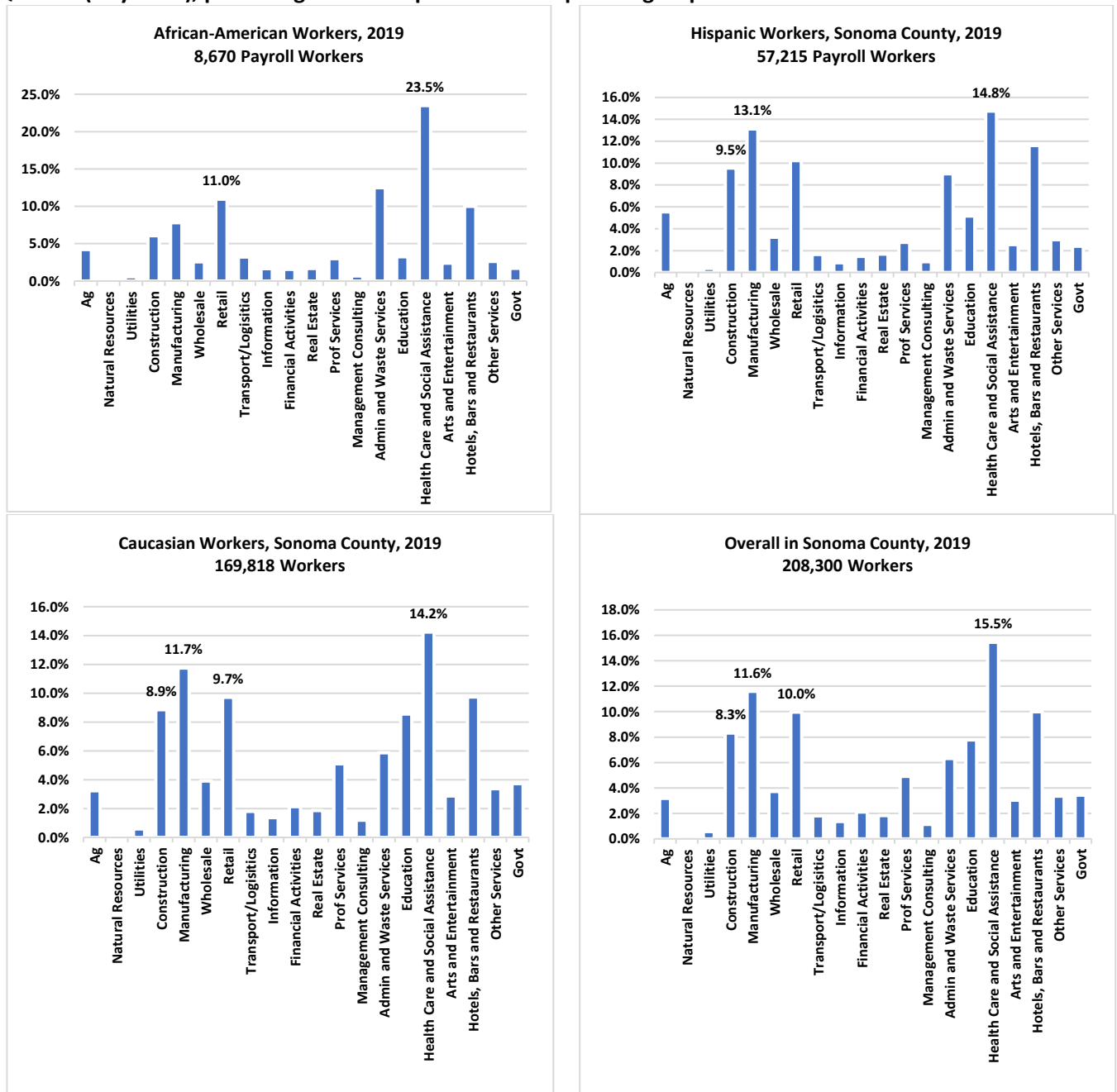
Social Justice and COVID-19: Sonoma County Opportunities and Challenges

Not only has 2020 been a year of economic recession, it has been a year of social upheaval and increased focus on racial divides and injustice that unfortunately remain in the United States. This study recognizes economic recession can affect under-represented groups differently and perhaps relatively adversely vis-à-vis other socioeconomic groups. The official data on how workers of different ethnicities and races lost jobs, remained unemployed, or experienced other economic loss continues to emerge at the county and city level.

Figure 23 shows the mix of employees as compared to industry-level job losses for Caucasian, Hispanic and African-American workers as a way to gauge where workforce challenges may lie early in this recession. From economic and workforce development angles, there may be opportunities here to train

and support new businesses for displaced workers, especially in industries where there may be structural shifts and fewer jobs available in the future (due to lost businesses not coming back). These data represent payroll workers, not self-employed or those working for cash payments.

Figure 23: Workers by Industry by Ethnicity/Race, start of Q3 2019 and Percent Change in Jobs start of Q3 2020 (July 2020), percentages shown specific to each panel's group.



Sources: California EDD, Census Bureau Quarterly Workforce Indicators, and EFA

The percentages shown in Figure 23's panels are for each ethnicity or race or group, and not the county total. For example, 23.5 percent of African-American workers at Sonoma County employers are in

healthcare or social assistance jobs; for Hispanic workers, that percentage is 14.8 of all Hispanic workers for employers here in Sonoma County. The estimated number of workers uses the total number in the specific graph multiplied by the percentage; for example, the 14.8 percent of Hispanic workers in healthcare and social assistance is approximately 8,468 workers that are Hispanic and work in healthcare or social assistance. The “Overall” panel is all workers in Sonoma County at the end of 2019.

The mix of workers among the major industries in Sonoma County is wide in breadth and thus provides some relief against the industries that have experienced major job loss; the breadth of job opportunities by ethnicity/race in Sonoma County also suggests mobility of under-represented groups among different career tracks and industry sectors. This recession is an economic crisis **and** opportunity for workforce development to look at training in manufacturing and construction and health care, where wages are higher than average and recovery is likely more certain, for African-American and Latinx/Hispanic workers that have lost their jobs due to COVID-19. It is important to see these data as a point in time and not a trend, as trends continue to evolve.

Survey Data: Additional Information from County Businesses

Starting in April 2020, Sonoma County Economic Development Board (SCEDB) began a survey instrument that asked simple questions about business reactions to the COVID-19 shutdowns and subsequent problems in the regional economy. Survey data gathered by Sonoma County EDB and synthesized by EFA are available in presentation form with city-level results.¹¹ The survey is not scientific and these data are meant to add to industry-level and city-level evidence as to how COVID-19 has affected Sonoma County’s economy. The main questions were as follows:

- Was your business considered “essential” or not?
- Did the hours that your business was open increase, decrease or not change?
 - If hours changed, by what percentage of hours was the change?
- Did your business make job cuts?
 - If job cuts were made, what percentage of jobs were cut?
- Has revenue increased, decreased or stayed the same?
 - If revenue has changed, by what percentage has it changed?
- Did your business utilize CARES Act funding, including PPP, EIDL, etc.?
 - If so, how much money did you receive as a business?

Based on both industry and geography, the first four weeks of data had the following results, where over 600 total respondents provided survey data between April and August 2020.¹²

¹¹ EFA is providing Sonoma County EDB with PowerPoint files with summary data on the survey responses.

¹² Note: the number associated with each industry is the industry sector “code” of the North American Industrial Classification System (NAICS), 2-digit level. EFA is providing summary presentations as appendices of this project with details results from the surveys.

Initial Conclusions Drawn from Survey Data

The data from Sonoma County EDB's survey provide some simple conclusions about how businesses navigated the initial stages of COVID-19's effects on the local economy. These data allow more refined conclusions about the depth and breadth of economic concerns in Sonoma County for building assumptions to perform the economic impact analyses in Section 4.

- May to June 2020
 - \$140,000,000 in this sample of PPP, EIDL, CARES Act used
 - Many of those sampled essential, may suggest some sample bias;
 - Larger cities and towns: more essential businesses.
 - Hours reduced across industries and municipalities:
 - Rohnert Park the sole exception on average, probably due to essential retail remaining open;
 - Jobs cuts across took place across all areas and industries;
 - Transport and warehousing an exception, which makes sense with increase in home delivery; and
 - Unincorporated Sonoma County hurt marginally more;
 - Revenues decreased across the board;
 - Similar to job losses seen in the California EDD data for local residents.
- June to July 2020
 - An additional \$14,732,000 in this sample of PPP, EIDL, CARES Act used, as later stages of round one upon Sonoma County;
 - Industries affected continue to follow job-loss data;
 - Unincorporated Sonoma County more loss relative to cities and towns for jobs and revenue (more tourism risk exposure over a wider area);
 - Many of those sampled essential, may suggest some sample bias
 - Larger cities and towns had more essential businesses;
 - Hours reduced across industries and municipalities as first survey round; and
 - Windsor is an exception on average and showed recovery more quickly, perhaps due to construction and grocery/essential retail and office opening more quickly there.

These data describe the estimated effects of COVID-19 on the Sonoma County economy, where some bright spots exist, and also begin to build the assumptions around the forecasts and the broader economic impacts. In the next section, we show the estimated employment loss data for Sonoma County as known through Q2 2020 and then forecasted to the end of 2023 as the basis of the economic impact analyses for the county economy. Because of the preliminary nature of the economic effects from COVID-19, the three scenarios provide a “most likely” or median scenario with a bandwidth around it. The bandwidth's positive end is a “better” case and the negative end is a “worse” case going forward.

4. Economic Impacts of COVID-19: Scenarios for Jobs, Business Incomes and State and Local Tax Revenues in Sonoma County

The scenarios in Section 4 provide three potential paths for the Sonoma County economy resulting from the current recession, based on projected job losses. The economic impact analyses consider estimated jobs lost since the end of 2019 to the end of 2023 in specific industries as the “direct” economic impacts. Those losses then create negative ripple effects on the county economy. Estimates are provided by industry sector as shown in Figure 17. Industry-level and city-level risks for the nine cities and towns and the unincorporated county areas are considered. Economic development efforts can use these estimates, as the actual data unfold, to focus resources on industries most affected and re-estimate the economic impacts over time.

The estimated economic impacts of COVID-19 on Sonoma County use the following methodology:

- **Estimated Jobs losses for local employers imply estimated revenue lost because of general jobs losses to county residents, visitors, workers that are employed locally, and lost local employers;**
- **These lost jobs imply a certain amount of gross regional product (GRP) lost, the dollar level of economic impacts; and then**
- **The GRP lost imply reduced municipal revenues at the state and local level in specific categories, which are included in the GRP impacts.**

One of the key differences between a classic economic impact study (for example, how the PSPS episodes in 2019 affected the county economy) and this study is that COVID-19 has had a general impact on county jobs.¹³ The approach below is to consider three scenarios and not just one estimate; because of the preliminary nature of available data, we consider a median scenario is seen as “most likely”, as of information available to August 2020. Each scenario uses recent estimates of income and productivity per worker by industry category, which become the dollar-based economic impact estimates of COVID-19, implying lost state and local tax revenues because of lower taxable transactions and employment levels.

For example, Transient Occupancy Tax (TOT) is a sales tax derived from visitors to Sonoma County staying overnight at hotels; estimated TOT revenues lost come from reduced tourism flows in 2020 so far and then estimated through 2023. In general, county and city fiscal impacts also depend on state budget outlooks; the California state budget for fiscal year 2020-21 had its revise in May 2020. The changes are relatively dramatic and negative based on an updated forecast by the California Department of Finance of the California and national economies released in May 2020. For Sonoma County and its cities, the following line item revenues are where the impacts begin to change budgets:

- Property taxes;
- Sales taxes;
- TOT;
- Fees and other payments.

¹³ See <https://sonomacounty.ca.gov/DEM/pdf/Power-Shutoff-After-Action-Report-March-2020/> for this study.

The scenarios below allow a framework for the County of Sonoma’s Economic Development Board to track the impacts and where vulnerabilities lie beyond August 2020. Let’s now look at the scenarios and the estimated changes in jobs to start.

Scenario Analysis

Given the data above, we use data available through June 30, 2020 as of August 2020 to estimate the three scenarios.¹⁴ Using national and state level forecasts, as well as history, the scenarios look out to 2023. Connections to the state economy are critical, given Sonoma County faces state-level policies and regulations. There is also close tracking of the county economy’s jobs growth historically to the state’s economy overall. Potential businesses lost from Sonoma County connect to job losses also; estimating the loss of businesses can be tricky given the lack of true data on self-employed businesses, we estimate all workers that lost jobs below, where the large proportion include payroll workers (those that work for an employer and not self-employed).

Baseline January 2020 and Scenarios to 2023

These scenarios look at the economy to the end of 2020 and then to the end of 2023. The baseline for recovery is January 1, 2020 employment levels, or where the final quarter of 2019 ended. This baseline employment level establishes the pre-COVID “capacity” of Sonoma County’s economy to provide jobs.

Why Employment Changing is Important: Key Assumptions for Each Scenario

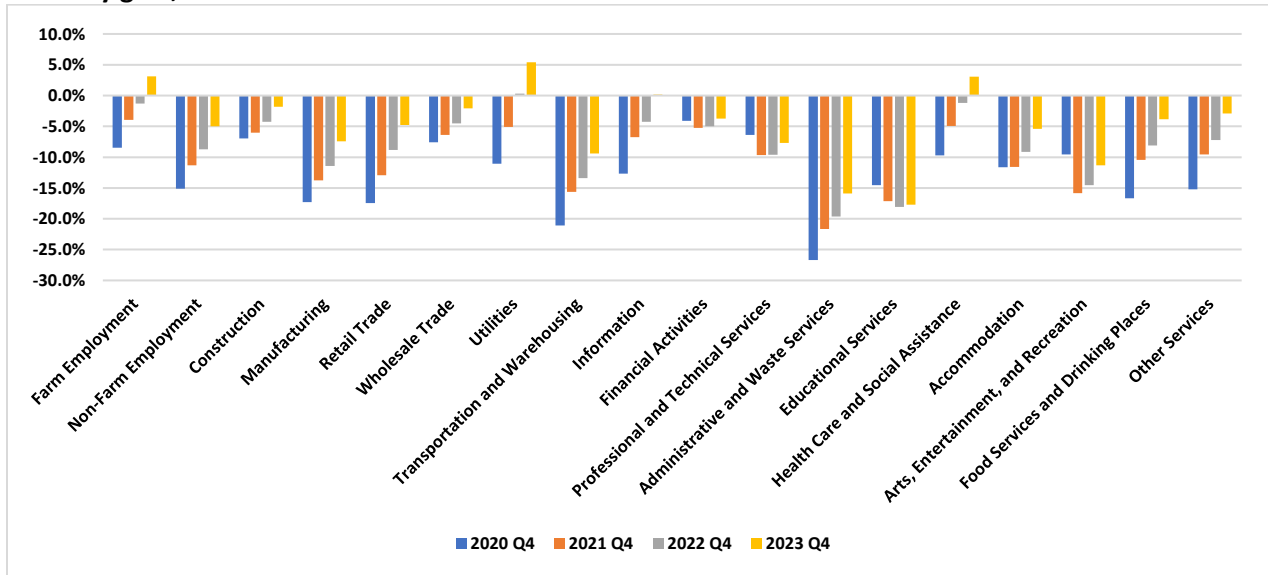
In each of the scenarios below, employment data and estimates compare end-of-year data rather than each quarter, reducing concerns over seasonal aspects of Sonoma County’s economy. We need to be careful in focusing on **cyclical** (based on economic downturn or recovery) and **structural** shocks in jobs recovery as scars for certain industries may persist. Using the fourth quarter of each year to 2023 achieves that outcome.

Estimated Jobs lost in Sonoma County by industry is the driver of the COVID-19 economic impacts on local residents, businesses and governments. In contrast to recent disasters (fires and floods specifically), these scenarios do not expect any significant property destruction from COVID-19. Recent, regional fires in August 2020 have created some damage that likely have a short-term effect (both positive and negative) on local economy recovery from COVID-19. However, sectoral shifts in jobs and businesses may create changes in commercial and residential real estate values, which are the value of capital “stock” and until sold do not represent current cash flow, just current wealth levels.

Figure 24 shows the median forecast of jobs lost versus 2019 Q4 by industry as a way to summarize the estimated, direct economic impacts over the next four years.

¹⁴ By using the actual, year-end data and plugging into an algorithm (this file is available at Sonoma County EDB from EFA), the County of Sonoma can track estimated economic impacts as actual data are available.

Figure 24: Scenario Summary, Employment shifts by industry by year from 2019 Q4 as baseline recovery goal, Median Forecast

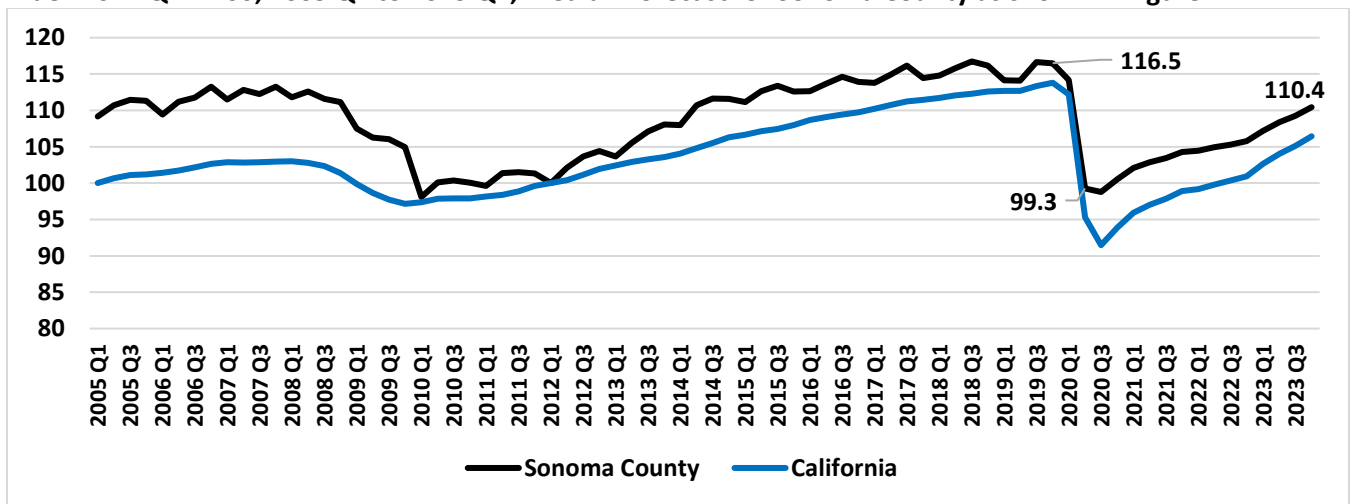


Sources: EFA and California EDD (for 2019 Q4 data)

Forecasts of Residential Labor Force Data

These data look at the forecasts for Sonoma County residents, regardless of where they live, and if they are working or not working. The two main variables shown here in Figures 25 and 26 are employment (who is working) and the unemployment rate (the percent of labor force locally that do not have a job but are actively seeking work). The labor force is the sum of the employed and unemployed that are actively seeking work; we know there are some that have dropped out of the labor force due to retirement or a discouraged outlook at getting another job and are available but may not be actively looking for a new job.

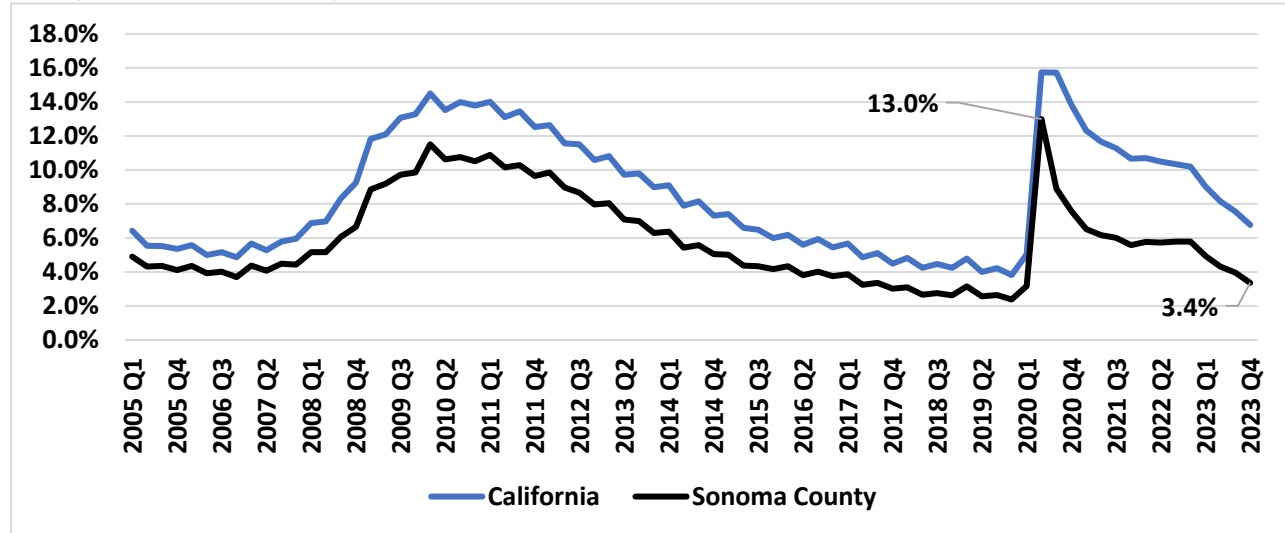
Figure 25: Sonoma County and California, Employment Levels for Local Residents
Index 2012 Q1 = 100, 2005 Q1 to 2023 Q4, Median Forecast for Sonoma County as shown in Figure 24



Sources: California EDD, California Department of Finance, and EFA

Looking forward, key concerns for policy makers include the number of employed residents and the unemployment rate to compare to other areas. The figures below show comparisons to the state of California overall using the California Department of Finance forecast for the May Budget Revise and recent, actual data. A critical issue that connects Figures 25 and 26 is labor force. This forecast expects there to be a smaller labor force of working residents in Sonoma County by 2023 compared to 2019.

Figure 26: Sonoma County and California, Unemployment Rates for Local Residents, Percent of Labor Force, 2005 Q1 to 2023 Q4, Median Forecast



Sources: California EDD, California Department of Finance, and EFA

Potential Business Losses: Caveats and Concerns

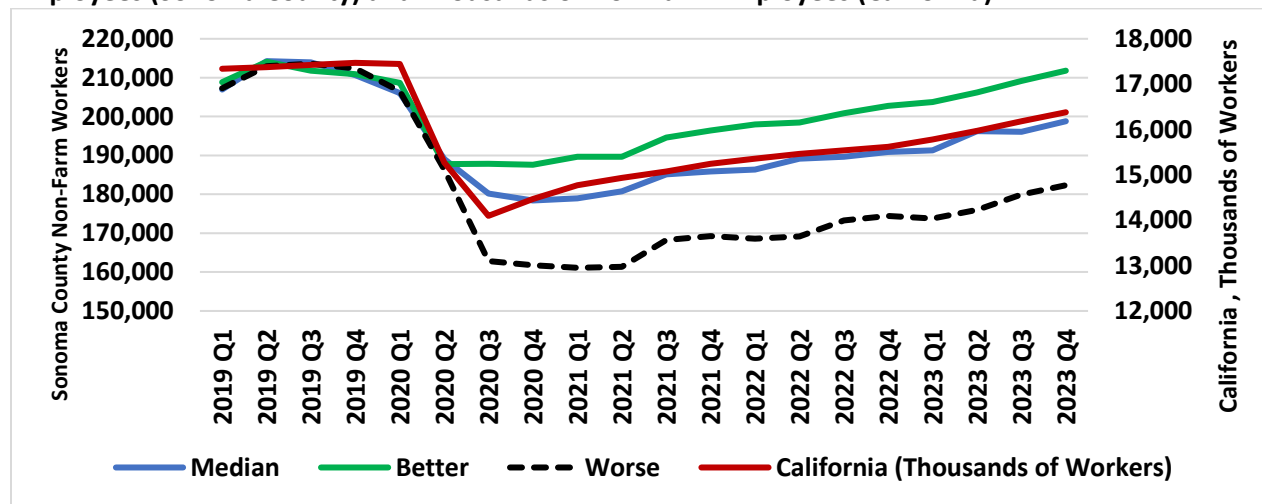
For economic development, predicting the number of new businesses helps direct resources and support businesses that may be predicted as lost for macroeconomic reasons rather than their own planning and operations. However, because some businesses operate on small margins, even a small economic problem can cause a business to close. Looking at the forecasts to come, we can use the estimated changes in jobs, and the ratio of businesses to workers in Sonoma County (called “establishments” in the Bureau of Labor Statistics’ [Quarterly Census of Employment at Wages](#) or QCEW) as one way to estimate the change. Some considerations include:

- The three scenarios below provide an estimate of the employment losses, and a four-year average from 2019 Q4 to 2023 Q4;
- The average jobs lost annually in net are then calculated, and divided by the number of workers per business in the major industry categories in Figures 28 to 30 and in Appendix B;
- An estimate is then possible of the number of employers lost in Sonoma County by 2023:
 - **-6.9 percent for the median scenario, with a range between -1.5 and -15.6 percent;**
- Caveats to estimating business losses are delays due to policy helping: PPP lending, for example;
- Further, we do not track non-payroll businesses well officially, and losses for non-payroll businesses (think self-employed workers) may be different magnitudes than payroll.

The Median Scenario, Back to 2019 Q4 Employment in 2024

Sonoma County lost over 10 percent of its jobs at local employers; 9.8 percent of county residents working in July 2019 lost their job by July 2020 (the latest data available as of August 2020). The loss of jobs for Sonoma County residents from 2008 Q4 to 2009 Q4 was approximately -5.6% and by 2010 Q4 that fell to approximately -10 percent before rising in 2011. For local employers, job cuts from 2008 Q4 to 2009 Q4 was -6.5%. The magnitude of the jobs changes is on a similar track as the Great Recession as in this change. Figure 27 summarize the non-farm employment forecasts for the Sonoma County scenarios and California’s forecast by the California Department of Finance.

Figure 27: California and Sonoma County Employment Actuals and Forecasts, Number of Non-Farm Employees (Sonoma County) and Thousands of Non-Farm Employees (California)



Sources: California Department of Finance and EFA

Assumptions of Median Forecast:

- Non-Farm employment does not recover until 2024 to 2019 Q4 levels (2020 to 2023 lower employment levels at Sonoma County employers than how 2020 started);
 - California Department of Finance as of May 2020 does not expect the California economy overall to be back at 2019 Q4 employment levels until 2024 or 2025;
- Construction and utilities and healthcare employers will be bright spots initially;
- Slow recovery in retail, administrative services, education, and hospitality (tourism and hotels, bars and restaurants), and other services to drag on the local economy to 2023;
- Assumes no additional policies that further reduce recovery momentum generally (there may be industry-specific concerns in retail, hospitality and other services from 2020 to 2023); and
- The national and state economies recover at a similar pace under similar assumptions.

The data in Figures 28 to 30 provide detailed economic impact data by industry and place in Sonoma County, summing up to a countywide impact. Figure 28 shows employment impacts, Figure 29 shows the change to gross regional product (GRP) or the local amount of productivity (value-added), and Figure 30 shows the public finance losses based on the shock to value-added income or GRP losses. The value-added losses include the tax losses, as tax revenues are part of the GRP calculation.

Figure 28: Employment Impact Estimates, 2020 Q4 from 2019 Q4, Lost Jobs, Industry Sector and City/Unincorporated Area of Sonoma County

Industry	Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	Unincorp	Sonoma County
Agriculture, Forestry, Fishing and Hunting	-21	0	-9	-7	-2	-22	-1	-11	-8	-412	-493
Mining, Quarrying, and Oil and Gas Extraction	0	-	-1	0	0	-8	-	-	0	-14	-23
Utilities	0	-1	-2	-5	-3	-35	-1	-1	-4	-30	-82
Construction	-9	-47	-52	-145	-55	-296	-18	-21	-70	-474	-1,187
Manufacturing	-32	-38	-106	-748	-136	-938	-67	-59	-120	-1,872	-4,116
Wholesale Trade	-4	-11	-30	-114	-64	-115	-6	-14	-20	-196	-574
Retail Trade	-42	-130	-158	-612	-346	-2,020	-145	-183	-181	-483	-4,300
Transportation and Warehousing	-4	-17	-16	-167	-17	-220	-31	-2	-47	-242	-763
Information	-1	-7	-3	-46	-42	-156	-35	-8	-3	-26	-327
Finance and Insurance	0	-1	-5	-40	-12	-114	-6	-9	-5	-14	-206
Real Estate and Rental and Leasing	-1	0	-4	-16	-18	-57	-4	-5	-6	-43	-154
Professional, Scientific, and Technical Services	-2	-8	-21	-102	-23	-245	-19	-33	-21	-142	-616
Management of Companies and Enterprises	-	-1	0	-32	-10	-47	-3	-17	-1	-28	-139
Administration, Waste Management and Remediation	-21	-27	-59	-665	-185	-1,199	-28	-98	-152	-774	-3,208
Educational Services	-5	0	-8	-44	-18	-140	-9	-11	-17	-101	-353
Health Care and Social Assistance	-28	-85	-77	-361	-145	-1,694	-99	-141	-45	-539	-3,214
Arts, Entertainment, and Recreation	-1	-7	-14	-58	-48	-102	-6	-14	-10	-119	-379
Accommodation	-21	-40	-138	-241	-236	-631	-67	-152	-97	-360	-1,983
Food Services and Drinking Places	-17	-33	-113	-197	-193	-516	-54	-124	-79	-294	-1,620
Other Services (excluding Public Administration)	-12	-25	-27	-128	-73	-484	-25	-29	-40	-208	-1,051
Public Administration	-82	-78	-217	-385	-310	-3,559	-56	-62	-140	-458	-5,347
Totals	-303	-556	-1,060	-4,113	-1,936	-12,598	-680	-994	-1,066	-6,829	-30,135

Sources: Census Bureau, California EDD, Bureau of Labor Statistics, and EFA, ("Unincorp" = Unincorporated), no sign means a gain or "+".

Summary of Employment Impacts

Because the data in Figure 28 are the key estimates for the economic impacts from COVID-19 on Sonoma County, the reader should consider the following ideas as the basic way to read the data:

- Sonoma County is estimated to have approximately 30,135 jobs lost as compared to the end of 2019 Q4 by the end of 2020 Q4 as the median forecast;
 - The lost jobs in Rohnert Park for retail are 346 jobs by the end of 2020 as an example of how to read these data;
 - Santa Rosa’s estimate job losses are 41.5 percent of the county (12,599), and Cloverdale is estimated to lose 304 jobs.
 - The Appendix shows data for the median forecast from 2020 to 2023, as well as “better” and “worse” forecasts;
- These jobs estimates become the basis of the Gross Regional Product shock in Figure 29 and subsequent state and local tax revenues lost by the end of 2020 in Figure 30.

Figure 29: Estimated Gross Regional Product Impacts, Industry Sector and City/Unincorporated Area, Sonoma County, 2020 Q4 from 2019 Q4, Thousands of 2020 Dollars, Private Industry (“Unincorp” = Unincorporated)

Industry	Cloverdale	Cotati	Healdsburg	Petaluma	Rohnert Park	Santa Rosa	Sebastopol	Sonoma	Windsor	Unincorp	Sonoma County
Agriculture, Forestry, Fishing and Hunting	(\$2,353)	(\$18)	(\$965)	(\$773)	(\$214)	(\$2,442)	(\$113)	(\$1,210)	(\$870)	(\$46,074)	(\$55,032)
Mining, Quarrying, and Oil and Gas Extraction	(\$12)	\$-	(\$72)	(\$5)	(\$2)	(\$479)	\$-	\$-	(\$3)	(\$834)	(\$1,407)
Utilities	(\$82)	(\$216)	(\$601)	(\$1,557)	(\$1,073)	(\$11,458)	(\$297)	(\$280)	(\$1,440)	(\$9,813)	(\$26,817)
Construction	(\$926)	(\$4,965)	(\$5,413)	(\$15,158)	(\$5,705)	(\$30,933)	(\$1,867)	(\$2,156)	(\$7,282)	(\$49,544)	(\$123,949)
Manufacturing	(\$4,845)	(\$5,775)	(\$15,972)	(\$112,963)	(\$20,576)	(\$141,588)	(\$10,041)	(\$8,979)	(\$18,048)	(\$282,627)	(\$621,414)
Wholesale Trade	(\$1,428)	(\$3,862)	(\$10,870)	(\$40,664)	(\$23,014)	(\$41,180)	(\$2,135)	(\$5,022)	(\$7,116)	(\$70,031)	(\$205,322)
Retail Trade	(\$3,181)	(\$9,762)	(\$11,936)	(\$46,063)	(\$26,072)	(\$152,177)	(\$10,941)	(\$13,816)	(\$13,655)	(\$36,400)	(\$324,003)
Transportation and Warehousing	(\$464)	(\$2,195)	(\$2,086)	(\$22,044)	(\$2,246)	(\$29,132)	(\$4,086)	(\$292)	(\$6,171)	(\$32,061)	(\$100,777)
Information	(\$367)	(\$1,755)	(\$881)	(\$12,267)	(\$11,166)	(\$41,326)	(\$9,362)	(\$2,079)	(\$697)	(\$6,990)	(\$86,890)
Finance and Insurance	(\$64)	(\$119)	(\$635)	(\$5,172)	(\$1,525)	(\$14,690)	(\$723)	(\$1,167)	(\$621)	(\$1,793)	(\$26,509)
Real Estate and Rental and Leasing	(\$161)	(\$79)	(\$682)	(\$3,119)	(\$3,441)	(\$10,912)	(\$818)	(\$1,035)	(\$1,188)	(\$8,190)	(\$29,625)
Professional, Scientific, and Technical Services	(\$184)	(\$639)	(\$1,701)	(\$8,239)	(\$1,871)	(\$19,745)	(\$1,499)	(\$2,652)	(\$1,686)	(\$11,409)	(\$49,625)
Management of Companies and Enterprises	\$-	(\$184)	(\$2)	(\$4,357)	(\$1,322)	(\$6,458)	(\$437)	(\$2,290)	(\$107)	(\$3,765)	(\$18,922)
Administration & Support, Waste Management and Remediation	(\$1,341)	(\$1,695)	(\$3,745)	(\$42,373)	(\$11,760)	(\$76,376)	(\$1,812)	(\$6,266)	(\$9,675)	(\$49,311)	(\$204,354)
Educational Services	(\$226)	(\$10)	(\$346)	(\$1,967)	(\$826)	(\$6,242)	(\$421)	(\$504)	(\$742)	(\$4,520)	(\$15,804)
Health Care and Social Assistance	(\$2,221)	(\$6,638)	(\$6,049)	(\$28,252)	(\$11,373)	(\$132,664)	(\$7,732)	(\$11,058)	(\$3,543)	(\$42,208)	(\$251,738)
Arts, Entertainment, and Recreation	(\$28)	(\$296)	(\$569)	(\$2,369)	(\$1,971)	(\$4,217)	(\$251)	(\$581)	(\$403)	(\$4,893)	(\$15,578)
Accommodation	(\$1,084)	(\$2,073)	(\$7,134)	(\$12,435)	(\$12,217)	(\$32,575)	(\$3,436)	(\$7,859)	(\$5,016)	(\$18,587)	(\$102,416)
Food Services and Drinking Places	(\$887)	(\$1,696)	(\$5,837)	(\$10,174)	(\$9,996)	(\$26,652)	(\$2,811)	(\$6,430)	(\$4,104)	(\$15,207)	(\$83,794)
Other Services (excluding Public Administration)	(\$872)	(\$1,824)	(\$1,980)	(\$9,462)	(\$5,424)	(\$35,893)	(\$1,831)	(\$2,177)	(\$2,968)	(\$15,407)	(\$77,838)
Totals	(\$20,726)	(\$43,801)	(\$77,476)	(\$379,413)	(\$151,794)	(\$817,139)	(\$60,613)	(\$75,853)	(\$85,335)	(\$709,664)	(\$2,421,814)

Sources: IMPLAN®, Bureau of Economic Analysis and EFA, no parentheses mean a gain or “+”.

Figure 30: State and Local Tax Revenues Lost, 2020, Based on Regional Income Losses and Reduced Hotel Revenues, Thousands of Dollars

Tax Category	2020
Employment Taxes	(\$16,936)
Sales Taxes	(\$193,206)
Property Taxes - Commercial	(\$202,988)
Property Taxes - Residential	(\$4,893)
Transient Occupancy Taxes	(\$25,420)
Personal Income	(\$119,930)
Other Taxes and Fees	(\$50,544)
Total State and Local Taxes	(\$613,917)

Sources: IMPLAN®, Bureau of Economic Analysis, Dean Runyan Associates, Smith Travel Research courtesy of Sonoma County Tourism, and EFA

Better Scenario: Fiscal Stimulus and Lower Interest Rates Accelerate Post-Vaccine Economy

There were some forecasts for a “V” shaped recovery, a short burst of economic problems followed by economic exuberance and the problem gone within one year.¹⁵ That looks less likely as of August 2020 and the consensus forecasts available. However, there has been a large amount of fiscal spending throughout the United States and in California by government and interest rates are now back at 2008 Q4 levels. Assuming a vaccine is widely available in early 2021, and COVID-19 has no threat of general transmission after Fall 2021, we may see investor, business and consumer confidence blossom as 2021 ends and continue to have momentum into 2022 and help Sonoma County recover in 2023 to its non-farm employment level at the beginning of 2020. The data that show the details in Sonoma County are in the Appendix. The three main changes to the median scenario are:

- A vaccine is globally available in 2021;
- The national and state economy continue to recover throughout 2021 and no other economic concern slows down momentum;
- There is not a significant relapse of COVID-19 in fall 2020 and Winter 2021 (pre-vaccine), thus there are no reversals of social policy that slowdown recovery momentum.

Worse Scenario: No Vaccine until late 2021 and Relapse of COVID-19 in Fall 2020/Winter 2021

The longer a vaccine is delayed, the more business and investor confidence stagnate and potentially erodes, affecting consumer confidence. The presidential election is likely to have little lingering effects on the economy, but may cause some slower movements until after November 3, 2020. A longer duration of economic problems may come if a slow recovery puts more businesses at risk locally. Hospitality employers are among those most at risk; local fires in August 2020 may provide a dubious boost to hotel occupancy as emergency personnel use local hotels and motels, but may leave a post-fire Fall 2020 with a double problem of visitors concerned about fire coming to Sonoma County, as well as rising concerns of infection rates increasing again. Such problems may be general in the state and national economies if cases levels rise and uncertainty about economic progress remains. The three main changes to the median scenario for the worse scenario are:

- No vaccine until late 2021, thus rising uncertainty and slower economic momentum;
- The national and state economies recover at a slower pace that current forecasts; and
- Caseloads rise in fall 2020 and winter 2021 as to re-instate shelter-in-place orders that linger into the 2021 tourism season in Sonoma County.

Detailed data on each scenario is shown in the Appendix, Figure 31 in the conclusions provide a summary of how Sonoma County is affected overall by each scenario from Figures 28 to 30; the detailed tables in the Appendix provide industry and subarea detail for policy makers to consider. Appendix 2 provides detailed tables of the economic impact estimates.

¹⁵ Beacon Economics moved quickly to a relatively positive forecast in April 2020 for the California economy. See [The Case for V](#) for that document.

5. Conclusions

Forecasted jobs growth to 2023 suggests a slow comeback of the county economy from the shelter-in-place due to COVID-19 and the subsequent slow movement of the regional, state and national economies. The following are the **median forecast** results as a summary of the forecasted economic impacts on Sonoma County at the county level from the levels at the beginning of 2020.

2020 Summarized Losses: Estimated Jobs, Business Revenues and State and Local Taxes lost

- Lost Jobs: 30,135
- Lost Gross Regional Product (GRP): \$2,421 million (approximately 16.7% of economy)
- Lost State and Local Tax Revenues: \$614 Million

2021 Summarized Losses: Estimated Jobs, Business Revenues and State and Local Taxes lost

- Lost Jobs: 22,547 (7,588 jobs gained from 2020)
- Lost Gross Regional Product (GRP): \$1,747 million
- Lost State and Local Tax Revenues: \$461 million

2022 Summarized Losses: Estimated Jobs, Business Revenues and State and Local Taxes lost

- Lost Jobs: 17,345 (5,202 jobs gained from 2021)
- Lost Gross Regional Product (GRP): \$1,308 million
- Lost State and Local Tax Revenues: \$376 million

2023 Summarized Losses: Estimated Jobs, Business Revenues and State and Local Taxes lost

- Lost Jobs: 9,492 (7,853 jobs gained from 2022)
- Lost Gross Regional Product (GRP): \$679 million
- Lost State and Local Tax Revenues: \$233 million

The accelerated recovery and the structural problems scenarios have forecast summaries in the Appendix. Figure 30 summarizes the percentage differences in the losses here.

Figure 31: From Median Forecast, Better and Worse forecasts, 2020 to 2023, Percentage Difference in Economic Impacts, Thousands of 2020 Dollars (GRP and Tax Revenues) or Lost Jobs

Estimated Losses	2020		2021		2022		2023	
	Better	Worse	Better	Worse	Better	Worse	Better	Worse
GRP Lost	\$(1,539,700)	\$(4,134,600)	\$(846,700)	\$(3,305,300)	\$(319,800)	\$(2,835,800)	\$411,200	\$(2,188,600)
Jobs Lost	-20,700	-48,451	-11,917	-40,924	-7,964	-35,498	7,685	-27,621
S/L Tax Revenues	\$(328,596)	\$(811,518)	\$(186,742)	\$(688,537)	\$(86,080)	\$(596,263)	\$52,716	\$(462,597)

Note: No sign is a gain or “+”

Short-term and long-term: Challenges and Opportunities

Short-term

The short-term impacts of COVID-19 on the Sonoma County economy are relatively straightforward and are being seen in counties and states across our country. For Sonoma County, the details are where economic and workforce development can focus efforts and assist in recovery:

- Lost jobs in services, with many workers that are at lower-wage, out of work regionally;
- Business losses that track the lost jobs closely;
- State and local tax revenues falling in 2020 to create budget difficulties for fiscal year 2020-21 and likely 2021-22;
- Housing markets remain stable for now, as commercial real estate markets are likely to see more reallocation and concerns for 2020 and 2021.

Long-term

The long-term impacts depend on three major items, some of which are unknown until later in this decade:

- Housing market instability and potential outmigration of lower-wage workers;
- Subsequent slowdown in incentives to build more housing in an environment with a lower, older population, creating a housing shortage later in the 2020s;
- Longer spells of unemployment increasing pressure on non-profit organizations and county government to provide more goods and services and housing relief.

The long-term impacts depend on the short-term outlook becoming recovery momentum. As our forecasted scenarios above show, we should not expect a true sense of recovery momentum until 2022 at the national level. For Sonoma County and its city governments, planning on this horizon is a conservative way to approach how the regional economy will react to the short- and long-term impacts.

Challenges	Opportunities
<ul style="list-style-type: none"> • Retail, restaurant demand for workers; • Housing affordability for low-wage workers if fewer jobs in their industry remain after 2020; • Tourism employment opportunities, especially hotels, after 2020; • Breadth of businesses in retail, restaurant and personal services based on estimated business closures; • Goods resilience (food, beverage, medical supplies, etc.) if there are natural disasters during an increase caseload. 	<ul style="list-style-type: none"> • Goods resilience; <ul style="list-style-type: none"> ○ More local manufacturing and farming to provide goods and food production breadth; ○ More storage and processing; ○ Regional distribution channels to complement supra-regional channels; • Workforce development for permanently-displaced workers <ul style="list-style-type: none"> ○ Manufacturing, especially in life sciences given regional cluster in place; ○ Construction; ○ STEM-Related fields; and ○ Healthcare.

6. References

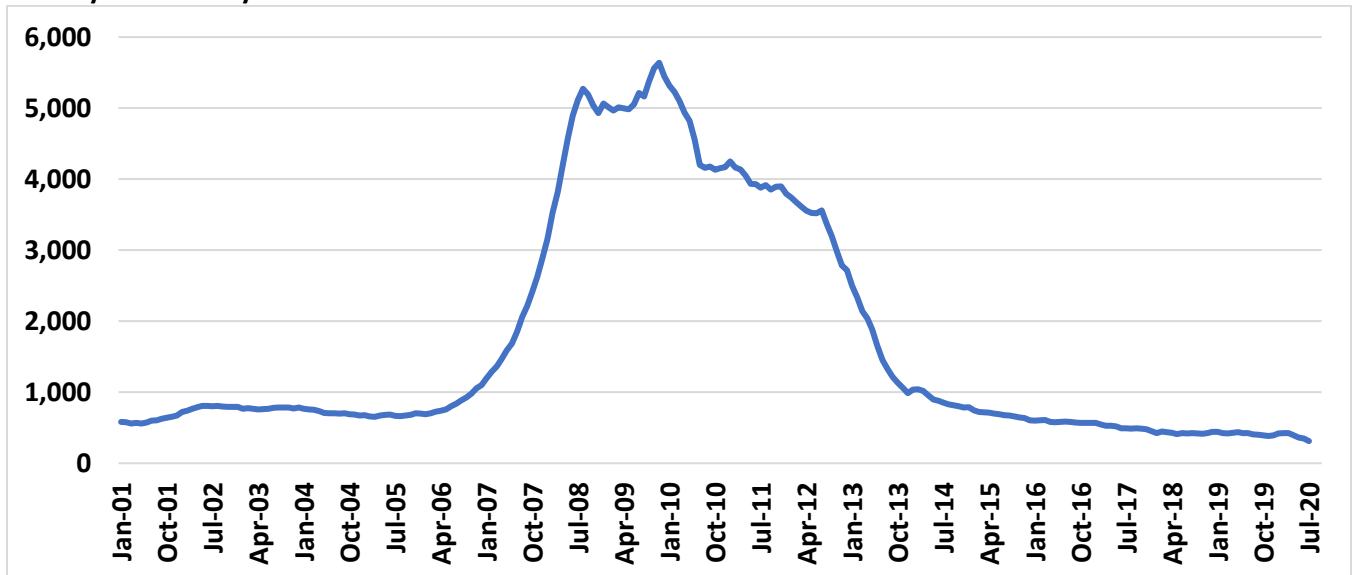
- Beacon Economics (2020) "The Case of V", Accessed at https://beaconecon.com/wp-content/uploads/2020/04/Covid_19_Outlook_Beacon_4_24_2020.pdf
- Bureau of Labor Statistics (2020), "Quarterly Census of Employment at Wages", Accessed at <https://www.bls.gov/cew/>
- California Department of Finance (2020) "May Revise Forecast (MR)", Accessed at http://www.dof.ca.gov/Forecasting/Economics/Eco_Forecasts_Us_Ca/
- California Department of Tax and Fee Administration (2020) "Taxable Sales to Q1 2020", Accessed at <https://www.cdfta.ca.gov/dataportal/catalog.htm?category=Taxable%20Sales%20in%20California>
- California Employment Development Department (2020) "Labor Market Information", Accessed at <https://www.labormarketinfo.edd.ca.gov/>
- Census Bureau (2020) "Building Permit Survey", Accessed at <https://www.census.gov/construction/bps/>
- Census Bureau LED (2020) "Quarterly Workforce Indicators", Accessed at <https://ledextract.ces.census.gov/static/data.html>
- Congressional Budget Office (2020) "Update to the Economic Outlook", Accessed at <https://www.cbo.gov/publication/56442>
- Economic Modeling (EMSI) Resource Library (2020), "Understanding Shift Share", Accessed at https://www.economicmodeling.com/wp-content/uploads/2007/10/emsi_understandingshiftshare.pdf
- Hall, Robert E, and Marianna Kudlyak. 2020. "Why Has the US Economy Recovered So Consistently from Every Recession in the Past 70 Years?," Federal Reserve Bank of San Francisco Working Paper 2020-20. Available at <https://doi.org/10.24148/wp2020-20>
- Moody's Economy (2020) "Economic Impact of PSPS on Sonoma County 2019", Accessed at <https://sonomacounty.ca.gov/DEM/pdf/Power-Shutoff-After-Action-Report-March-2020/>
- Newmark, Knight Frank Commercial Real Estate (2020) "Insights", Accessed at <https://www.ngkf.com/insights> for Quarter 2 2020.
- Philadelphia Federal Reserve Branch (2020), "Survey of Professional Forecasters", Accessed at <https://www.philadelphiafed.org/research-and-data/real-time-center/survey-of-professional-forecasters>
- Smith Travel Research (2020) "Market Trends, Sonoma County", data provided by Sonoma County Tourism (SCT), <https://www.sonomacounty.com/>
- St. Louis Federal Reserve Branch (2020), "FRED Database", Accessed at <https://fred.stlouisfed.org/>
- United States Treasury (2020) "The CARES Act Works for All Americans", Accessed at <https://home.treasury.gov/policy-issues/cares>
- Wine Institute (2020), "US Wine Losses from COVID-19 Could Reach \$5.94 Billion", Accessed at <https://wineinstitute.org/press-releases/us-wine-losses-from-covid-19-could-reach-5-94-billion/>
- Zillow™ Research (2020) "Housing Data", Accessed at <https://www.zillow.com/research/data/#rental-data>

Appendix 1: Bankruptcies, Delinquencies, Foreclosure, Notices of Default

As of August 2020, there have not been large numbers of foreclosures/notices of default on home lending as experienced by Sonoma County in 2007 to 2012 period. Figure A1-1 shows those data. The County of Sonoma Recorder tracks these data for the county and all areas within.

There are caveats to these data. For many banks and credit unions, loan deferment has become a way to keep homeowners from making quick decisions to sell homes and force profit reductions on other homeowners by offering at lower prices. Figure 6 in the main text shows median listing prices, an initial sign of trouble in housing market prices remaining stable, has actually increased a bit since 2020 began. For policy makers, jobs returning to Sonoma County is the critical factor in housing price stability.

**Figure A1-1: Notices of Default, Moving 12-month Sum of Defaults, Sonoma County
January 2001 to July 2020**



Sources: County of Sonoma and EFA

For personal and business bankruptcies, please see the following link:

<https://www.abi.org/newsroom/bankruptcy-statistics>

As with notices of default, there could be a delay in bankruptcy filings due to court closures or some help that has come from the federal government (PPP, EIDL lending) that may become a business bankruptcy. Personal bankruptcy, Chapter 7 and 13, have different implications for foreclosure on a home. Chapter 11 is for small businesses “reorganization”. As of the July 2020 data, California bankruptcies are down significantly from last year, but that may be a simply a delay. Again, jobs gains and reducing unemployment reduces that pressure. Delinquency data also has the same caveats as notices of default, but would likely proceed foreclosure and bankruptcy as a leading indicator. Sonoma County should prepare for 2021 to be a year of change for personal and business financial issues either to recovery or to a downturn based on continued job losses.

Appendix 2: Economic Impact Estimates, Three Scenarios, 2020 to 2023

Jobs Impacts: Three Scenarios to 2023

Figure A2-1: Jobs Changes from 2019 Q4, Median Scenario, 2020 Q4 to 2023 Q4 Annual

Industry	2020	2021	2022	2023
Agriculture, Forestry, Fishing and Hunting	-493	-228	-75	183
Mining, Quarrying, and Oil and Gas Extraction	-23	-22	-19	-13
Utilities	-82	-38	2	40
Construction	-1,187	-1,027	-727	-307
Manufacturing	-4,116	-3,276	-2,713	-1,770
Wholesale Trade	-574	-483	-343	-159
Retail Trade	-4,300	-3,191	-2,171	-1,180
Transportation and Warehousing	-763	-564	-485	-339
Information	-327	-175	-110	4
Finance and Insurance	-206	-262	-251	-187
Real Estate and Rental and Leasing	-154	-197	-189	-141
Professional, Scientific, and Technical Services	-616	-934	-927	-742
Management of Companies and Enterprises	-139	-209	-208	-166
Administration & Support, Waste Management and Remediation	-3,208	-2,606	-2,360	-1,909
Educational Services	-353	-417	-440	-432
Health Care and Social Assistance	-3,214	-1,632	-398	1,020
Arts, Entertainment, and Recreation	-379	-628	-576	-448
Accommodation	-1,983	-1,242	-964	-454
Food Services and Drinking Places	-1,620	-1,016	-789	-372
Other Services (excluding Public Administration)	-1,051	-659	-496	-199
Public Administration	-5,347	-3,741	-3,106	-1,921
Totals	-30,135	-22,547	-17,345	-9,492

Place	2020	2021	2022	2023
Cloverdale	-303	-214	-159	-77
Cotati	-556	-402	-288	-134
Healdsburg	-1,060	-780	-599	-324
Petaluma	-4,113	-3,194	-2,525	-1,506
Rohnert Park	-1,936	-1,450	-1,121	-624
Santa Rosa	-12,598	-9,222	-7,013	-3,750
Sebastopol	-680	-495	-366	-179
Sonoma	-994	-741	-560	-290
Windsor	-1,066	-811	-641	-382
Unincorporated	-6,829	-5,238	-4,073	-2,226
Sonoma County	-30,135	-22,547	-17,345	-9,492

Note: No sign is a gain or “+”

Figure A2-2: Jobs Changes from 2019 Q4, Better Scenario, 2020 Q4 to 2023 Q4 Annual

Industry	2020	2021	2022	2023
Agriculture, Forestry, Fishing and Hunting	-220	81	267	565
Mining, Quarrying, and Oil and Gas Extraction	-18	-16	-12	-5
Utilities	-49	1	47	90
Construction	-374	-141	245	761
Manufacturing	-3,112	-2,143	-1,459	-367
Wholesale Trade	-218	-92	87	314
Retail Trade	-3,263	-2,006	-834	316
Transportation and Warehousing	-616	-396	-299	-130
Information	-213	-41	38	169
Finance and Insurance	40	1	32	120
Real Estate and Rental and Leasing	30	0	25	91
Professional, Scientific, and Technical Services	-155	-452	-408	-174
Management of Companies and Enterprises	-35	-101	-91	-39
Administration & Support, Waste Management and Remediation	-2,759	-2,085	-1,785	-1,264
Educational Services	-247	-306	-321	-304
Health Care and Social Assistance	-1,687	108	1,548	3,196
Arts, Entertainment, and Recreation	-195	-444	-375	-224
Accommodation	-1,476	-653	-314	275
Food Services and Drinking Places	-1,208	-534	-257	225
Other Services (excluding Public Administration)	-751	-315	-116	228
Public Administration	-4,173	-2,383	-1,606	-239
Totals for Sonoma County	-20,700	-11,917	-5,588	3,604

Place	2020	2021	2022	2023
Cloverdale	-212	-109	-43	52
Cotati	-371	-193	-58	123
Healdsburg	-732	-409	-190	131
Petaluma	-2,852	-1,780	-963	233
Rohnert Park	-1,341	-776	-377	205
Santa Rosa	-8,784	-4,906	-2,236	1,576
Sebastopol	-459	-245	-89	129
Sonoma	-667	-371	-151	166
Windsor	-746	-453	-246	58
Unincorporated	-4,536	-2,675	-1,235	931
Sonoma County	-20,700	-11,917	-5,588	3,604

Note: No sign is a gain or “+”

Figure A2-3: Jobs Changes from 2019 Q4, Worse Scenario, 2020 Q4 to 2023 Q4 Annual

Industry	2020	2021	2022	2023
Agriculture, Forestry, Fishing and Hunting	-1,019	-762	-602	-347
Mining, Quarrying, and Oil and Gas Extraction	-36	-34	-31	-25
Utilities	-148	-106	-66	-29
Construction	-2,758	-2,558	-2,227	-1,785
Manufacturing	-6,065	-5,234	-4,649	-3,712
Wholesale Trade	-1,268	-1,159	-1,006	-812
Retail Trade	-6,318	-5,240	-4,236	-3,250
Transportation and Warehousing	-1,044	-856	-772	-628
Information	-553	-406	-338	-225
Finance and Insurance	-681	-715	-688	-613
Real Estate and Rental and Leasing	-514	-539	-519	-462
Professional, Scientific, and Technical Services	-1,512	-1,767	-1,729	-1,528
Management of Companies and Enterprises	-339	-396	-388	-342
Administration & Support, Waste Management and Remediation	-4,083	-3,505	-3,248	-2,802
Educational Services	-560	-610	-623	-608
Health Care and Social Assistance	-6,178	-4,639	-3,405	-1,993
Arts, Entertainment, and Recreation	-734	-948	-887	-758
Accommodation	-2,965	-2,259	-1,969	-1,464
Food Services and Drinking Places	-2,426	-1,849	-1,611	-1,198
Other Services (excluding Public Administration)	-1,628	-1,254	-1,084	-789
Public Administration	-7,622	-6,088	-5,420	-4,251
Totals for Sonoma County	-48,451	-40,924	-35,498	-27,621

Place	2020	2021	2022	2023
Cloverdale	-483	-394	-338	-257
Cotati	-914	-761	-645	-490
Healdsburg	-1,695	-1,419	-1,231	-955
Petaluma	-6,558	-5,638	-4,938	-3,914
Rohnert Park	-3,097	-2,613	-2,271	-1,772
Santa Rosa	-20,003	-16,679	-14,391	-11,123
Sebastopol	-1,110	-927	-793	-607
Sonoma	-1,635	-1,381	-1,193	-921
Windsor	-1,681	-1,429	-1,252	-992
Unincorporated	-11,275	-9,683	-8,446	-6,590
Sonoma County	-48,451	-40,924	-35,498	-27,621

Note: No sign is a gain or “+”

Gross Regional Product (Income) Impacts: Three Scenarios to 2023

Figure A2-4: Gross Regional Product Changes, 2019 Q4, Median Scenario, 2020 Q4 to 2023 Q4 Annual, Thousands of Dollars (does not include Government)

Industry	2020	2021	2022	2023
Agriculture, Forestry, Fishing and Hunting	(\$55,000)	(\$25,000)	(\$8,400)	\$20,500
Mining, Quarrying, and Oil and Gas Extraction	(\$1,400)	(\$1,300)	(\$1,100)	(\$800)
Utilities	(\$26,800)	(\$12,100)	\$700	\$13,100
Construction	(\$123,900)	(\$105,300)	(\$76,000)	(\$32,100)
Manufacturing	(\$621,400)	(\$504,500)	(\$409,600)	(\$267,200)
Wholesale Trade	(\$205,300)	(\$79,500)	(\$57,500)	(\$26,600)
Retail Trade	(\$324,000)	(\$235,600)	(\$163,500)	(\$88,900)
Transportation and Warehousing	(\$100,800)	(\$73,300)	(\$61,700)	(\$42,400)
Information	(\$86,900)	(\$45,200)	(\$28,000)	\$900
Finance and Insurance	(\$26,500)	(\$33,100)	(\$31,100)	(\$22,900)
Real Estate and Rental and Leasing	(\$29,600)	(\$37,000)	(\$34,800)	(\$25,500)
Professional, Scientific, and Technical Services	(\$49,600)	(\$73,700)	(\$71,700)	(\$56,400)
Management of Companies and Enterprises	(\$18,900)	(\$28,100)	(\$27,400)	(\$21,500)
Administration & Waste Management and Remediation	(\$204,400)	(\$162,700)	(\$144,500)	(\$115,000)
Educational Services	(\$15,800)	(\$18,300)	(\$18,900)	(\$18,200)
Health Care and Social Assistance	(\$251,700)	(\$125,300)	(\$30,000)	\$75,500
Arts, Entertainment, and Recreation	(\$15,600)	(\$25,400)	(\$22,800)	(\$17,500)
Accommodation	(\$102,400)	(\$62,900)	(\$47,900)	(\$22,200)
Food Services and Drinking Places	(\$83,800)	(\$51,500)	(\$39,200)	(\$18,200)
Other Services (excluding Public Administration)	(\$78,000)	(\$48,000)	(\$35,400)	(\$13,900)
Totals for Sonoma County	\$(2,421,800)	\$(1,747,800)	\$(1,308,800)	\$(679,300)

Place	2020	2021	2022	2023
Cloverdale	(\$20,700)	(\$14,000)	(\$9,900)	(\$4,000)
Cotati	(\$43,800)	(\$30,200)	(\$21,200)	(\$9,300)
Healdsburg	(\$77,500)	(\$53,900)	(\$40,300)	(\$20,800)
Petaluma	(\$379,400)	(\$280,000)	(\$217,900)	(\$126,900)
Rohnert Park	(\$151,800)	(\$104,600)	(\$78,500)	(\$40,700)
Santa Rosa	(\$817,100)	(\$587,600)	(\$427,600)	(\$207,800)
Sebastopol	(\$60,600)	(\$42,500)	(\$30,800)	(\$14,200)
Sonoma	(\$75,900)	(\$55,300)	(\$41,200)	(\$20,800)
Windsor	(\$85,300)	(\$62,800)	(\$48,400)	(\$27,700)
Unincorporated	(\$709,700)	(\$516,900)	(\$393,000)	(\$207,100)
Sonoma County	\$(2,421,800)	\$(1,747,800)	\$(1,308,800)	\$(679,300)

Note: No sign is a gain or “+”

Figure A2-5: Gross Regional Product Changes, 2019 Q4, Better Scenario, 2020 Q4 to 2023 Q4 Annual, Thousands of Dollars (does not include Government)

Industry	2020	2021	2022	2023
Agriculture, Forestry, Fishing and Hunting	(\$24,600)	\$8,900	\$29,900	\$63,200
Mining, Quarrying, and Oil and Gas Extraction	(\$1,100)	(\$900)	(\$700)	(\$300)
Utilities	(\$15,900)	\$300	\$15,300	\$29,300
Construction	(\$39,100)	(\$14,500)	\$25,600	\$79,600
Manufacturing	(\$469,800)	(\$329,900)	(\$220,300)	(\$55,300)
Wholesale Trade	(\$77,900)	(\$15,100)	\$14,600	\$52,700
Retail Trade	(\$245,800)	(\$148,100)	(\$62,800)	\$23,800
Transportation and Warehousing	(\$81,600)	(\$51,400)	(\$38,100)	(\$16,300)
Information	(\$56,300)	(\$10,600)	\$9,700	\$42,200
Finance and Insurance	\$5,200	\$100	\$4,000	\$14,700
Real Estate and Rental and Leasing	\$5,800	\$100	\$4,500	\$16,400
Professional, Scientific, and Technical Services	(\$12,500)	(\$35,700)	(\$31,600)	(\$13,200)
Management of Companies and Enterprises	(\$4,800)	(\$13,600)	(\$12,000)	(\$5,000)
Administration & Waste Management and Remediation	(\$175,700)	(\$130,200)	(\$109,300)	(\$76,100)
Educational Services	(\$11,000)	(\$13,400)	(\$13,800)	(\$12,800)
Health Care and Social Assistance	(\$132,100)	\$8,300	\$116,600	\$236,700
Arts, Entertainment, and Recreation	(\$8,000)	(\$17,900)	(\$14,800)	(\$8,700)
Accommodation	(\$76,300)	(\$33,100)	(\$15,600)	\$13,400
Food Services and Drinking Places	(\$62,400)	(\$27,100)	(\$12,800)	\$11,000
Other Services (excluding Public Administration)	(\$55,800)	(\$22,900)	(\$8,200)	\$16,000
Totals for Sonoma County	\$(1,539,700)	\$(846,700)	\$(319,800)	\$411,200

Place	2020	2021	2022	2023
Cloverdale	(\$13,200)	(\$6,200)	(\$1,200)	\$5,600
Cotati	(\$27,200)	(\$13,300)	(\$2,500)	\$11,300
Healdsburg	(\$48,200)	(\$25,600)	(\$9,100)	\$13,600
Petaluma	(\$246,600)	(\$148,000)	(\$73,400)	\$32,500
Rohnert Park	(\$93,600)	(\$48,800)	(\$17,300)	\$26,600
Santa Rosa	(\$519,700)	(\$274,000)	(\$83,600)	\$170,800
Sebastopol	(\$39,100)	(\$19,400)	(\$5,600)	\$13,600
Sonoma	(\$47,000)	(\$25,400)	(\$8,600)	\$15,100
Windsor	(\$55,600)	(\$32,500)	(\$15,100)	\$9,000
Unincorporated	(\$449,500)	(\$253,500)	(\$103,400)	\$113,100
Sonoma County	\$(1,539,700)	\$(846,700)	\$(319,800)	\$411,200

Note: No sign is a gain or “+”

Figure A2-6: Gross Regional Product Changes, 2019 Q4, Worse Scenario, 2020 Q4 to 2023 Q4 Annual, Thousands of Dollars (does not include Government)

Industry	2020	2021	2022	2023
Agriculture, Forestry, Fishing and Hunting	\$(114,100)	\$(83,600)	\$(67,400)	\$(38,800)
Mining, Quarrying, and Oil and Gas Extraction	\$(2,100)	\$(2,000)	\$(1,800)	\$(1,500)
Utilities	\$(48,200)	\$(33,800)	\$(21,500)	\$(9,400)
Construction	\$(288,600)	\$(262,400)	\$(233,000)	\$(186,800)
Manufacturing	\$(915,600)	\$(806,000)	\$(701,800)	\$(560,400)
Wholesale Trade	\$(453,000)	\$(190,800)	\$(168,900)	\$(136,300)
Retail Trade	\$(475,900)	\$(386,900)	\$(319,100)	\$(244,800)
Transportation and Warehousing	\$(138,200)	\$(111,100)	\$(98,300)	\$(78,600)
Information	\$(146,200)	\$(105,200)	\$(85,900)	\$(56,200)
Finance and Insurance	\$(87,900)	\$(90,500)	\$(85,400)	\$(74,800)
Real Estate and Rental and Leasing	\$(98,300)	\$(101,100)	\$(95,400)	\$(83,600)
Professional, Scientific, and Technical Services	\$(121,700)	\$(139,400)	\$(133,800)	\$(116,300)
Management of Companies and Enterprises	\$(46,400)	\$(53,200)	\$(51,000)	\$(44,300)
Administration & Waste Management and Remediation	\$(260,000)	\$(218,800)	\$(198,900)	\$(168,700)
Educational Services	\$(25,000)	\$(26,700)	\$(26,800)	\$(25,700)
Health Care and Social Assistance	\$(483,900)	\$(356,300)	\$(256,500)	\$(147,600)
Arts, Entertainment, and Recreation	\$(30,200)	\$(38,300)	\$(35,200)	\$(29,500)
Accommodation	\$(153,200)	\$(114,400)	\$(97,800)	\$(71,500)
Food Services and Drinking Places	\$(125,300)	\$(93,600)	\$(80,000)	\$(58,500)
Other Services (excluding Public Administration)	\$(120,800)	\$(91,200)	\$(77,300)	\$(55,300)
Totals for Sonoma County	\$(4,134,600)	\$(3,305,300)	\$(2,835,800)	\$(2,188,600)

Place	2020	2021	2022	2023
Cloverdale	(\$35,300)	(\$27,600)	(\$23,300)	(\$17,300)
Cotati	(\$76,000)	(\$59,400)	(\$50,100)	(\$37,900)
Healdsburg	(\$134,200)	(\$102,900)	(\$88,400)	(\$68,400)
Petaluma	(\$637,200)	(\$508,200)	(\$441,000)	(\$347,400)
Rohnert Park	(\$264,800)	(\$201,000)	(\$173,000)	(\$134,000)
Santa Rosa	(\$1,394,500)	(\$1,129,800)	(\$958,700)	(\$731,900)
Sebastopol	(\$102,400)	(\$82,400)	(\$69,900)	(\$52,700)
Sonoma	(\$131,900)	(\$107,000)	(\$91,700)	(\$70,500)
Windsor	(\$143,000)	(\$115,000)	(\$99,800)	(\$78,500)
Unincorporated	(\$1,215,300)	(\$972,000)	(\$839,900)	(\$650,000)
Sonoma County	(\$4,134,600)	(\$3,305,300)	(\$2,835,800)	(\$2,188,600)

Note: No sign is a gain or “+”

State and Local Tax Revenue Impacts: Three Scenarios to 2023

Figure A2-7: Estimated State and Local tax Revenue Changes, 2019 Q4, Median Scenario, 2020 Q4 to 2023 Q4 Annual, Thousands of Dollars

Tax Category	2020	2021	2022	2023
Employment Taxes	(\$16,936)	(\$13,070)	(\$10,822)	(\$7,050)
Sales Taxes	(\$193,206)	(\$143,820)	(\$116,566)	(\$71,142)
Transient Occ Tax (TOT)	(\$25,420)	(\$18,922)	(\$15,337)	(\$9,360)
Property Taxes - Commercial	(\$202,988)	(\$151,101)	(\$122,468)	(\$74,744)
Property Taxes - Residential	(\$4,893)	(\$3,782)	(\$3,132)	(\$2,043)
Personal Income	(\$119,930)	(\$92,720)	(\$76,785)	(\$50,090)
Other Taxes and Fees	(\$50,544)	(\$38,001)	(\$30,947)	(\$19,179)
Total State and Local taxes	(\$613,917)	(\$461,416)	(\$376,057)	(\$233,608)

Note: No sign is a gain or “+”

Figure A2-8: Estimated State and Local tax Revenue Changes, 2019 Q4, Better Scenario, 2020 Q4 to 2023 Q4 Annual, Thousands of Dollars

Tax Category	2020	2021	2022	2023
Employment Taxes	(\$9,065)	(\$5,290)	(\$2,477)	\$1,591
Sales Taxes	(\$103,413)	(\$58,206)	(\$26,682)	\$16,054
Transient Occ Tax (TOT)	(\$13,606)	(\$7,658)	(\$3,511)	\$2,112
Property Taxes - Commercial	(\$108,648)	(\$61,152)	(\$28,033)	\$16,867
Property Taxes - Residential	(\$2,619)	(\$1,531)	(\$717)	\$461
Personal Income	(\$64,192)	(\$37,525)	(\$17,576)	\$11,303
Other Taxes and Fees	(\$27,053)	(\$15,380)	(\$7,084)	\$4,328
Total State and Local taxes	(\$328,596)	(\$186,742)	(\$86,080)	\$52,716

Note: No sign is a gain or “+”

Figure A2-9: Estimated State and Local tax Revenue Changes, 2019 Q4, Worse Scenario, 2020 Q4 to 2023 Q4 Annual, Thousands of Dollars

Tax Category	2020	2021	2022	2023
Employment Taxes	(\$22,387)	(\$19,504)	(\$17,158)	(\$13,961)
Sales Taxes	(\$255,394)	(\$214,612)	(\$184,824)	(\$140,878)
Transient Occ Tax (TOT)	(\$33,602)	(\$28,236)	(\$24,317)	(\$18,535)
Property Taxes - Commercial	(\$268,323)	(\$225,477)	(\$194,181)	(\$148,010)
Property Taxes - Residential	(\$6,468)	(\$5,643)	(\$4,966)	(\$4,045)
Personal Income	(\$158,532)	(\$138,359)	(\$121,749)	(\$99,190)
Other Taxes and Fees	(\$66,812)	(\$56,706)	(\$49,068)	(\$37,978)
Total State and Local taxes	(\$811,518)	(\$688,537)	(\$596,263)	(\$462,597)

Note: No sign is a gain or “+”