THE STATE OF THE REGION

The Inland Empire 2022

BY

MANFRED KEIL, ROBERT KLEINHENZ, FERNANDO LOZANO, KEN MILLER, JOHANNES MOENIUS, BARBARA SIROTNIK

Keil: Chief Economist, Inland Empire Economic Partnership, Director, Lowe Institute of Political Economy, Claremont McKenna College; Kleinhenz: Inland Empire Economic Council, CEO, Kleinhenz Economics, California State University Long Beach; Lozano, Inland Empire Economic Council, Department of Economics, Pomona College; Miller, Inland Empire Economic Council, Director, Rose Institute, Claremont McKenna College; Moenius, Inland Empire Economic Council, Director, International Business Activities, University of Redlands; Sorotnik, Inland Empire Economic Council, Director, Institute of Applied Research, University of California at Riverside; valuable research assistance was provided by Bettina Benitez, Lauren Kula, Edward Wu.

This report, issued in connection with our State of the Union Conference on March 29 at the Ontario Convention Center, consists of a short analysis of current national economic trends before moving on to the main part of our message for this event: the need for long term structural changes of the region.

In that section, we focus on two aspects of the general economic situation in our region:

- future structural changes needed in the Inland Empire for it to be a successful geographic area,
- its relative economic performance since the Great Recession and in particular during the Coronavirus recession and the subsequent recovery.

The report is therefore both forward and backward looking. On the one hand, we describe how the region survived the Coronavirus downturn that started in March 2020, and we look at the current state of the recovery. This is done both by analyzing Inland Empire data by itself and by looking at the Inland Empire's relative performance compared to the rest of Southern California, the state, and the nation. Perhaps more importantly, the report examines future developments that are of importance to the region, and we discuss structural changes that may be needed to survive and thrive in the "new normal.

Will There Be A Recession in 2022/2023?

Since most of you are concerned about the immediate future of economic activity in the Riverside-San Bernardino-Ontario Metropolitan Statistical Area (MSA) and the two counties that make up the MSA, let us state upfront that we **do not see** much of a chance of **a national recession occurring within the next two years**, despite the current rate of inflation, rising interest rates and the worrisome political situation in the Ukraine. Hence there will be no "double-dip" recession as experienced last in the U.S. in 1979-1981 when the second oil price shock and the Federal Reserve caused two downturns within a short time period. This is not to diminish the serious fallout we will experience as a result of shortages especially in oil, gas, wheat, and nickel, and the coinciding price increases which are a result of the shortages.

In our view, the best leading economic indicators for a recession within a year are:

- the yield curve (10-Year Government Bond minus 30-Day Treasury Rate),

- three-month average of the unemployment rate relative to the previous year's average.

The stock market (S&P 500) is a poor predictor of a recession. While severe stock market downturns (corrections) are occasionally successful in forecasting recessions, this variable sends too many false positive signals. Our forecast relies heavily on the above two series, which have consistently predicted oncoming recessions within a year since the mid-'70s, and have done so with few false positives. The Consumer Sentiment Index (University of Michigan), which is currently at a 10-year low, also enters as a predictor, but its effect is mitigated by the age of the current expansion, and the absence of a buildup in housing stock and consumer durable goods inventories in the recent past. Therefore, look for the inversion of the yield curve (the slope becomes negative) and when unemployment rates over the last quarter are higher than the annual average. Neither one of these variables currently indicates that there will be a problem in the near future.

The Current Fear of Inflation

While there are some in the profession who have pointed convincingly to post World War II recessions having been triggered by oil price increases, we are more concerned with the effect these will have on inflation rather than on output and the unemployment rate. Soaring grain prices, led by the disruption of wheat production in the Ukraine, pose further problems and can also lead to political instability elsewhere. In addition, nickel prices have increased significantly.

We do not mean to downplay the concerns regarding the inflation rate and further price pressures on raw materials caused by the war in Ukraine, supply-chain problems, and the strong fiscal stimulus from last year. We are currently experiencing the biggest commodity price shock since 1973. However, on March 16, the Federal Reserve clearly signaled that it will not tolerate higher inflation over the medium to long term as it raised the Federal Funds Rate by 25 basis points and strongly hinted at doing so again six more times in 2022.

The upward price pressure will continue to play a role and the extent of the disruption is difficult to forecast since Russia's end game is unclear at this time. The U.S. as a whole does not depend much on Russian oil imports (only 3% of U.S. oil imports come from Russia), but being a global market, Russia's actions have lifted oil prices to unprecedented levels. For example, the price of West Texas Intermediate ended above $120 per barrel in early March

before coming down from those peaks. If the U.S. forced Western Europe to follow the American embargo, then these prices could easily climb to $200. For all countries, the oil supply shock is the biggest one the world has experienced since Saddam Hussein crossed into Kuwait. However, GDP production is significantly less energy intensive than it used to be then (think of more oil efficient cars, for example), and thus, will be less damaging to the economy than in the '70s.

We find it useful to analyze the current situation similar to a blog of President Biden's Council of Economic Advisors, done prior to the Russian invasion, which compares the current inflationary episode with the period immediately following World War II rather than the OPEC I and OPEC II price shocks of the '70s. From 1946 to 1948, supply side shortages resulting from turning a war-economy into a peace-economy, and the presence of pent-up demand, caused inflation to spike at 20%. In addition, there were also price controls in effect until the end of the war, which then were eliminated. Today, pent-up demand is the result of increased savings by households during the pandemic, and retail sales, especially on-line orders, are booming. Domestic supply side constraints can be seen in shortages of key materials in the homebuilding industry, semiconductors in the automobile industry, and low inventory-to-sales ratios in the economy and especially in the retail sector. You can now add rolling lock-downs in China with the resulting supply disruptions to that list and the energy price hikes to that list.

For inflation to become a real threat to output and employment ("stagflation"), inflationary expectations would have to increase as the result of the current price increases. Only then will the higher inflation rate result in an undesirable wage-price spiral and permanently higher inflation rates. Surveys of professional forecasters, such as the one conducted by the Federal Reserve in Philadelphia, along with market implied measures do not suggest that this is happening currently. Hence we do not forecast the elevated inflation rates to persist beyond 2022.

Relief at the pump is on the horizon, first with the release of national oil reserves, and in time with increased domestic oil production in response to elevated oil prices. Increases in production by OPEC countries will also come into play. Nevertheless, you should view gasoline price increases as a tax hike - to the average consumer, it does not matter if she pays the increased pump prices in the form of a tax to the government or to the sheiks.

There is talk in California at this time of a $400 cash back plan for drivers to offset the impact of gas prices on consumer's income. We agree that this would be superior to suspending the 50 cents a gallon gasoline tax: it is not clear how much gasoline companies would pass on to the consumer. But then again, a suspension of the tax is easier to administer. We would actually prefer the equivalent of a tax rebate for low and middle income earners, since they are more affected by the higher gasoline prices and often cannot avoid using alternative means to go to work. administer.

U.S. and Canada Indicatiors of Economic Well Being

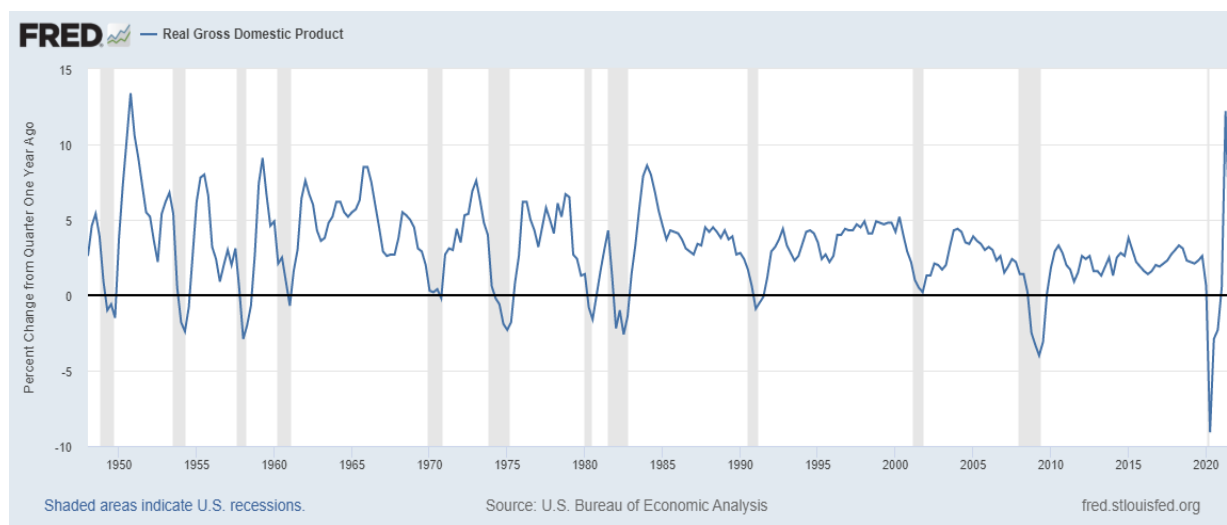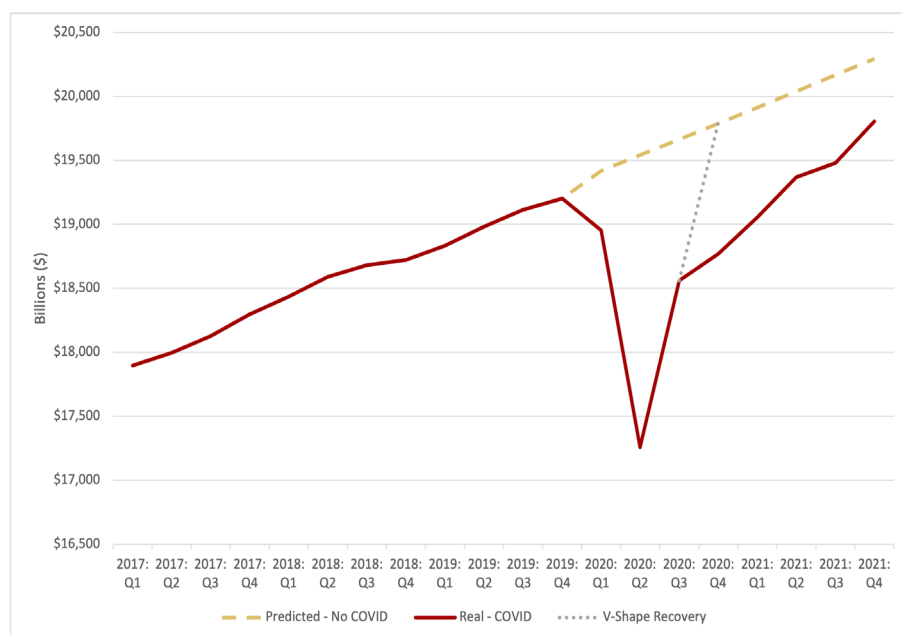## Real GDP, U.S., Quarterly Growth Rates, SAAR, 1947 Quarter II to 2021 Quarter IV

Figure 1

- Real GDP, U.S., SAAR,
- 2021: Q4: 7.0%, Q3: 2.3%, Q2: 6.7%, Q1: 6.3%; 2021: 5.7%
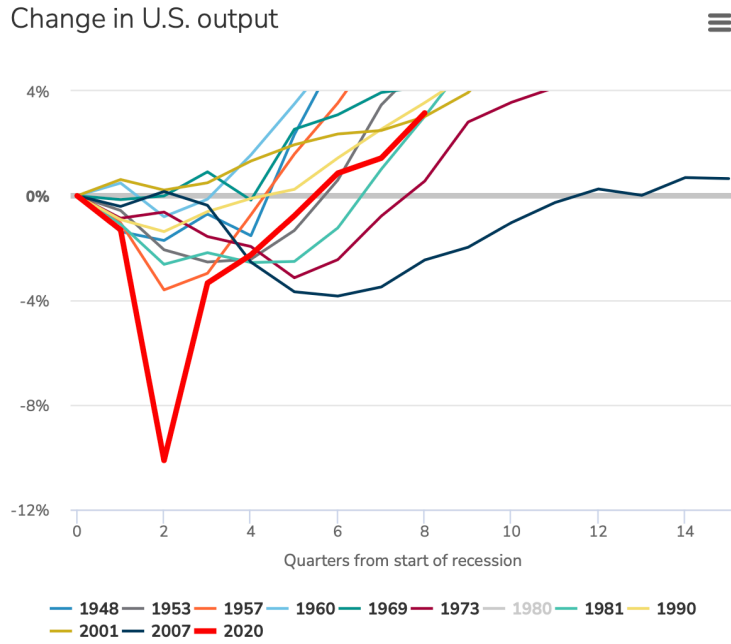- Federal Reserve Atlanta Forecast for 2022:Q1: < 1%

Real GDP, Actual and Predicted, 2017 Quarter I to 2021 Quarter IV

- actual real GDP has recovered to pre-pandemic levels
- continue to be below the pre-pandemic level if growth had continued at same pace
- V-shape recovery is wishful thinking

Figure 2
Source: FRED

Recovery to Pre-pandemic Levels, Real GDP, U.S., SA

Change in U.S. output

Quarters from start of recession

Legend: 1948, 1953, 1957, 1960, 1969, 1973, 1980, 1981, 1990, 2001, 2007, 2020

Source: Bureau of Economic Analysis

Figure 3

- Out of 12 post World War II U.S. recessions, GDP recovery was only slower following the Great Recession (2007), Volcker Recession (1981), OPEC I Oil Price shock (1974), and Korean War (1953)

Unemployment Rate and Employment, U.S. January 2020 to February 2022, USA

Nonfarm Jobs in Millions (left axis)   Unemployment Rate in % (right axis)

Job Gap=152.5-150.4 = 2.1 million
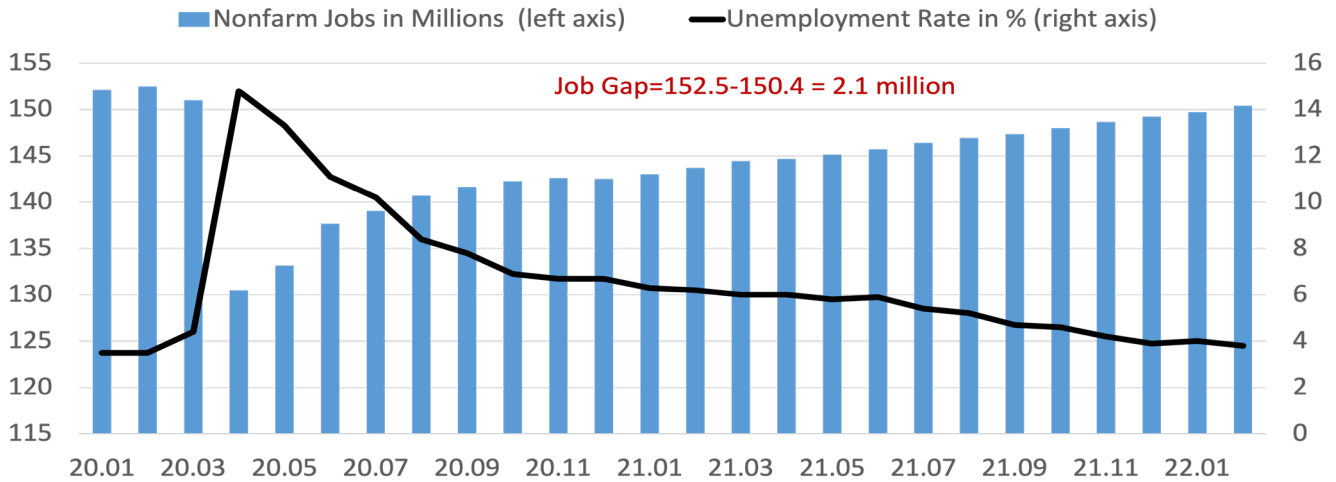
Figure 4

Employment, U.S. January 2017 to February 2022, SA
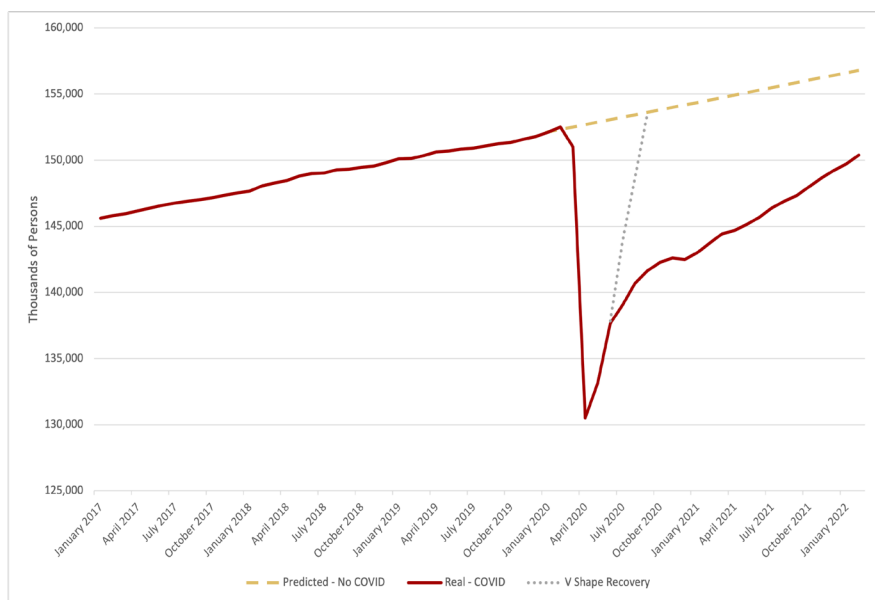
- Employment has not recovered to pre-recession levels in the U.S.
- Picture looks worse if we allow for trend growth in employment
- It will take until late 2022 (early 2023 at latest) until all jobs lost during the recession will be recovered, and until 2024 until we return to trend growth in national employment
- There is no V-shape business cycle here

Figure 5

Recovery to Pre-pandemic Levels, Employment, U.S., SA
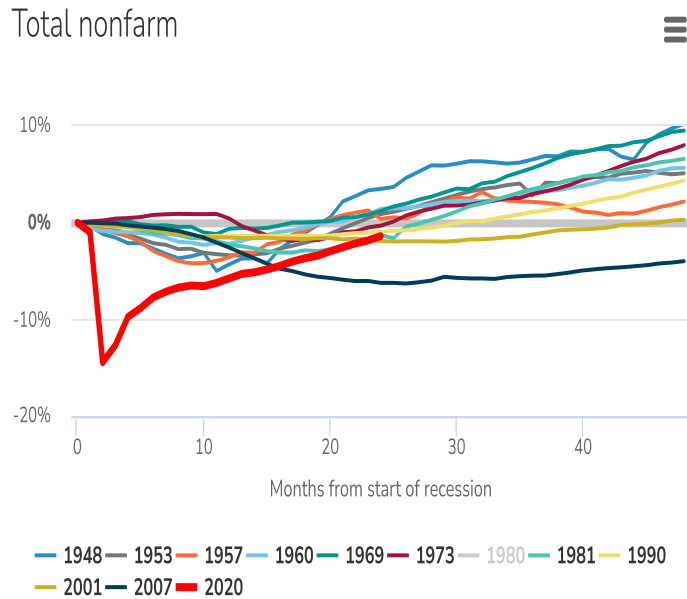
- The recovery from the Coronavirus downturn is faster than for the Great Recession and dot.com recession
- Out of twelve post World War II business cycles in the U.S., employment recovery was the third slowest
- The Great Recession and Pandemic Downturn were the most severe contractions in the post World War II era

Source: Bureau of Labor Statistics

Figure 6

EMPLOYMENT CHANGE, U.S., JANUARY 2022 TO AUGUST 2021
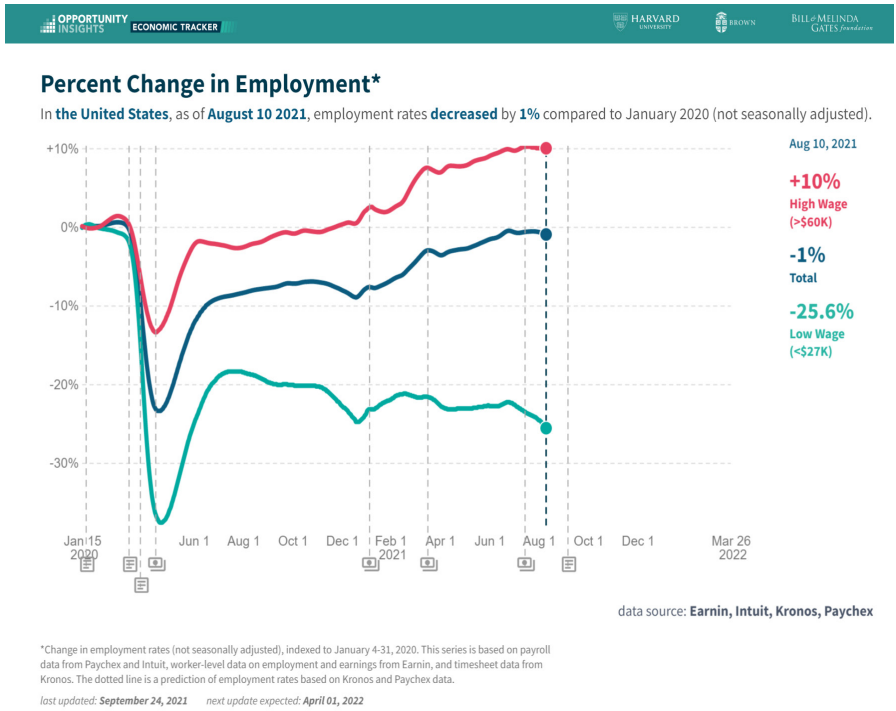
- Proponents of V-shape recovery only tell half of the story at best
- Large variation in employment recovery depending on type of wage earners
- Low wage earners continue to be at only 75% of recovery of jobs
- Continue large effects on minorities and women

Figure 7

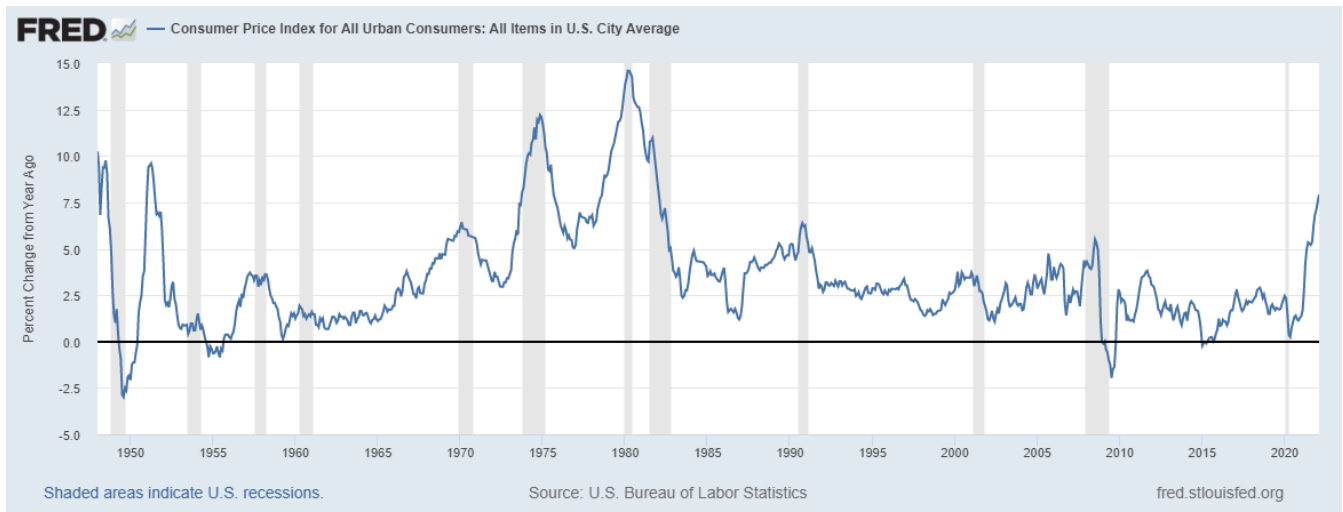ANNUAL INFLATION RATE, CONSUMER PRICE INDEX, U.S., JANUARY 1947 TO FEBRUARY 2022, SA, ALL ITEMS

Figure 8

- highest annual inflation rate in 40 years (February 1982)
- latest number: 7.9%
- monthly acceleration of 0.4% to 0.5% since October 2021 (6.8%)
- annualized monthly inflation currently even higher (10% for February 2022)

Annual Inflation Rate, Consumer Price Index, U.S. January 1947 to February 2022, SA, Less Food and Energy

Figure 9

- not as high as "All Items"
- still alarming with highest level in 40 years, now at 6.4% (February 2022)
- Federal Reserve actually prefers personal consumption expenditure price index smoothed
- regardless which measure you use, inflation is unacceptably high

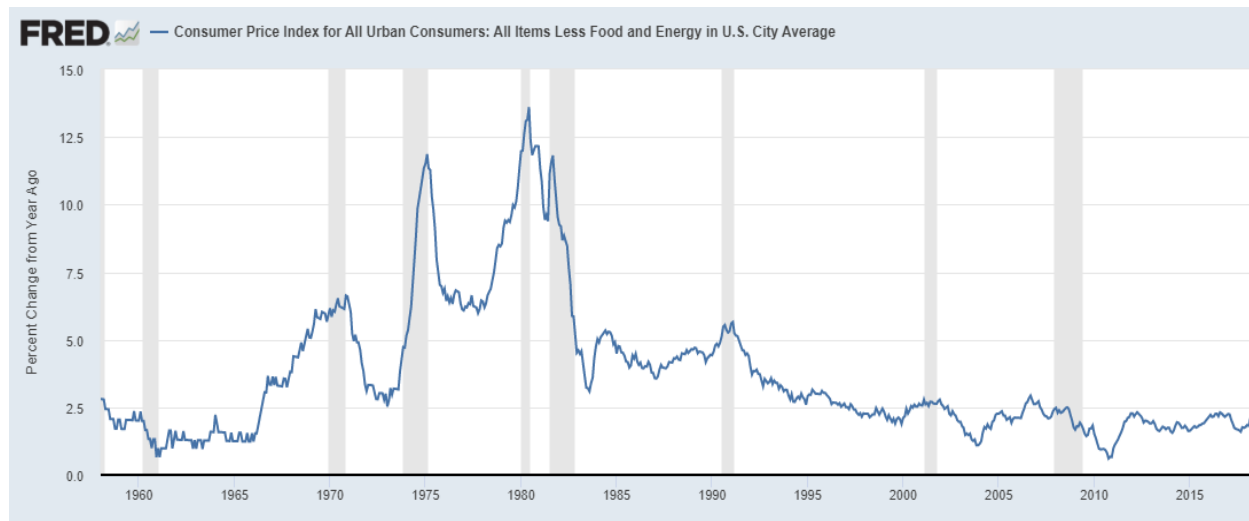## West Texas Intermediate (WTI), NSA, January 2017 to March 2022

Figure 10

- much of inflation is driven by higher energy prices
- note that oil prices were higher at the beginning of Great Recession
- oil prices were also high from 2012 to 2014
- oil prices are not inflation adjusted, which would make past prices even higher
- worst case scenario: U.S. forces Europeans to follow Russian oil embargo plus no additional U.S. production from fracking plus other OPEC countries do not increase production: resulting WTI price: $200 per barrel
- comparison to European gasoline prices: currently roughly $9.20 at the pump (Germany)

California Unemployment Rate, in %, February 2020 to February 2022, SA
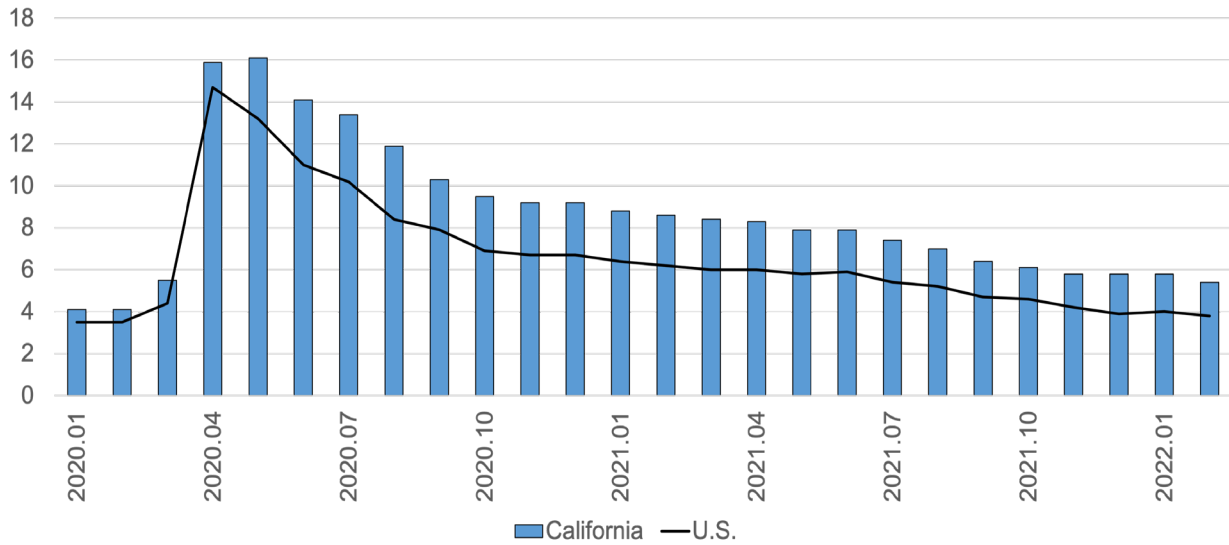

Figure 11

- California among states with highest unemployment rate
- Significant recovery, but still some 2 percentage points above pre-pandemic levels

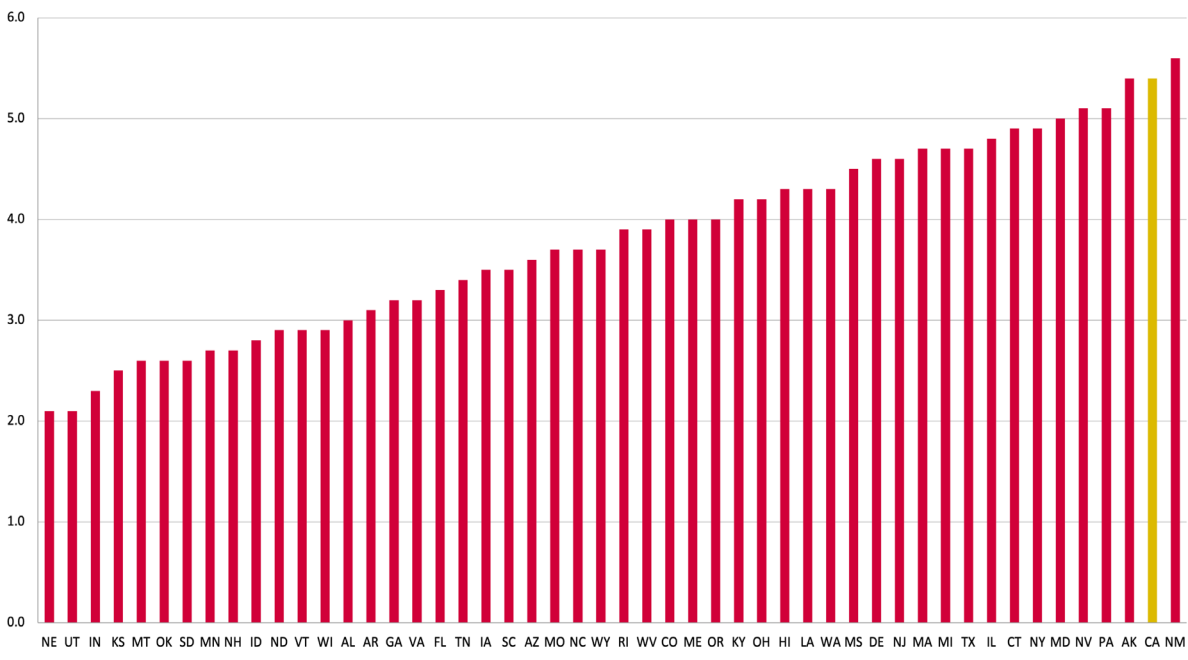## State U.S. Unemployment Rates, SA, February 2022

Figure 12

- California had the second highest state unemployment rate in February 2022
- States with higher stringency policies tend to have higher unemployment rates
- Texas and Florida have significantly lower rates, but still are in the top half of U.S. states

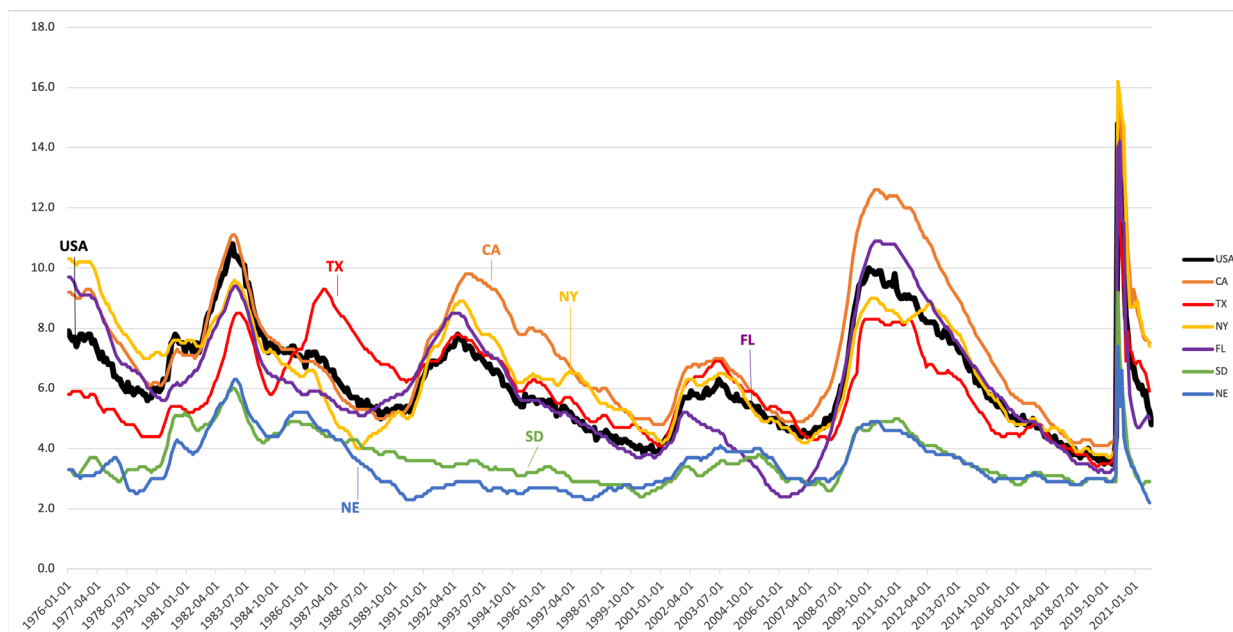## Unemployment Rate, U.S., California and Selected States, SA, 2019:M9 to 2021:M9

Figure 13

- California does not always have a particularly high state unemployment rate
- at times, Texas, New York, and Florida have higher rates
- some states (here Nebraska and South Dakota) always have relatively low unemployment rates

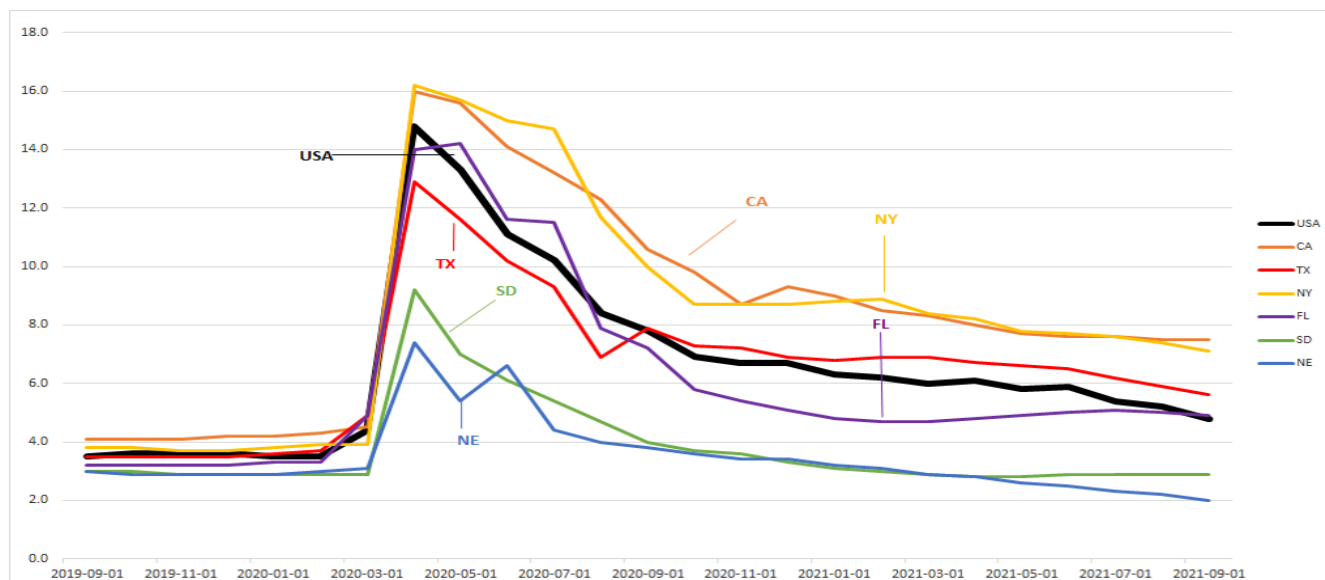## Unemployment Rate, U.S. and Selected States, SA, September 2019 to September 2021

Figure 14

- Following the Coronavirus Downturn, California and New York had consistently higher unemployment rates than the nation
- Texas was slightly above the U.S. average, while Floria fell below it by the summer of 2020
- Low unemployment states, such as Nebraska and South Dakota, returned to low levels fairly quickly

Consumer Sentiment Index, University of Michigan, March 2022
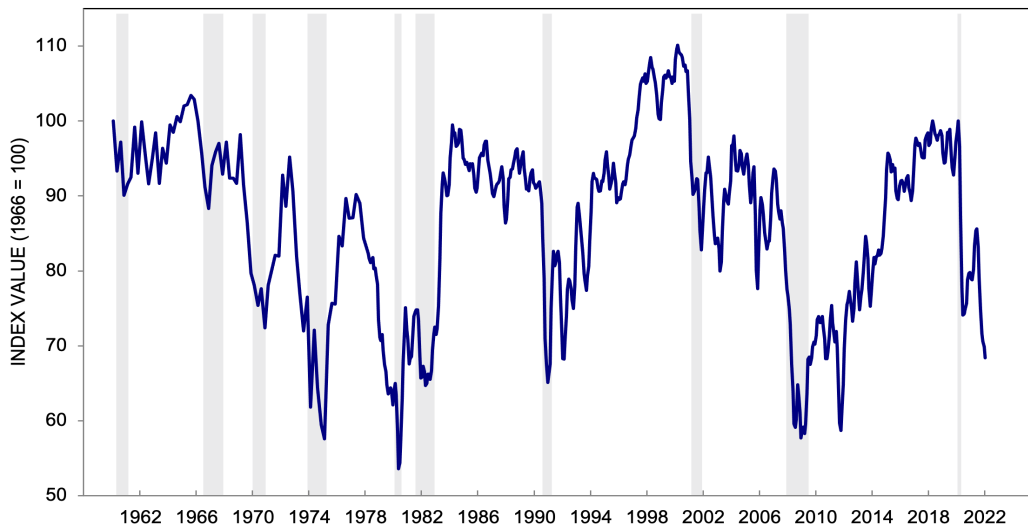
CHART 1A: THE INDEX OF CONSUMER SENTIMENT

Figure 15

- after initial recovery from the Coronavirus recession, the CSI has contracted recently
- it is currently at levels not seen before the Great Recession and prior to that, the U.S. recession following the Peace Dividend in 1990

Cumulative Coronavirus Deaths per 100,000 Population by U.S. State, March 2022
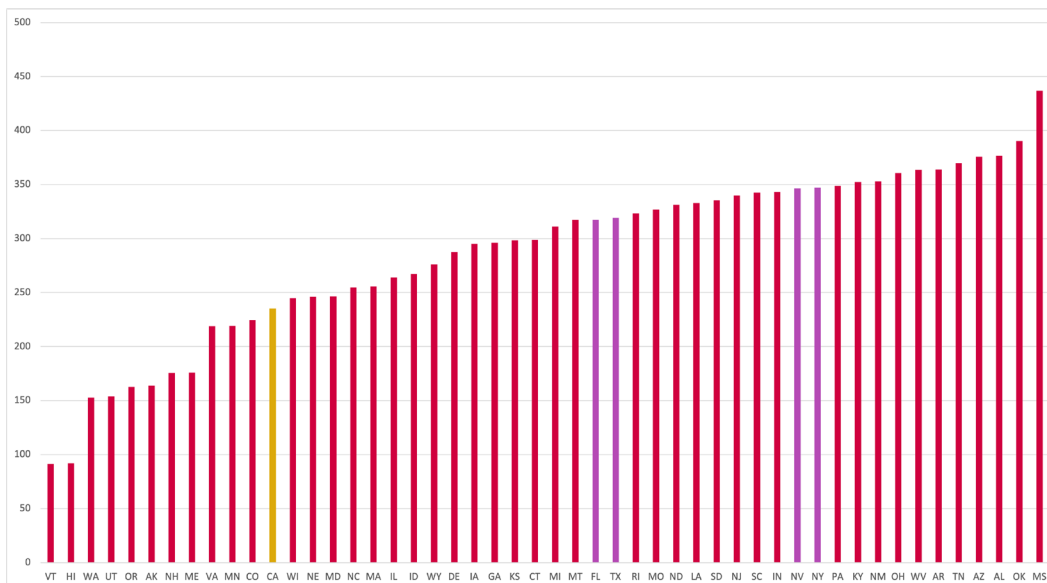

Figure 16

- States that kept their economy relatively open (Texas, Florida, South Dakota) experienced higher mortality rates from the Coronavirus
- States who have historically lower education levels have higher Covid-19 death rates
- New York seems to be in its own class due to early Trump policies of not shutting down to European tourists while blocking Asian tourists

UNEMPLOYMENT RATES, NOT SEASONALLY ADJUSTED, U.S., CALIFORNIA, SOUTHERN CALIFORNIA, FEBRUARY 2020, PEAK LEVEL, FEBRUARY 2022

Area	February 2020	Peak Level	February 2022
USA	3.5	14.7	4.1
California	4.2	16.0	4.8
Inland Empire	3.9	15.2	5.0
Los Angeles	4.3	19.2	5.4
Orange County	2.8	14.9	3.7
San Diego	3.2	15.9	4.0
Ventura County	3.7	14.5	4.1
Imperial County	18.1	28.6	14.0

Table 1

JOB RECOVERY, LARGE MSAs, CALIFORNIA, FEBRUARY 2022

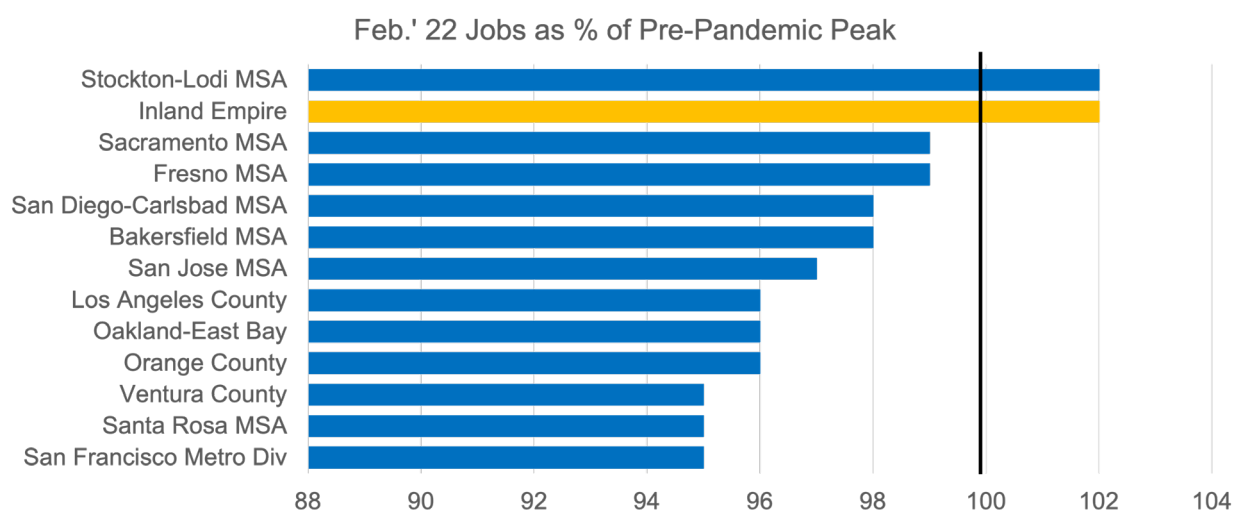Feb.' 22 Jobs as % of Pre-Pandemic Peak

Figure 17

- Stockton-Lodi and Inland Empire have recovered all jobs lost during the pandemic
- Others are "close" (Sacramento, Fresno) but not quite there
- In SoCal, Inland Empire is only region to surpass pre-pandemic job peak

Descision Point: Planning for The Inland Empire in 2042

If you want to describe the Inland Empire in a few sentences to an outsider, then here is what you could say: "The Inland Empire, consisting of San Bernardino County and Riverside County, is adjacent to the Greater Los Angeles area in the east and San Diego County to the north. There are roughly 4.6 million people, or almost 12% of Californians residing there. 20% of its labor force commutes primarily into the Greater Los Angeles area for work. On a Thursday morning, the 37 mile trip from Upland to Downtown LA takes 2 hours and 10 minutes if you leave at 7:00; and it takes 2 hours and 20 minutes if you return leaving downtown at 5 p.m."

So there you have it. There are so many more interesting things to say in describing the area, such as that San Bernardino County is the largest county in the U.S. measured by square miles, that the Coachella Music Festival attracts 124,999 people on each of its two weekends, its tourist attractions of Big Bear and Lake Arrowhead, the beauty of Joshua Tree, superior academic institutions in UCR and CSUSB plus various attractive smaller institutions, etc. But the previous paragraph focuses on the first impression one gets about the economy; and first impressions matter. They also set the tone of the analysis of where the Inland Empire was prior to the Coronavirus recession of 2020.

The characterization so far has been descriptive - it tells you little to nothing why people live here or why such a large fraction of the labor force do not work there. However, given that no one in their right mind likes the commuting of the type you experience daily on the I-10, I-210, CA-60, CA-91, I-15, etc., you can quickly deduce that the jobs in the coastal areas are better paying and that housing in the Inland Empire is more affordable. This simple insight immediately explains other observed facets such as that the Inland Empire is typically "First In - Last Out" when it comes to recessions (the Coronavirus recession notwithstanding). Residents in the Inland Empire typically lose their jobs before their coastal counterparts, and are the last ones unemployed during the recovery. The reason for this is that Inland Empire residents possess, on average, less human capital than those residing in the coastal areas, and hence they cannot afford desirable housing there. At the same time, the commuter's human capital is higher than that of the remainder of the Inland Empire's labor force - explaining why they can benefit from commuting rather than staying in the area for work. When economic activity starts to slow in the economic center of the area (Los Angeles County plus Orange County), then the commuters are laid off first, resulting in further layoffs in the Inland Empire as the now unemployed commuters purchase less at home. Similarly, they are also the last to get rehired in the upswing. The picture you should have in mind is that of a lake freezing from the periphery first, and thawing from the middle.

This is not an economic characterization we should be proud of. If this was the old "normal," then we clearly should not strive towards this state of affairs when we return to the "new normal." There is a further wrinkle which we must consider this time: the 4th industrial revolution of artificial intelligence (automation, robotics) will start much earlier than we had envisioned prior to the Coronavirus crisis.

Aggregate indicators of economic well-being such as Gross Domestic Product (GDP) and the unemployment rate give you

a picture of how well the overall economy is doing. However, when measuring the relative economic performance of geographical areas, economists typically look at per capita GDP, or income per person. Here is a quick demonstration why the "per capita" measure is more relevant. India has a population of 1.4 billion people, and while its GDP is greater than that of Canada or South Korea, its per capita GDP is not. Simply ask yourself the question, as an average person, would you rather live in New Delhi or Seoul or Toronto? To make matters worse, what about living in the countryside in these three countries? Using the per capita measure, India falls all the way to rank 150 out of the world's 200 or so countries. Similarly, when China catches up with the U.S. in terms of GDP in the early 2030s, its per capita GDP will still only by roughly 25% of that of the U.S. California, by the way, would be the 5th largest economy if it were a nation, and it still is the 7th richest country in terms of per capita GDP - definitely ahead of Texas and certainly far above Florida.

Inland Empire Ranking in the U.S.

So what about the Inland Empire? Out of 380 or so MSAs, our region ranks 13th by population in the U.S. (see Figure 18), and 3rd largest in California.

Looking at the GDP produced in our area, we produce the 6th largest output in the state, 20th largest among all U.S. MSAs (see Figure 19).
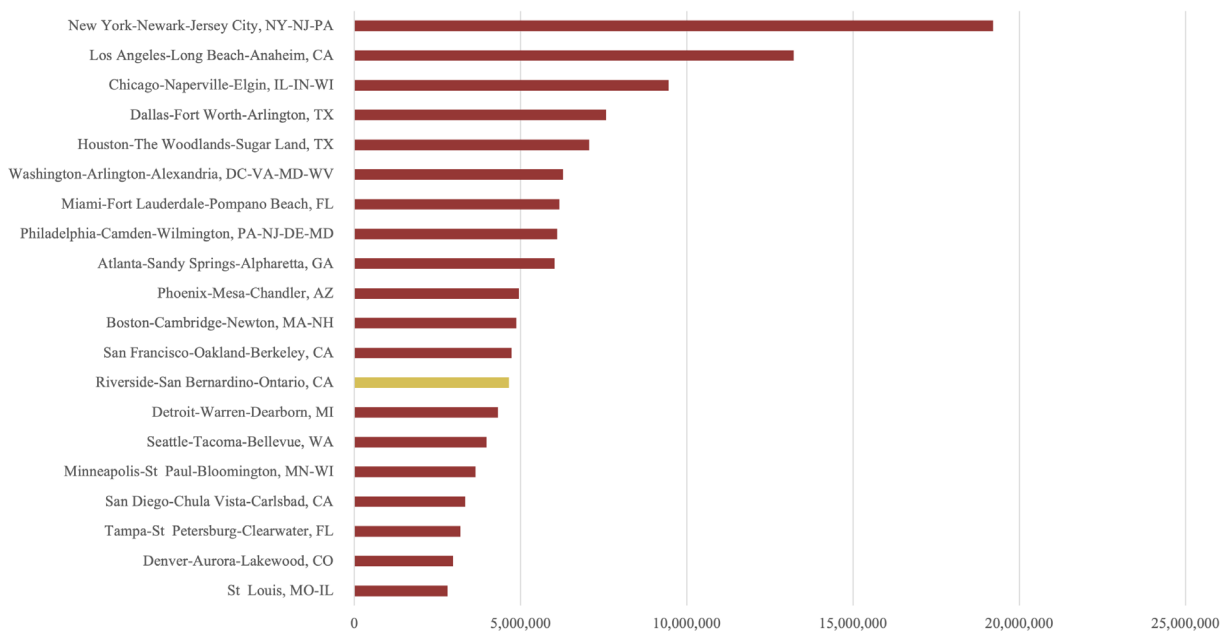
Population of Top 20 MSAs, U.S.
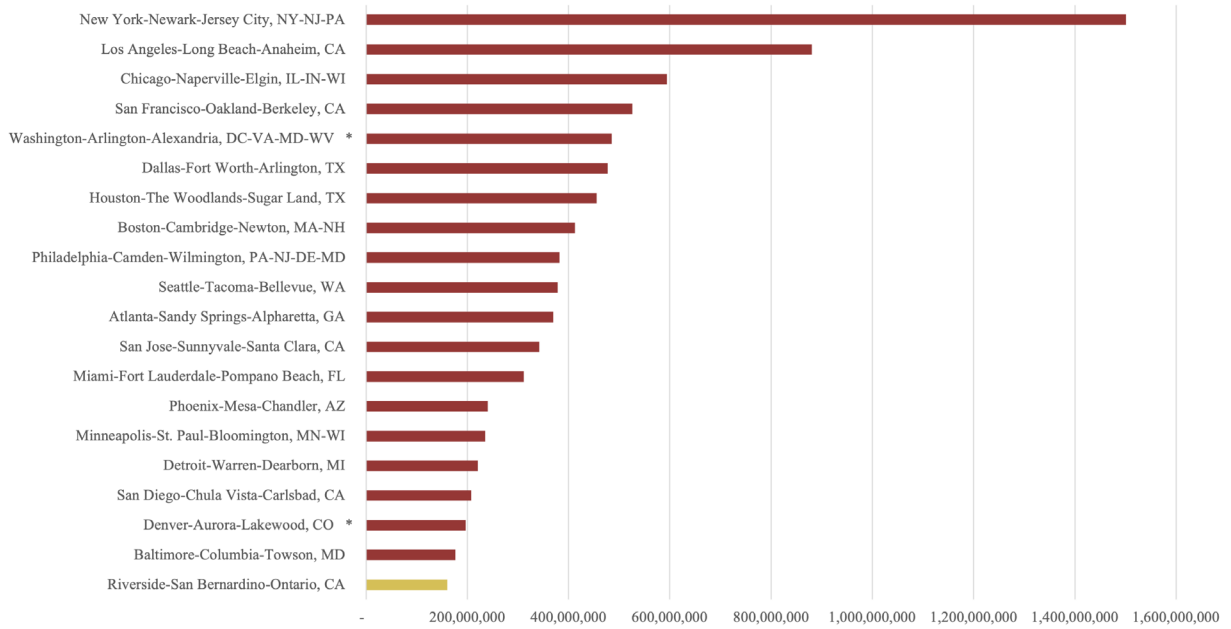

Figure 18

GDP, Top 20 MSAs, U.S.

New York-Newark-Jersey City, NY-NJ-PA
Los Angeles-Long Beach-Anaheim, CA
Chicago-Naperville-Elgin, IL-IN-WI
San Francisco-Oakland-Berkeley, CA
Washington-Arlington-Alexandria, DC-VA-MD-WV *
Dallas-Fort Worth-Arlington, TX
Houston-The Woodlands-Sugar Land, TX
Boston-Cambridge-Newton, MA-NH
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD
Seattle-Tacoma-Bellevue, WA
Atlanta-Sandy Springs-Alpharetta, GA
San Jose-Sunnyvale-Santa Clara, CA
Miami-Fort Lauderdale-Pompano Beach, FL
Phoenix-Mesa-Chandler, AZ
Minneapolis-St. Paul-Bloomington, MN-WI
Detroit-Warren-Dearborn, MI
San Diego-Chula Vista-Carlsbad, CA
Denver-Aurora-Lakewood, CO *
Baltimore-Columbia-Towson, MD
Riverside-San Bernardino-Ontario, CA

-    200,000,000   400,000,000   600,000,000   800,000,000   1,000,000,000   1,200,000,000   1,400,000,000   1,600,000,000

Figure 19

Recalling our discussion regarding India and China, what happens when we divide the Inland Empire's GDP by its very large population? The Riverside-San Bernardino-Ontario MSA now ends up at ***321 out of 384*** - surrounded by places few of you have heard of: Bowling Green, KY, and Valdosta, GA. This is clearly ***not*** the "new normal" we want to strive for.

Per Capita GDP, Top MSAs U.S., Inland Empire and Adjacently Ranked MSAs

Midland, TX
San Jose-Sunnyvale-Santa Clara, CA
San Francisco-Oakland-Berkeley, CA
Seattle-Tacoma-Bellevue, WA
Trenton-Princeton, NJ

Monroe, MI
Elizabethtown-Fort Knox, KY
Riverside-San Bernardino-Ontario, CA
Fort Smith, AR-OK
Hagerstown-Martinsburg, MD-WV

-    5,000,000   10,000,000   15,000,000   20,000,000   25,000,000
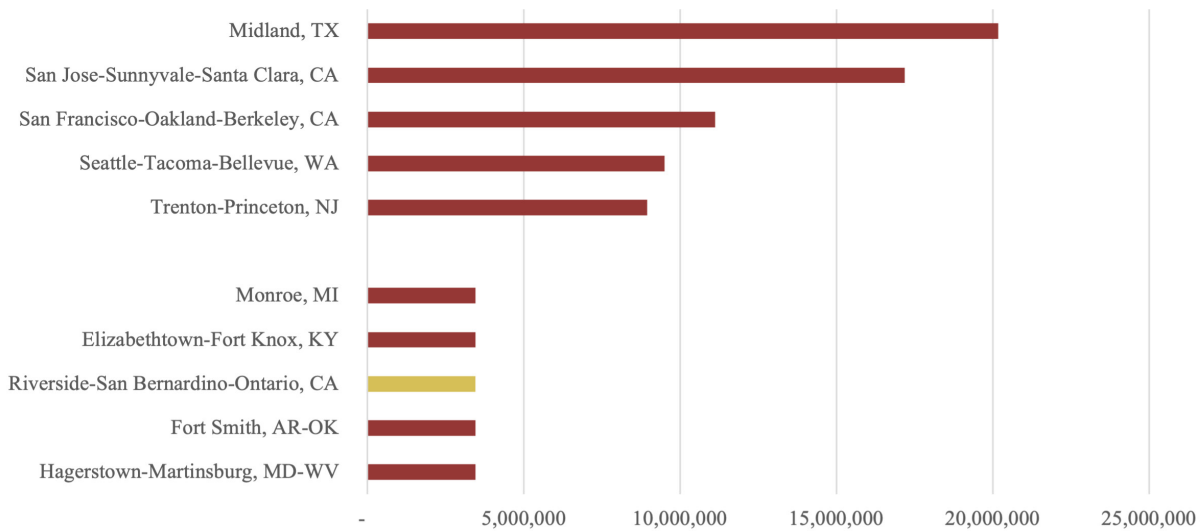
Figure 20

But what about the commuters? They live in the Inland Empire but produce GDP elsewhere and their production is therefore not recorded as belonging to our region. The U.S. Department of Commerce calculates per capita income by residency, and this adjusts for the effect of commuting. Applying this concept, the Inland Empire rises slightly, from rank 321 to 295. Better, but again, not something you want to aim for in 2042, twenty years from now, namely the bottom third of all MSAs in the U.S.!

Per Capita GDP, Top MSAs U.S., Inland Empire and Adjacently Ranked MSAs
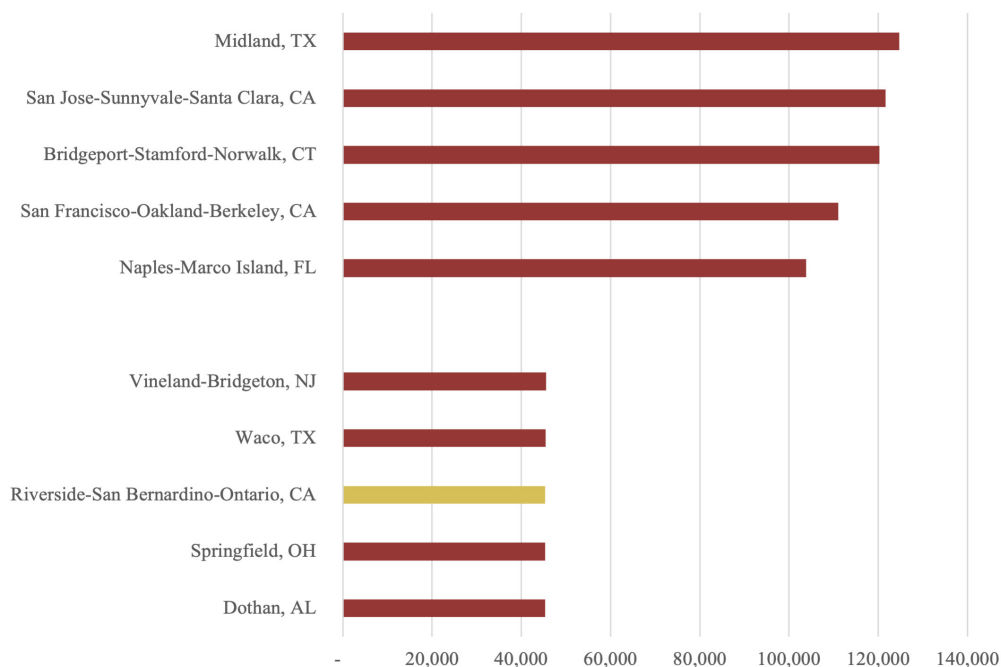
Figure 21

The Inland Empire will sink further with much of the automation and robotics taking away jobs in the Logistics sector, and in Leisure and Hospitality. Even if you were satisfied with the "old normal," the "new normal" without government intervention will not look pretty. But there is hope. Let's take an optimistic scenario and assume that the 4th industrial revolution of artificial intelligence does not take away from the growth potential in the Inland Empire perhaps because of government development policies. Next, let's assume that the region continues to grow its per capita income at the 3.3% growth rate that it has enjoyed since the turn of the millennium. In ten years (2032) we will reach $67,000 and in twenty years we will be at $93,000: we will have twice as much income per person as we have now.

This cannot be the end of the story. What attracted, and continues to attract, many to immigrate into this country and makes others proud of living here, is the fact that the American dream is more than just command over material goods, it is about the future generation being able to build on the achievements of the previous generation (that is us). So what can we do to ensure that the next generation wants to live in the Inland Empire rather than move into the upper two-thirds of areas with higher income potential, thereby? Specifically, what goals do we have to set to move the Inland Empire into the top 40% of MSAs in the U.S.? Let's be less abstract: what MSA sits there that we can relate to? In our view, it might be the Phoenix MSA, currently ranked 164th. Relatively simple mathematics will show you that at

current per capita income growth rates, we have to increase our per capita income growth rate from 3.3% to 3.6% to get us there by 2042. This can be achieved if we start today with policies conducive to producing this marginally higher growth rate.

What specific policies do we suggest? First, the region must realize that it will take time, planning, and effort from all relevant players, most importantly, business leaders and policy makers, and to start the process now. Since we suggest fundamental changes in the industrial composition, it is imperative to recognize that such changes in the regional economy cannot be achieved in the few months before and after an election; instead, they take years and decades. Moreover these policies must take into account regional advantages in its geography, and logistics and tourism that already exist and that will contribute to future growth, while taking into account industries that serve the local population. First and foremost, these policies must generate higher educational attainment and occupational training for those who are in their late 20s and older. Currently only 22% of Inland Empire residents have a bachelor degree or higher. Against initial expectations, the industrial composition in the target MSA (Phoenix) is not vastly different from that of the Inland Empire. However, 32% of residents in the Phoenix MSA have a bachelor degree or higher. Since the link between educational attainment and economic outcomes, such as per capita income or unemployment, has been established convincingly, this should receive the highest priority. Coupled with the fact that the Logistics industry and Leisure and Hospitality sector face technological advances which favor those with better educational attainments, there is a need to institutionalize lifelong learning to adapt to the fast-changing needs of the industries.

The desired outcomes have been set in the previous paragraph. Almost equally important is the required coordination for a regional policy effort. While Riverside County and San Bernardino each have unique aspects, they must realize that they are part of a broader region, be it the Inland Empire or Southern California. Our area has extensive industry linkages, shares a common labor pool, and is responsible for a shared transportation infrastructure. Businesses and individuals do not recognize county lines when it comes to the flow of goods and labor. Hence there is an important need for policy coordination between the two counties if we are set for the common goal. We suggest the formation of a joint task force to tackle topics such as cost of living (housing) costs, natural resources, academic institutions, and infrastructure.

Regional experts like to distinguish between traded industries, namely those that create growth through their capacity to sell goods and services to people and businesses outside the region, and the industries that serve the local population. While it is the industries that serve the local population (e.g. leisure and hospitality, construction, retail trade) that generate high amounts of tax revenue for local governments and employ large numbers of workers, it is the existing traded industries that attract new traded industries that can serve as a source of new income that often produce high value-added output. They also generate better paying jobs. With an emphasis of nurturing existing traded industries and attracting new ones, the region will also serve and energize the population-serving industries.

Here is the bottom line for our two point approach to a "new normal" that is better than the old normal: based on a comprehensive understanding of our area's industries, assets, and institutions, generate a road map for the future's goals and priorities through a joint political effort between San Bernardino County and Riverside County. The task is to identify and attract new and emerging industries that can capitalize on the region's existing (i) economic, and (ii) labor force strengths. Find a way to increase educational attainments in the region's labor force to serve the needs of these new industries.

Industry Distribution, Geography, and Competitiveness

In this section we will discuss the economic prospects of the Inland Empire focusing on the characteristics of its industry composition. The Inland Empire benefits from its geographical location, leverages its access to the Orange County and Los Angeles County labor and consumer markets, and serves as the gateway from Southern California to anywhere east. But these same advantages highlight also the two largest vulnerabilities: our lack of economic diversity, and its over-reliance on non-traded industries.

Geographically, the distribution of industries in a local economic area is not accidental or random. In fact, firms tend to gather around firms from the same industry in what economists call "clusters." The economist Michael Porter defined clusters as "geographic concentrations of interconnected companies and institutions in a particular field." They include input suppliers, a common pool of workers, and may even geographically gather around their customer base. Consider, for example, the wine cluster around Temecula Valley: this cluster includes more than wineries, grape growers, and vineyards. It includes state and local government agencies that support wine production; it also includes educational, research, and trade organizations. It includes people who make bottles, who print labels, ad-agencies, etc. But so much more than that. Figure 18 shows the California cluster as defined by Porter in his 1998 article.

Anatomy of the Wine Cluster, Porter, 1998
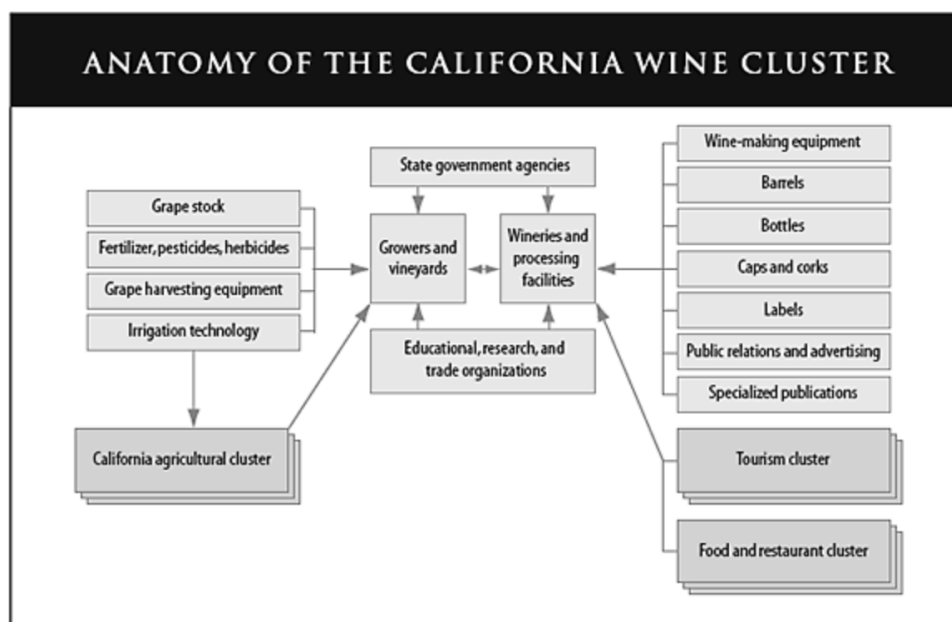
Figure 22. Porter, Michael E. Clusters and the new economics of competition. Vol. 76, no. 6. Boston: Harvard Business Review, 1998.

Because of its interconnectedness, local economic areas that depend on one or a few clusters tend to be vulnerable to industry downturns. The case of Detroit is one example, where the automotive industry thrived during the early twentieth century, yet when competition from foreign automobile competitors started in the later part of the century, the city's fortunes reversed. An economy that is diverse and connected to many clusters will be more resilient to these downturns. Unfortunately, industry concentration in the Inland Empire has increased over very few clusters over the last ten years. Figure 23 shows clusters in the Inland Empire and indicates that in 2019 fifty-two percent of all jobs in the region belong to one of the top five clusters, and the region has seen a considerable increase around the "Distribution and Electronic Commerce" cluster.

CLUSTERS IN THE INLAND EMPIRE, 2019
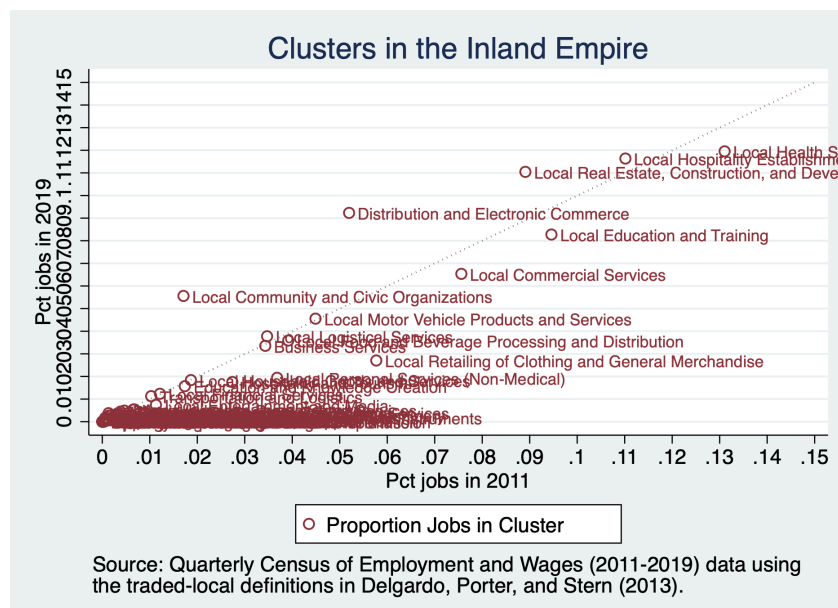
Figure 23

Interconnectedness can be local, but it can also be regional, national, or international. Non-traded industries are those where the output or service is consumed locally, and whose economic impact is mostly isolated from the rest of the world. Health, Logistics, Retail Trade, and Leisure and Hospitality belong all to non-traded industries. Traded occupations, in contrast, are those where consumption is independent of where the product is produced, and can be shipped anywhere around the world: the Information sector with its technology and software development, Manufacturing all belong to the traded sector. This distinction is important because most of the productivity growth during the last twenty years accrue in the traded sector.

The majority of the jobs are in the non-traded or local sector, and Figure 20 shows that the Inland Empire is not an exception. The one difference though, is that while nationally two thirds of all jobs are in the non-traded sector, a job in the Inland Empire is ten percent more likely to belong to this sector. In fact, the top five industry clusters in the Inland Empire are all in the traded sector: local health services, local hospitality, local real estate construction and development, local distribution and electronic commerce, local education and training. Notice the emphasis in "local" for all these clusters.

EMPLOYMENT IN NON-TRADED INDUSTRIES, 2011-2020, CALIFORNIA, INLAND EMPIRE, LOS ANGELES COUNTY, ORANGE COUNTY

Percentage Employed in non-Traded Industries

Source: Quarterly Census of Employment and Wages (2011-2019) data using the traded-local definitions in Delgado, Porter, and Stern (2013).
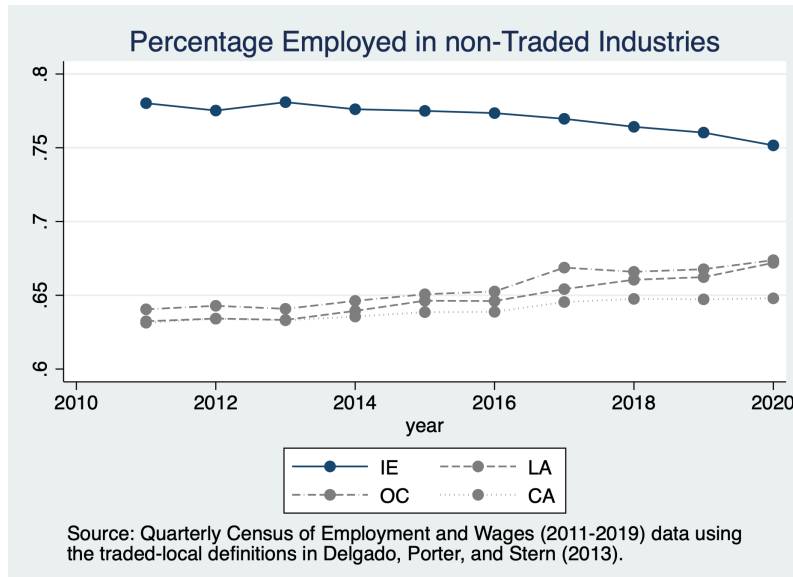
Figure 24

THE INLAND EMPIRE: A LOOK AT TWO RECESSSIONS AND THE FOLLOWING EXPANSION

UNEMPLOYMENT RATE, INLAND EMPIRE, NON-SEASONALLY ADJUSTED (EDD DATA) VERSUS SEASONALLY ADJUSTED (IEEC USING X13), JANUARY 2001 TO FEBRUARY 2022
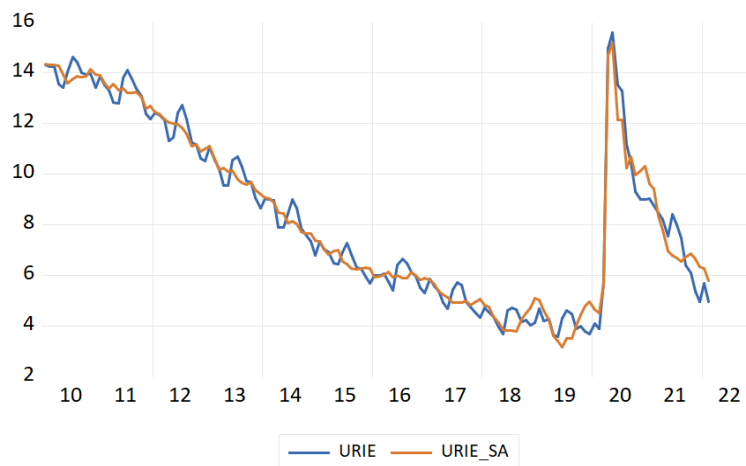
Figure 25

- seasonally adjusted unemployment rate series does not show 0.7% increase in January 2022. The seasonally adjusted series only shows an increase of 0.2%.
- 0.4% to 0.7% increases in non seasonally adjusted series occur every year since 2001 in the Inland Empire
- Seasonally adjusted series leaves Inland Empire current unemployment rates slightly higher at 6.4% compared to 5.7% non-seasonally adjusted
- Using seasonally adjusted rates leaves the Inland Empire unemployment rate slightly above the California rate for January 2022

EMPLOYMENT LEVELS, U.S., CALIFORNIA, INLAND EMPIRE, CES, PERCENT CHANGE SINCE JULY 2007
(INLAND EMPIRE PEAK PRIOR TO GREAT RECESSION)
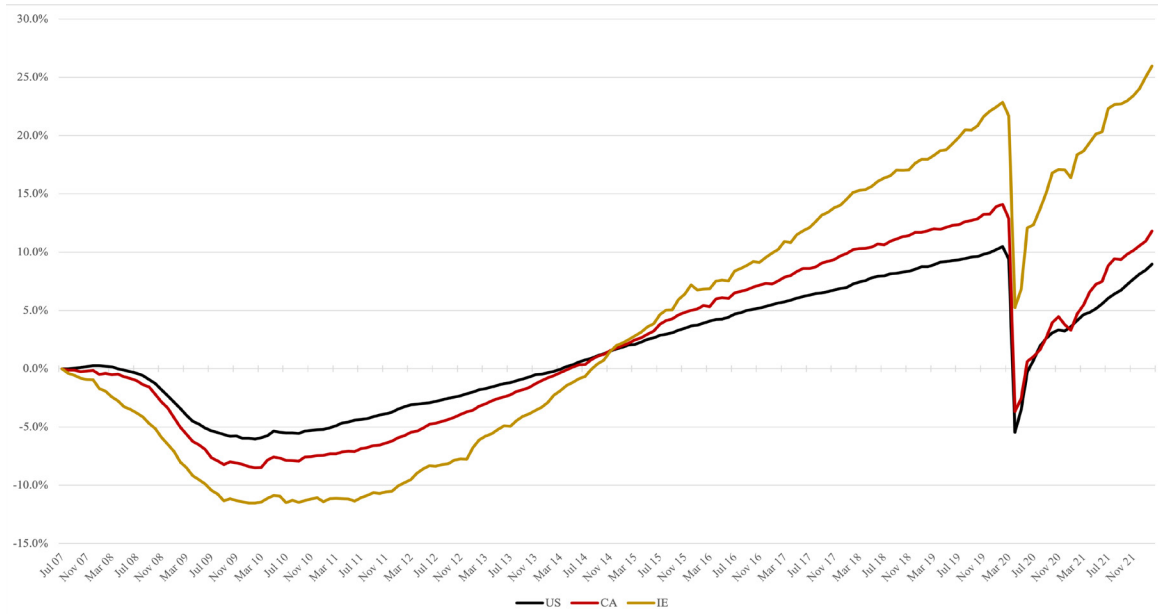
Figure 26

- the Inland Empire was one of the epicenters of the housing bubble collapse and hence suffered more seriously from the consequences;
- the recovery generated more employment growth than for California and the U.S. and by 2014 all jobs had been recovered;
- our region outperformed California and the U.S. in job growth from 2014 to the end of the expansion;
- the jobs created during this period were not as well paying as those for the nation and the state and income gains were primarily due to employment gains

INITIAL INCREASE IN CALIFORNIA MSA UNEMPLOYMENT RATES FEB 2020 TO APRIL/MAY 2020
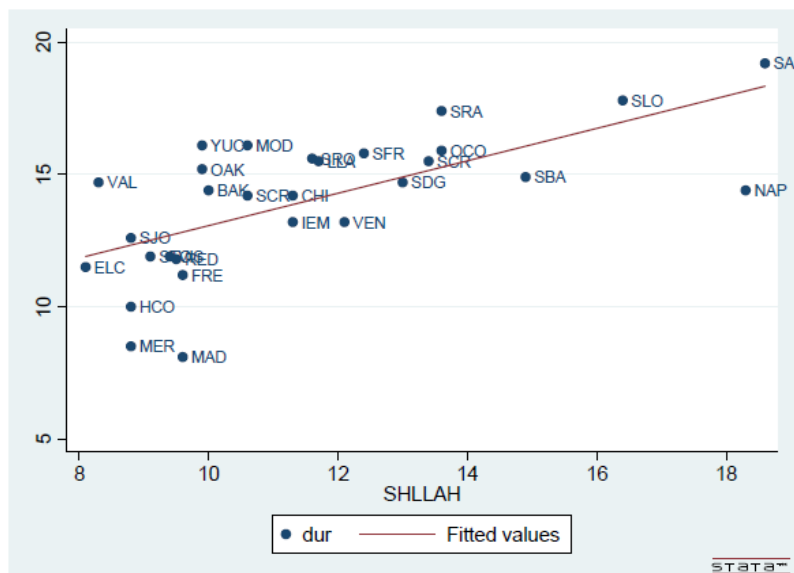
Figure 27

- The initial decline in economic activity can be largely explained by the industrial share of Leisure and Hospitality: the larger the share, the larger the increase in the unemployment rate. Simple relationship explains roughly 50% of the variation in the change in the unemployment rate.
- the initial decline in economic activities from March 2020 to April/May 2020 was less severe in the Inland Empire than most counties in California, and certainly less severe than for Los Angeles County;
- Our region outperformed the state and national economy due to its larger share in the logistic sector.

EMPLOYMENT LEVELS, BY SECTOR, INLAND EMPIRE, CURRENT JOB COUNTS AS % OF PRE-PANDEMIC PEAK

Major Industry	2021.01	2021.12	2022.01	MTM	YTY	MTM % Change	YTY % change	% of Feb 2020
Total Nonfarm	1,503,800	1,632,500	1,607,200	-25,300	103,400	-1.5%	6.9%	101.2
Leisure & Hospitality	129,600	172,900	166,300	-6,600	36,700	-3.8%	28.3%	92.9
Transportation & Warehousing	191,100	217,500	212,000	-5,500	20,900	-2.5%	10.9%	138.7
Government	239,100	253,700	252,800	-900	13,700	-0.4%	5.7%	95.1
Retail Trade	174,800	187,800	183,100	-4,700	8,300	-2.5%	4.7%	103.4
Other Services	36,400	43,900	43,400	-500	7,000	-1.1%	19.2%	90.2
Health Care & Social Assistance	231,800	235,000	236,700	1,700	4,900	0.7%	2.1%	99.6
Administrative & Support & Waste Services	109,300	116,600	113,800	-2,800	4,500	-2.4%	4.1%	103.9
Educational Services	16,600	19,300	19,000	-300	2,400	-1.6%	14.5%	86.8
Manufacturing	92,500	96,200	94,800	-1,400	2,300	-1.5%	2.5%	94.7
Professional, Scientific & Technical Services	43,500	45,800	45,100	-700	1,600	-1.5%	3.7%	98.5
Wholesale Trade	66,000	67,600	67,100	-500	1,100	-0.7%	1.7%	97.7
Information	8,600	9,900	9,700	-200	1,100	-2.0%	12.8%	85.8
Real Estate & Rental & Leasing	19,800	21,400	20,800	-600	1,000	-2.8%	5.1%	100.5
Mining and Logging	1,300	1,300	1,300	0	0	0.0%	0.0%	100.0
Finance & Insurance	24,600	24,500	24,100	-400	-500	-1.6%	-2.0%	95.6
Management of Companies & Enterprises	8,900	8,500	8,300	-200	-600	-2.4%	-6.7%	93.3
Construction	104,900	105,600	103,900	-1,700	-1,000	-1.6%	-1.0%	95.4

Figure 28

- Sectors with largest % decline relative to pre Coronavirus:
- (i) Information (-14.2%), (ii) Educational Services (-13.2%),
- (iii) Other Services (-9.8%), (iv) Leisure and Hospitality (-8.1%),
- (v) Management Companies & Enterprises (-7.3%)
- Sectors with largest absolute decline relative to pre Coronavirus:
- (i) Government (-13,400), (ii) Leisure and Hospitality (-4,800),
- (iii) Other Services (-4,100), (iv) Manufacturing (-3,700), (v) Information (-1,500)

K-Shape Employment Recovery, San Bernardino County, August 2021

Figure 29

K-Shape Employment Recovery, Riverside County, August 2021

Figure 30

OTHER INDICATORS OF ECONOMIC WELL-BEING FOR THE REGION

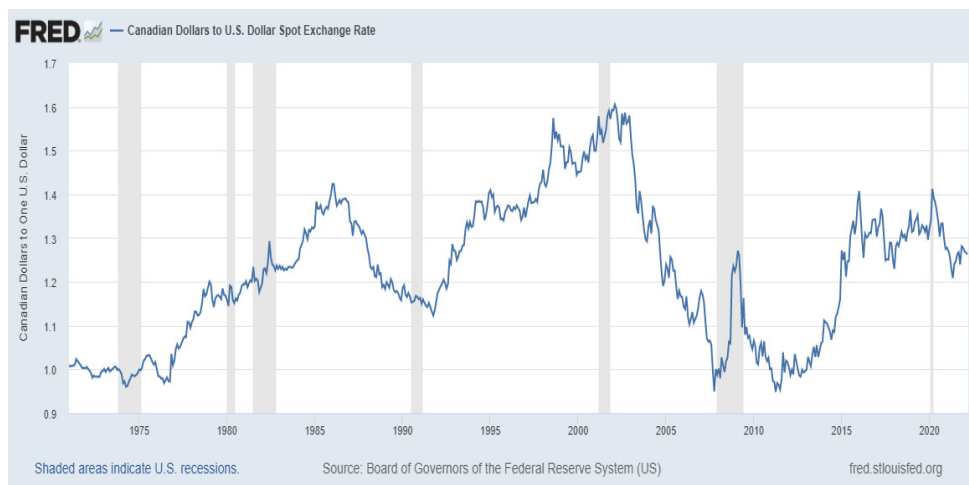## CANADIAN DOLLAR TO U.S. DOLLAR EXCHANGE RATE, NSA, FEBRUARY 1971 TO MARCH 2022

Figure 31

- "Snowbirds" pay now 25% more for holidays compared to 2010, CA $4,000 now costs CA $5,000
- Canadian owners of properties in Coachella Valley can afford to sell houses under market value and still make a profit compared to original purchase
- Situation has slightly improved from CA$1.40/$1.00 situation in 2020

SHARE OF CALIFORNIANS FULLY VACCINATED, MARCH 2022
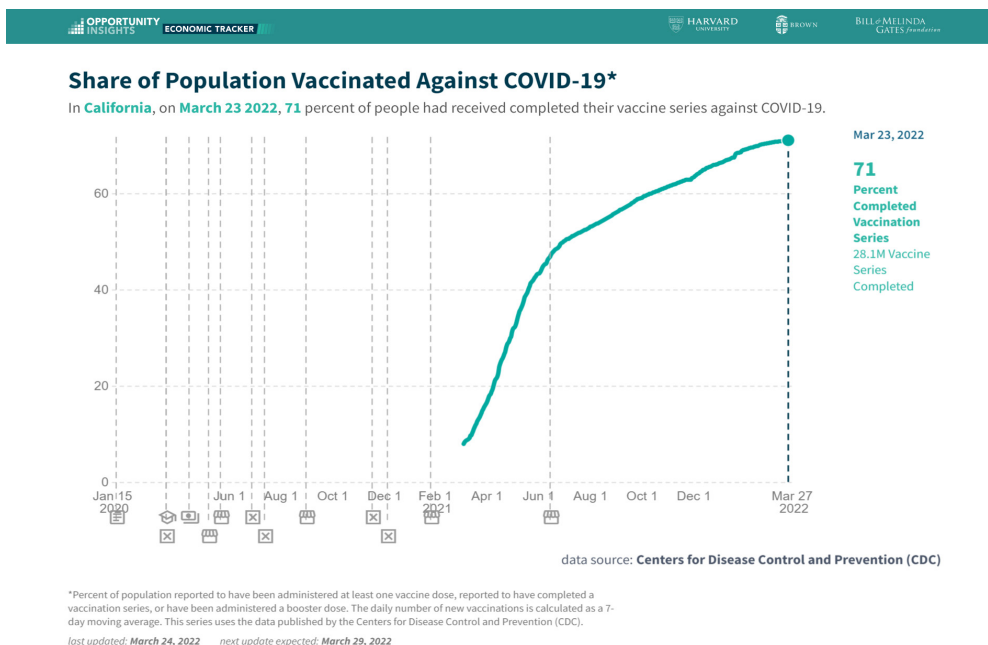
Figure 32

Share of San Bernardino Fully Vaccinated, March 2022

Figure 33

Share of Riverside County Vaccinated, March 2022

Figure 34

Economic Forecast for the Nation, State, Region

Expect the 2022 Quarter I GDP growth for the U.S. to come in at a disappointingly low rate of less than 2%. The data will be published towards the end of April. We actually predict that number to be only slightly above 1% at 1.5%. However, growth will pick up in the second quarter and for the rest of the year and will end up above 3.5% for the year - which is still high by historical standards. We pin our hope for higher GDP growth on the pent-up demand by households to come into effect during the second quarter. Other forecasters who predict higher annual growth for the U.S., say above 5%, assume that the pent-up demand will be high not only for the second but also for the third quarter. We are not that optimistic. For the following two years (2023 and 2024), we see the U.S. economy reverting back to the roughly 2.5% growth rates experienced since the end of the Great Recession. This is below the historical average of 3% and certainly below the growth rates promised by President Trump of 4%.

Both California and the Inland Empire will see somewhat higher growth rates, at least in the immediate future, as international tourists return to the state and its attractions. The Inland Empire will benefit, at least until 2024, from the higher amount of imports and domestic shipping from internet retail orders. We will not feel the negative effects from automation and robotics until 2025 the earliest.

Unemployment rates for the U.S. will stay close to rates experienced before the Coronavirus downturn. It has taken longer for the state and regional unemployment rates to come down, and they will settle eventually at lower levels, but will remain above the national rate given the differences in socio economic factors.

Inflation will come in on the high end for the year, increasing roughly by 7%. This means that the current inflation rates, which are high by historical standards, will even increase further, although we doubt that they will reach double digits. Expect for these to come down to the target inflation rate of 2% set by the Federal Reserve for the following two years.

Economic Forecasts, GDP Growth, U.S., California, Inland Empire: Red: UCLA, Green: Beacon

GDP Growth	2022	2023	2024
USA	3.6	3.1	2.5
California	4.1	3.5	2.9
Inland Empire	4.3	3.7	3.1

Table 2

ECONOMIC FORECASTS, UNEMPLOYMENT RATE, U.S., CALIFORNIA, INLAND EMPIRE

Unemployment Rate	2022	2023	2024
USA	3.7	3.5	3.4
California	5.6	4.3	4.2
Inland Empire	5.8	5.1	4.5

Table 3

ECONOMIC FORECASTS, INFLATION, U.S.

Inflation Rate	2022	2023	2024
USA	6.9	3.5	2.2

Table 4