CALIFORNIA’S BUSINESS CLIMATE

An In-Depth Analysis of the Facts, Origins and Trends of Food Systems in California
ABOUT CALIFORNIA 100

The California 100 Initiative envisions a future that is innovative, sustainable, and equitable for all. Our mission is to strengthen California’s ability to collectively solve problems and shape our long-term future over the next 100 years.

California 100 is organized around 15 policy domains and driven by interrelated stages of work: research, policy innovation and engagement with Californians. California 100’s work is guided by an expert and intergenerational Commission. Through various projects and activities, California 100 seeks to move California towards an aspirational vision—changing policies and practices, attitudes and mindsets, to inspire a more vibrant future.

This California 100 Report on Policies and Future Scenarios was produced as part of California 100’s research stream of work, in partnership with 20 research institutions across the state. California 100 sponsored grants for data-driven and future-oriented research focused on understanding today and planning for tomorrow. This research, anchored in California 100’s 15 core policy domains, forms the foundation for the initiative’s subsequent work by considering how California has gotten to where it is and by exploring scenarios and policy alternatives for what California can become over the next 100 years.

The California 100 initiative is incubated through the University of California and Stanford.

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CALIFORNIA'S BUSINESS CLIMATE
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Introduction

All the leaves are brown, And the sky is gray
I've been for a walk, On a winter's day
I'd be safe and warm, If I was in L.A.
“California Dreamin’,” Mamas and Papas, 1965

No single event marked California’s emergence in the mid-20th century as one of the premier economic and cultural powers among America’s 50 states. Perhaps California’s rise became plain to many Americans in May 1972 when the National Broadcasting Company transferred its iconic “The Tonight Show—Starring Johnny Carson” from New York City to Los Angeles. Moving this television show from the most renowned and largest metropolitan area in America, New York, to what had recently become the second largest, Los Angeles, confirmed that LA had truly become a great, world city that competed with New York as the nation’s cultural capital.

California, a storied land of gold, oil, the movies, palm trees, Disneyland, wine, and aerospace, had already become the richest state by surpassing New York in total personal income in 1962, and it had become the most populated state by surpassing New York officially in the 1970 census and sometime in 1963 according to estimates. But the movement of “The Tonight Show” to California signified much more than these numbers. Los Angeles had become a cultural leader, and California had become a mecca of opportunity for Americans.

By anyone’s definition, California was prosperous in the late 1960s and early 1970s. From 1940 to 1970 it almost tripled in population while the rest of the United States grew at one-fourth that rate. Average personal income in 1970 was 18 percent above the U.S. average, the poverty rate for families was 17th lowest among the states, and income was distributed much more equally than it had been before World War II. Not all groups prospered equally, and African American personal income was substantially below that of whites, but the Black population increased from 1.8 percent to 7.0 percent between 1940 and 1970 as African Americans came to California seeking opportunities not available elsewhere. Housing was also 30 percent more expensive than the rest of the nation, but it was still within reach and less than in Connecticut and New Jersey and just above the median price for New York. Coastal California compensated those who paid high housing prices with a Mediterranean climate and nearby beaches and mountains.

As for popular culture, Hollywood was one of the attractions for “The Tonight Show.” It continued to be the movie making capital of the world even as the studio system waned. Independent producers of the “New Hollywood” took over the business with “Bonnie and Clyde,” “The Graduate,” “Easy Rider,” and “Midnight Cowboy”—movies providing novel and idiosyncratic takes on outsiders, young people, and the
American dream that partly reflected California’s insurgent status. In the city of Hawthorne in Los Angeles County, where teenagers cruised back and forth on its eponymous boulevard and went surfing at nearby Manhattan Beach, the Beach Boys wrote songs throughout the 1960s that successively celebrated the carefree and easy-going car (“Little Deuce Coupe”), surfing (“Surfin’ USA”), and psychedelic cultures (“Good Vibrations”) associated with California. In 1967 the new hippie counterculture erupted with the “Summer of Love” in San Francisco’s Haight-Ashbury with inspiration provided by the music of the Jefferson Airplane and the Grateful Dead. Los Angeles boasted its own musical tradition centered on Laurel Canyon with Joni Mitchell, the Byrds, the Doors, Buffalo Springfield, Frank Zappa, Crosby, Stills, Nash and Young, and the Mamas and the Papas. In the honky-tonk bars of Bakersfield at the ranching and oil-producing southern end of California’s central valley, Merle Haggard helped create the raw Country and Western “Bakersfield Sound,” and he released “Okie from Muskogee” in 1969 recounting the Midwestern roots and values of many southern Californians and other Americans who were at odds with the counterculture of the coastal cities.

With its large population, its great distances, and its growth in the years after the invention of the automobile, California pioneered in the development of freeways to allow people to move quickly across the landscape. The state created a massive system of transporting water that allowed cities to grow and deserts to bloom, and it developed the best public higher education system in the world, supporting a scientifically and technologically innovative society that presaged the “knowledge economy” of the 21st century. California was the undisputed aerospace center of the world that pioneered the rockets, guidance systems, and space capsules that took Americans to the moon in 1969. With its Golden Gate, beaches, mountains, natural wonders at Yosemite and Death Valley, and man-made marvels at Disneyland, it was a magnet for tourism. Many Americans wished they were “safe and warm” in California.

A state with high personal incomes, an equitable and fair distribution of income, and bustling, innovation-producing cities attracting newcomers offers the picture of prosperity. How does that happen? We build upon three different approaches to understand California’s prosperity and business climate.

First, using state and regional economic indicators for metropolitan areas, we review California’s overall history of economic growth, population growth, and inequitable sharing of this growth over the past 50 years in the context of national trends. Along the way we develop answers to the not so simple question of how to evaluate the prosperity of a region. Urban and regional economists disagree about how to evaluate the economic strength of an area. Some say that population growth is the right metric because it involves the revealed preference of people voting with their feet to move to a region that they believe will be better for them. Others say that income (or GDP) per capita is the proper metric because it demonstrates that a
region is productive and producing wealth. Critics of population growth say that it often just moves people around without necessarily increasing total productivity or wealth and that, furthermore, growth in the size of a city can be a bad thing if it produces problems such as congestion and pollution. Critics of per capita income say that because markets come into an economic equilibrium across regions, any extra per capita income paid to workers in one region compared to another must be to compensate them for additional costs such as higher costs of housing or fewer amenities—that is "real" per capita income across regions must be equal in equilibrium so that apparent differences in per capita income simply reflect cost of living differences.

We conclude that because of agglomeration economies, there can be a relatively long-term disequilibrium in which a region is genuinely richer than another region (e.g., the Bay Area right now) even after adjusting for high costs of things such as housing. Furthermore, we argue that growth in population sometimes merely expands an economy by the production of goods and services just for residents (called residiitary goods) which are not truly bringing more wealth into a region in the way that tradable, exportable goods such as natural resources or new inventions produce new wealth. Despite this criticism of population growth, we still conclude that California's low population growth rate is a problem because it portends a lack of enough workers in the future. We also argue that what is often missing in discussions of regional prosperity are the issues of income distribution and poverty and that California confronts some real problems here given its very high (first in the nation) poverty rate, very unequal income distribution, and high housing costs.

In this first section, we also compare California's growth to that of other regions in the United States, especially the South, which has emerged as a major competitor to California. A look back at historical data reveals that California has been generally prosperous, economically vigorous, and a good place for people to come for jobs and for entrepreneurs to find success, but it is now facing increasing competition and difficult problems epitomized by its high cost of housing and exacerbated by its growing inequality.

Second, behind this economic growth is the structure of California's industry—the types of businesses that California has attracted, such as aerospace, entertainment, information technology (IT or Tech), and logistics—and their potential for growth and provision of good jobs into the 21st century. Using economic statistics broken down by industry, this approach first examines the current vitality and potential of industrial sectors within California and compared to other states. Then it explores the industrial structures of each of California's nine regions. These investigations provide clues about whether California has an industrial structure—an economic base—that promises to be successful and attuned to the trends of the next decades.
Third, we look at concerns expressed by businesses, the media, and think tanks in “business climate ratings” that evaluate doing business in California. Interpreting these concerns requires placing them in the context of the deeper underlying economic forces reviewed in the first two approaches. This effort pays off in a more profound understanding of the slippery concept of “business climate” which reflects both the costs (e.g., taxes and regulations) imposed by public policies on businesses within a region and the productive environment within the region (e.g., educated workforce and better quality of life) created by those public policies that support businesses. We end by considering California’s future prosperity.
Evaluating the Prosperity of Metropolitan Regions

Ways a Region Can Prosper

Regions can prosper by having ample average personal income, having an equitable distribution of that income, and having the opportunities provided by large cities. Each matters for prosperity.

High Per Capita Personal Income

Per capita personal income (PCPI) measures whether the average person in the region is doing well. Although there are critics of this measure and its close cousin, the per capita gross domestic product (PCGDP), to a first approximation, it is certainly better to have a high PCPI than a low one. Higher personal income allows people to buy goods and services that they need and want. Higher personal income means that employers have the wherewithal to pay generous wages and salaries.

Fair Income Distribution

As well as having a high average income, a region should have an equitable distribution of personal income that does two things. It properly rewards those who work hard or who have invested in skills by providing them with higher incomes, and it also takes into account the mishaps and misfortunes that can befall anyone in a rapidly changing society by providing a safety net. In addition, the distribution of income should not allow those at the top of the income distribution to be so well off that they can buy a leg-up for their children through schooling and social connections, while the children of those at the bottom of the distribution or members of various racial, ethnic, regional, or other groups suffer cumulative disadvantages from poor schooling, poor neighborhoods, poor nutrition, and other

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1 Equity is a multi-dimensional concept, and we do not have the space for a complete analysis. Instead we focus on just two aspects, poverty and the concentration of income in the top earners. Other California 100 reports show that various forms of inequality (in health, transportation, housing, education, and income) reflect serious problems along many dimensions including race, ethnicity, gender, and place of residence. But the two measures we use provide an overall sense of how California is doing compared to other states and regions.

2 Roughly speaking, without going into the intricacies of the national accounts, the Gross Domestic Product (GDP) measures the market value of all goods and services produced within an economy in a given period of time or, equivalently, the total income earned by each household, company, and government within a given period of time. Personal income refers to the broad measure of total household income that measures the purchasing power of consumers (excluding the income of companies and governments) including transfer payments from the government. It comprises roughly 90 percent of GDP and it is highly correlated with it over time. See [https://analystprep.com/cfa-level-1-exam/economics/gdp-national-income-personal-income-personal-disposable-income/](https://analystprep.com/cfa-level-1-exam/economics/gdp-national-income-personal-income-personal-disposable-income/) Critics note that neither measure includes unpaid household work, damage done to the environment by business activity, the actual psychological value of consumption, and other non-priced factors. See Tibor Scitovsky, 1976, *The Joyless Economy: The Psychology of Human Satisfaction*, New York: Oxford and Joseph Stiglitz, J. Fitoussi, and M. Durand, 2018, *Beyond GDP: Measuring what Counts for Economic and Social Performance*, Paris, OECD. [https://doi.org/10.1787/9789264307292-en](https://doi.org/10.1787/9789264307292-en).

handicaps. Social programs can help solve these problems by providing health care, nutrition, education, and income support in the case of misfortune and by providing more equal starting points for children. It is easy to see why a fair income distribution would be important for workers, but it is also important for business because social programs correct for the vagaries of business conditions by keeping labor forces intact (e.g., unemployment insurance), ensuring that every talented individual gets a chance to succeed (e.g., public higher education) thus providing better labor for business and citizens for society, and provide a social environment that satisfies our basic sense of fairness (e.g., nutrition programs and help for the homeless) and that makes us proud to be part of the community.

**Large Cities with Expansive Opportunities**

The third way a region can prosper is by being highly and densely populated so that it serves as a center for productive and rewarding human interactions and as an incubator for innovation and new ideas. The urban economist Edward Glaeser presents a graph of Gross Metropolitan Product Per Capita (analogous to GDP per capita at the national level and closely related to personal income per capita) versus population density for metros in 2005. He shows that GMP per capita goes up significantly with population density. Denser metropolitan areas are more prosperous than less dense ones. The same relationship holds for GMP per capita and metro population (since density is so closely related to size). Glaeser and Joshua Gottlieb show that in the group of almost 400 American metros in 2005 – a typical metro of 2 million has a GMP of $43,750, a metro of 8 million has a higher GMP per capita of $52,400, and a metro of 17 million has a still higher GMP per capita of $57,750 in 2005 dollars.

What causes this higher input? Does it reflect the impact of metros on business or is it the result of people who are attracted to the metros? Are metros inherently more productive because something happens in them that makes businesses more productive or do they simply appear more productive because they tend to attract (“select”) more qualified workers? The evidence seems to be that at most, only about

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30 percent of the greater productivity of cities can be attributed to selection effects, although—even if selection were the whole story—states would still want to have large cities because they attract talented people.

That leaves agglomeration effects to explain the greater productivity of cities. This unwieldy term refers to a very human set of activities. When people get together (“agglomerate”) their interactions can produce new and better ways to produce products and services—which is probably the result of the complex societies nurtured in cities that produce arts, culture, science, and civilization. Agglomeration economies are fundamentally about lowered transportation and communication costs—the transportation and communication of goods, people, and ideas.

Agglomeration may lower the costs of physically moving goods because markets are nearby, but transportation costs for goods have decreased dramatically in the last 100 years, and cities still continue to get bigger and bigger. Inexpensive ways of moving goods do not appear to be the major reason for cities today, although they were probably essential for the growth of New York City in the early to mid-19th century, where a large, protected ocean port connects with hinterlands through the Hudson River—navigable for 160 miles to Troy upstate with additional connections to the Great Lakes through the Erie Canal. They were also essential for the growth of San Francisco in the middle to late 19th century with its large, deep, and protected ocean port connected to inland California through the Sacramento and San Joaquin Rivers.

There is substantial evidence for the continued importance of two other types of agglomeration. “Labor market pooling” involves having a large workforce active across nearby firms so that the benefits of innovation and training in one firm can be shared by others. “The flow of ideas” emphasizes the creation of human capital through the intense interaction of people in one place. In addition to agglomeration effects that make businesses more profitable, many people may also prefer to be in cities because there is greater access to education, health care, arts and entertainment, shopping, and the everyday thrill of activity on the streets and the chances to meet people. Of course, cities also have their downsides such as congestion, pollution, disease, and crime which have been imperfectly controlled by modern traffic control methods, public health measures, and police departments so that some still prefer the suburbs. Ultimately, some people may have more of a taste for cities than others, so there can be no agreement on the optimal size of settlements, but it seems sensible to believe that there should be a range of

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9 Glaeser, op. cit. contains articles providing evidence for these theories and Glaeser and Gottlieb, op cit. summarize these theories.
possibilities to achieve agglomeration effects and to provide choices for people of places to live.\textsuperscript{10}

In the following pages we explore where California was in terms of these criteria in 1970 – a moment that many consider “California's Golden Age," how it developed from 1970 to 2010, and finally where it is today.

**Measures of California's Prosperity in 1970**

To get an idea how California has done over time compared to other parts of the United States, consider the 40 largest metro regions (MSAs) in the United States according to the 2020 Census. There are six California MSAs in these 40 MSAs. MSAs are groups of counties that interact with one another economically so that they constitute separate and somewhat autonomous economic units. In California, they are typically identified with their best known or largest city or county or both because the counties are often named after their largest cities. For example, Los Angeles MSA includes Los Angeles and Orange Counties and the largest city and county is Los Angeles. The other California metros are San Francisco, Riverside, San Diego, Sacramento, and San Jose.\textsuperscript{11} These six MSA areas in California comprised slightly over three quarters of California's population in 2020 (76%).\textsuperscript{12}


\textsuperscript{11} The Sacramento MSA is composed of El Dorado, Placer, Sacramento, and Yolo Counties and its largest city and county is Sacramento. The Riverside MSA is composed of Riverside and San Bernardino Counties and its largest city and county is Riverside. The San Diego MSA is just San Diego County and its largest city, San Diego. San Francisco MSA includes the five counties of Alameda, Contra Costa, Marin, San Francisco, and San Mateo and the largest city is San Francisco although the largest county is Alameda. San Jose MSA is composed of Santa Clara County (with its largest city, San Jose) and the much smaller San Benito County.

\textsuperscript{12} There are 25 Metropolitan Statistical Areas in California. Los Angeles is the second largest MSA in the country, San Francisco is the 12\textsuperscript{th}, Riverside is the 13\textsuperscript{th}, San Diego is the 17\textsuperscript{th}, Sacramento is the 26\textsuperscript{th}, and San Jose is 36\textsuperscript{th}. The next largest MSAs in California are Fresno (56), Bakersfield (62), Oxnard-Thousand Oaks (70), Stockton-Lodi (75), and Modesto (103). These add another four million people (10\% of California's population) to bring the total population in the top eleven metros to 86\% of California's population. Note that four of these five metros (Fresno, Bakersfield, Stockton-Lodi, and Modesto) with a total population of about 3.2 million are in the San Joaquin Valley.
Personal Income by Metro Region in 1970

Figure 1 looks at how today's 40 most populous metro regions (MSAs) in the United States were faring in 1970 in terms of real PCPI. Four different groups of metros in the Northeast-Midwest, South, and Southwest-West are denoted by colors and lines. The black bar represents the average metropolitan RPCPI in 1970 for the United States, and it is also the median for the 40 metros. It is immediately apparent that California's six metros were faring very well (with the possible exception of Riverside) in 1970 compared to the rest of the country. In addition, the regions sort into distinct levels of RPCPI on Figure 1 with an ordering from low personal incomes.

13 These per capita income data are reported in current (nominal) dollars on the Data App of the Bureau of Economic Affairs of the Department of Commerce. They were downloaded in March, 2023. We obtained real (constant) dollars by using the national Personal Consumption Expenditures (PCE) price index provided by the BEA to adjust for inflation over time. We used the same value of the PCE for all metropolitan areas in a given year. We obtained the deflator from Federal Reserve Economic Data, [https://fred.stlouisfed.org](https://fred.stlouisfed.org) – data series DPCERG3A08 (6NBEA), “Personal Consumption Expenditures.” This deflator is highly correlated with the traditional Consumer Price Index (.9986 for annual data from 1969 to 2021) but it is more appropriate for personal income. For a comparison of the two see, Noah Johnson, “A Comparison of PCE and CPI: Methodological Differences in U.S. Inflation Calculation and Their Implications,” U.S. Bureau of Labor Statistics, [https://www.bls.gov/osmr/research-papers/2017/st170010.htm](https://www.bls.gov/osmr/research-papers/2017/st170010.htm) BEA has a separate deflator for each MSA, but it is only available from 2008 onwards. We use it later in this report.

14 The northeast and midwest are represented by blue with horizontal lines, the south by red with diagonal hatching, the southwest and west by pink with vertical hatching, and California with golden bars with no hatching or lines. The northeast region is Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont (11 states), the south is Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia (14 states). West Virginia is considered a southern state by the census bureau even though its political genesis was its withdrawal from the confederacy. We consider it as a southern state since its economy has historically been more linked with Virginia and Kentucky. The midwest is Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin (12 states), and the southwest and west is Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming (13 states). We differ from the census regions by including Maryland and Delaware as northeastern states instead of southern states. Both are south of the Mason-Dixon line, but neither joined the Confederacy and both seem more naturally to be part of the northeastern corridor extending from Boston to Washington D.C. The Northeast states are represented by seven metros: Massachusetts (Boston), Rhode Island (Providence), New York (New York City), Pennsylvania (Philadelphia and Pittsburgh), and Maryland (Baltimore and Washington DC). Washington DC is an ambiguous case. More than half of its population is in a southern state—Virginia (3.1 million), but a great deal is in Maryland (2.6 million) with the remainder in the District of Columbia (0.7 million) and less than 1 percent (58,000 people) is in one county in West Virginia. Overall, historically Washington DC was more connected both politically and economically with the north. Moreover, it benefited from the economic development of the north as the government grew in tandem. The Midwestern states are represented by ten metros: Ohio (Cincinnati, Cleveland, and Columbus), Michigan (Detroit), Indiana (Indianapolis), Illinois (Chicago), Wisconsin (Milwaukee), Minnesota (Minneapolis), and Missouri (St. Louis and Kansas City). The Southern states are represented by twelve metros: Virginia (Virginia Beach), North Carolina (Charlotte), Tennessee (Nashville), Georgia (Atlanta), Florida (Jacksonville, Miami, Orlando, Tampa), and Texas (Austin, Dallas, Houston, San Antonio). The western states are represented by five: Colorado (Denver), Washington (Seattle), Oregon (Portland), Nevada (Las Vegas), and Arizona (Phoenix). There are six in California (Los Angeles, San Francisco, Riverside, San Diego, Sacramento, and San Jose).
in the south, higher ones in the Midwest and Northeast, and highest in the Southwest and West.

Figure 1. Real Per Capita Personal Income in 1970 for 40 Largest Metros in 2020 Census

Source: Authors’ calculations from Bureau of Economic Analysis data.

Although the sorting is not perfect, the states in the South are almost all to the left (11 of 12) of the U.S. mean (only Miami is above the mean) indicating the low personal income levels in the South. Seven of the states in the Northeast and Midwest are to the left and 10 are to the right of the U.S. median indicating moderate personal income levels. Four of the five Western metros (excluding California) are to the right of the U.S. means—only Phoenix is below the mean, and five of the six California metros are in the top 10 metros in terms of personal income—only Riverside-San Bernardino is below the median, although it is still in the top 25 of the 40 metros. In short, the West and Southwest (with California now included) regions were clearly doing the best, the Northeast and Midwest regions were doing moderately well at slightly above the median, and the South was doing poorly with low personal income in 1970. Although Riverside MSA was lagging the rest of California, the other California metros were doing very well. Indeed, the state of California’s personal

12 A closer analysis indicates that these 40 metros of the northeast and midwest had similar RPCPI in 1970 with medians both just to the right of the U.S. average.
13 These results would be similar if we used the 40 largest metros in 1970—six of those MSAs in the 2020 census drop out, four of them from the south and two from the west and southwest—Austin, Jacksonville, Las Vegas, Nashville, Orlando, and Sacramento. Six are added, half from the northeast and half from the south: Buffalo,
income per capita was fifth among the 50 states and 18% above the average U.S. per capita personal income.\textsuperscript{17} California was very prosperous in 1970.

\textit{Poverty and Income Distribution by State}

There are many different ways to determine the fairness of income distribution. We employ two – measures of poverty rates and measures of the total income share of the top 10\% of the income distribution. In effect, these provide measures of extremes of income—the percentage of poor people and the income share of the top ten percent.

Figure 2. Percentage of Population in Official Poverty by County, 1969

\begin{figure}
\includegraphics[width=\textwidth]{poverty_map.png}
\end{figure}


\textsuperscript{17} Calculated by authors from BEA Data App from by looking at state level personal income data for 1970.
Poverty rates in 1969 were especially high in the South and much lower in the West as shown in Figure 2 which depicts poverty rates by county. The Northeast and Midwest were in-between with some areas of poverty, but overall with much lower rates than the south. California’s poverty rate for families was 17\textsuperscript{th} lowest in the nation.\textsuperscript{18}

When income distributions are equal, with everyone getting the same income, then the top 10\% of the income distribution gets 10\% of the total income. With unequal income distributions, the top 10\% in the income distribution get more than 10\% of the total income. In the United States in 1970, the top 10\% of the income distribution received 32.7\% of the total income—one tenth of the people in the United States received nearly one-third of the total income paid to people.

Figure 3. Total Income Share of Top Ten Percent in Income Distribution in 1970 by State

Source: Authors’ calculations from World Wealth and Income Database.

Because only state-level data are available, Figure 3 shows the percentage of total income share for families in the top 10\% of the income distribution in each state.\textsuperscript{19} Of


\textsuperscript{19} The data can be found at this web site: “U.S. State-Level Income Inequality Data - Mark W. Frank Frank-Sommeiller-Price Series—Annual Top Income Shares by U.S. State, 1917-2018,” at https://www.shsu.edu/eco_mwf/inequality.html. This website links to the World Wealth & Income Database. The data were constructed separately and then merged together by several authors: Mark Frank, Estelle Sommeiller, Mark Price, and Emmanuel Saez, July 2015, “Frank-Sommeiller-Price Series for Top Income Shares by US States
the 15 southern states, 13 of them (all except North Carolina and South Carolina) are among those 16 states with income shares for the rich that are above the U.S. mean, indicating substantial income inequality in the south. Of the 13 western states including California, all except one (New Mexico) are below the U.S. mean—and New Mexico is just barely above the mean. In between are the Midwestern and Northeastern states. Eleven of the 12 Midwestern states are below the mean (and many of them are well to the left of the figure), and nine of the 11 Northeastern states are below the mean—only Delaware and New York are above it. The Western states are the most equal. The Midwestern states are somewhat less equal, then the Northeastern states, and finally the South is highly unequal. California is the 22nd in equality with a 30.9% share for the top ten percent of the income distribution.20

With relatively low poverty rates and relatively equal incomes compared to other states, California, along with other western states, led the nation in a fair distribution of income. We should remember that these data ignore some important disparities based upon race and ethnicity, but they show that this was generally a good period for California and for most western states with high PCPI and relatively low poverty and income inequality, while during this period the south was very unequal and very poor. Moreover, despite discrimination, there were greater opportunities in California than in other places judging from the fact that the African American population increased from 1.8 percent of the California population in 1940 to 7.0 percent in 1970. Similarly, the Hispanic population increased from 6.0 percent to 13.7 percent of the California population. Because California’s population almost tripled during this period, the absolute numbers of African Americans grew eleven-fold, and Hispanics grew almost seven-fold. The Asian American and Pacific Islander population also since 1917” https://www.shsu.edu/eco_mwf/usstatesWTID.pdf. The data are described in Mark W. Frank. 2009 "Inequality and Growth in the United States: Evidence from a New State-Level Panel of Income Inequality Measure" Economic Inquiry, Volume 47, Issue 1, Pages 55-68, and in Estelle Sommeiller and Mark Price, July, 2018, “The new gilded age: Income inequality in the U.S. by state, metropolitan area, and county,” Washington, DC, Economic Policy Institute, https://files.epi.org/pdf/147963.pdf They say that “throughout this report we examine trends in pretax and pretransfer incomes, hereafter referred to simply as “income,” of tax units (single adults or married couples, hereafter referred to as “families”). The best way to think about this measurement of income is that it represents all the taxable income people earn in market transactions, such as the income earned from working for a wage or salary at a job, through interest on a savings account, or from selling a financial asset for more than its purchase cost (a capital gain). What is not included in our analysis is the impact that taxes and transfers (for example, Social Security payments or unemployment benefits) have on these market-derived incomes. While taxes and transfers do tend to reduce inequality by lowering incomes at the top and raising incomes at the bottom, the primary driver of rising inequality, even after taking into account taxes and transfers, is an increasingly unequal distribution of market incomes.” (Pages 5-6)

20 The average ranking number for the West is 15.8, for the Midwest 17.8, for the Northeast 25.4, and for South 41.2, where higher numbers mean more inequality. California’s position at 22 makes it high for the West but it is clearly much less unequal than many other states.
more than tripled during this period, but it increased only slightly as a percentage of the population from 2.4 percent to 2.8 percent.\textsuperscript{21}

\textit{Size of Metro Areas}

Regions can prosper by having high per capita personal incomes, but they can also prosper by having enough people in metros to be able to provide the amenities and opportunities that cities provide. Although it is hard to define exactly what is optimal, it seems likely that a thriving region would want to have one or more “great” cities with very large populations and several others that are large enough to provide significant amenities and agglomeration effects. Table 1 ranks the top 40 metros in the United States according to their population in the 1970 census. The archetypal system of cities in the United States is in the Northeast and it runs from Boston to Washington DC. Table 1 shows that in 1970, this corridor had the largest metropolitan area in the United States, New York, and the fourth (Philadelphia), sixth (Boston), and seventh largest metros (Washington DC) and some other significant ones, Baltimore (15) and Providence (22). The four largest of these metros (New York, Philadelphia, Boston, and Washington DC) were known at that time for their museums, arts and culture, universities, sports teams, and leadership in business and government.

Similarly, along its coast and slightly inland running from San Diego to San Francisco, California had the second largest city in America, Los Angeles, another metro ranked eighth (San Francisco), and three more ranked 23\textsuperscript{rd} (San Diego), 28\textsuperscript{th} (Riverside), and 32\textsuperscript{nd} (San Jose) in a state with about one-third the population of the Northeast.\textsuperscript{22} Although Los Angeles was the larger metro and a leader in the production of movies (in Hollywood) and popular music, in 1970 the San Francisco Bay Area was better known for its universities (UC Berkeley founded in 1868 and Stanford founded in 1885), museums (De Young founded in 1895 and Legion of Honor founded in 1924), and arts (symphony-1911, opera-1923, and ballet-1933) than Los Angeles. Los Angeles would develop in these areas in the next 50 years. UCLA (1919), initially just a satellite of the University of California at Berkeley, and USC (1880) would become great universities, complementing the much smaller California Institute of Technology (1891) that was already world-renowned for its physics experiments. Los Angeles County Museum of Art (1961), Norton Simon (1969), Hammer Museum (1990), Getty Center (1997), and the Broad (2015) would make Los Angeles a leading center for museums.


\textsuperscript{22} The population of California in 1970 was 19,953,134 and that of the Northeast was 54,267,716 so that California’s population was 36.7% of that of the Northeast.
The Midwest had the third largest city (Chicago), the fifth (Detroit), 10th (St Louis), 12th (Cleveland), 16th (Minneapolis), 19th (Cincinnati), 20th (Kansas City), 21st (Milwaukee), 25th (Indianapolis), and 26th (Columbus) in an arc of cities along the Great Lakes and the major river systems. Chicago was known for its universities (University of Chicago and Northwestern), arts (symphony and opera), museums (Art Institute of Chicago and Field Museum of Natural History), and sports, and it was a leader in commerce, finance, and manufacturing. Detroit was the world leader in automobile production.

The South’s largest cities, however, were ranked only 11th (Dallas) and 14th (Houston), and the deep South’s largest city was 17th (Atlanta)—all with populations around 2 million people that were much smaller than Chicago and Los Angeles at 8 million and New York at 17 million in 1970. And all this despite the fact that the South had a population that was slightly larger than the Midwest and the Northeast. All other cities in the South were ranked 27th or below in population. In 1970, these cities were thought of as regional centers, not as centers of American business, society, and culture in the same way as New York and the eastern corridor, Chicago on the southwestern shore of Lake Michigan, and Los Angeles-San Francisco along the Pacific coast. Based upon the results of Glaeser and Gottlieb on the relationship between population and gross metro product, Dallas would have had a GMP 15% below Los Angeles and Chicago and 30% below New York. Clearly, the South lagged behind the other three areas, and California competed with both the Northeast and Midwest with highly urbanized areas.

23 The population of the south was 57,568,354, the Midwest 56,571,663, and the northeast 54,267,716. The total population of the west was 34,781,792 so that California constituted 57% of the population of the thirteen western states.
Table 1. Population Rankings of 40 Largest Metros in 1970 by Regions

<table>
<thead>
<tr>
<th>Rank</th>
<th>Northeast</th>
<th>West</th>
<th>Midwest</th>
<th>South</th>
<th>Population</th>
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<td>Los Angeles</td>
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<td>8,475,377</td>
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<td>Philadelphia</td>
<td>Chicago</td>
<td></td>
<td></td>
<td>7,895,845</td>
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<tr>
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<td>Detroit</td>
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<td></td>
<td>5,331,133</td>
</tr>
<tr>
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<td></td>
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<td>4,439,498</td>
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<tr>
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<td>Washington, DC</td>
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<td></td>
<td></td>
<td>2,520,475</td>
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<td>10</td>
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<td>2,424,838</td>
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Source: Authors’ calculations from Bureau of Economic Analysis Data.
Sources of California’s Prosperity and Success in 1970

It is worth taking a moment to explain how California achieved the success that it had by 1970 with high personal income per capita, relatively low rates of poverty and income concentration at the top, and a system of cities comparable to New York and Chicago. In a classic article published in 1972, historian Gerald Nash described three stages of economic development for California:24

As I perceive it, California between 1870 and 1970 underwent three stages of economic development. An Agricultural Economy dominated the years from 1870 to 1900; an Industrial Economy characterized the period from the turn of the century to 1940; and from World War II to 1970 California was a prime example of a Technological Economy.25

Three forces, according to Nash, shaped “the nature of California’s economy: environment and climate, population, and technology.” The environment challenged people’s inventiveness, and California attracted a great diversity of people with the capability to innovate. “In short, because of its great variation, California’s environment and climate have operated as a constant challenge to social and technological inventiveness. This in itself created selective forces in the attraction of newcomers. Environmental and human diversity—combined with technological innovation—thus were key elements in the stimulation of California’s economic growth.”26

Agricultural Economy—1870-1900

In Nash’s retelling, from 1870 to 1900 the vast agricultural lands of California stimulated the development of scientific farming, new technologies for irrigation, plowing, planting, harvesting, and threshing, and enormously productive wheat and fruit farming so that by 1875, California “succeeded in capturing a large share of the British wheat market.”27 With the exhaustion of the soil from wheat farming, fruit and vegetables, especially citrus, became major crops aided by the invention of the refrigerator car after 1880 that opened up eastern markets.

Industrial Economy—1900-1940

California’s lack of coal handicapped its industrialization, but with the discovery of oil fields in the late 19th century, California soon became a leading producer of oil and

26 Ibid, page 316. Inexpensive labor in the form of successive waves of immigrants, who were often treated very poorly, was also important. See Carey McWilliams, 1939, Factories in the Field on agricultural labor, and for a vignette of the tensions created see Daniel J. Meissner, 2015, “California Clash: Irish and Chinese Labor in San Francisco, 1850-1870, http://www.ilhssf.org/wp-content/uploads/2015/09/Irish-and-Chinese-Labor-.pdf
27 Nash, op. cit., page 318. See the preceding footnote for a discussion of the role of cheap, often exploited, labor.
an innovator in its extraction in tidelands and even the open ocean. “During the next 40 years (after 1900) California consistently ranked among the five leading oil-producing states in the nation.”28 Hydroelectric power was also developed with the damming of rivers. Attracted by California's mild weather as well as its power resources, industries came to California – the movies, manufacturing of automobiles, and aircraft manufacturing just after World War I. During this period, California was initially dependent on eastern and foreign capital, but with mergers that created efficiencies and larger banks and with the imagination of bankers such as A.P Giannini (founder of the “Bank of Italy” which became the “Bank of America”)—who introduced “branch banking” to amass capital from individual depositors and businesses—the shortage of capital was overcome.

Technological Economy—1940-1970

With the advent of World War II and the enormous investments by the federal government in aerospace, shipbuilding, and other industries, California’s entrepreneurs capitalized on a chance to innovate in areas as wide-ranging as electronics, jet planes, rocketry, and health care.29 “And the existence in California of a well-developed educational system at virtually every level which trained and retrained a constant stream of skilled labor served as a key whereby the findings of science and technology could be quickly adapted to foster the state's economic growth even more effectively than in former years.”30

Changes in California's Prosperity – 1970-2010

It would turn out that 1970 was, like the Gold Rush, one of the high points for California—perhaps not the only high point, but certainly the end of an era and the beginning of difficult times for some parts of the state. California's average personal income was 18% above the national average. The year 1970 marked a point where inequality in the state and in the nation had reached a low point from the 1920s and would creep upward for the next 50 years,31 and California had reaped the benefits of the Great Society, which had reduced poverty in the country and in the state.32

28 Ibid, page 322.
29 “Much of the economic boom between 1940 and 1970 was due to an enormous incursion of new capital through large federal expenditures. Most of these consisted of military and defense appropriations which were channeled primarily into the aerospace and electronics industries. A conservative estimate would consider the total sum spent by the federal government in California between 1940 and 1970 to be at least $100 billion, more than in any other state.” (Ibid, page 325)
The top ten percent of the income distribution’s income share in California averaged 39% from 1921 to 1940. The share dipped to historic lows during World War II and the Korean War, but the lowest figure (28.2% in 1943 for California) was not much below the 30.9% in 1970 for California.
32 There is a great deal of controversy about the impacts of the Great Society, for a measured view see: Martha J. Bailey and Sheldon Danziger (editors), 2013, Legacies of the War on Poverty, New York: Russell Sage Foundation.
California’s population had almost tripled in the 30 years from 1940 to 1970, but it would take 50 years for it to simply double from 1970 to 2020. Los Angeles and San Francisco were vibrant urban centers. California was a center of technological innovation in aerospace and communications, and it certainly seemed like the Golden State.

With the landing on the moon in 1969, the space program was cut back; with the end of the Vietnam War in 1975 defense spending was cut; and with the end of the Cold War in 1991 after the collapse of the Soviet Union, California, especially Los Angeles, suffered from defense cutbacks in some of its biggest industries. Also, with the ongoing smog problems in Los Angeles, with the 1969 Santa Barbara oil spills, and with the passage of the California Environmental Quality Act in 1970 by Ronald Reagan, a period began in which the quality of the environment would become a major preoccupation. The Watts protests of 1965 in Los Angeles and the creation of the Black Panther Party in 1966 in Oakland signaled an era in which racial tensions, long ignored, would become more prominent. And unbeknownst to Californians in 1970, housing prices would begin to climb after 1970 until they would become the highest in the nation after Hawaii. California would still attract

The book concludes that the War on Poverty substantially reduced poverty among older people from 35% in 1959 to below 10 percent in 2010 and it reduced poverty among children by about three percent. Also see, the figure on page 11 of Chaudry, op cit. that shows poverty rates from 1964 to 2012 using two measures. 
[https://aspe.hhs.gov/sites/default/files/private/pdf/154286/50YearTrends.pdf](https://aspe.hhs.gov/sites/default/files/private/pdf/154286/50YearTrends.pdf)

33 Population in 1940 was 6,950,000; in 1970, 19,971,000, and in 2020, 39,370,000.
34 Michael Dardia, Kevin F. McCarthy, Robert F. Schoeni, and Georges Vernez, 1996, “Defense Cutbacks on California’s Communities, Firms, and Workers,” Santa Monica: National Defense Research Institute, Rand Corporation. [https://www.rand.org/pubs/monograph_reports/MR689.html](https://www.rand.org/pubs/monograph_reports/MR689.html). Also see: Legislative Analyst’s Office, January 1995, “The California Economy,” [https://lao.ca.gov/1995/010195_calguide/ceep1.html](https://lao.ca.gov/1995/010195_calguide/ceep1.html): “Federal defense spending as a share of the California economy reached a peak in the late 1960s at nearly 14 percent, sharply declined during the 1970s, and then partially rebounded through the mid-1980s. Since that time, however, defense spending in California has again sharply declined as a percent of the state’s economy. Although the decline in the 1970s was sharper, it was offset to a greater degree by strength in other sectors of the economy than has been the case currently. Thus, declining defense spending has been a major drag on the state’s economic performance... The recent [late 1980s and early 1990s] cuts in federal defense spending have triggered major cutbacks in related employment areas, especially aerospace. The number of aerospace jobs in California has been declining since 1986. However, the decline has been most severe since 1990. There were 337,000 aerospace jobs in 1990 compared to 191,000 in 1994, a decline of nearly 45 percent. Additional job losses will be occurring in future years as federal cutbacks continue and work their way into the state's economy.”

35 Mike David and Jon Wiener, *Set the Night on Fire: L.A. in the Sixties*, Verso. The 1965 events in Watts are often called the “Watts Riots” but that ignores the long-standing racism that helped to precipitate them.
36 Mac Taylor, 2015, “California’s High Housing Costs: Causes and Consequences,” Sacramento: Legislative Analyst’s Office, [https://www.lao.ca.gov/reports/2015/finance/housing-costs/housing-costs.pdf](https://www.lao.ca.gov/reports/2015/finance/housing-costs/housing-costs.pdf). “Between 1970 and 1980, California home prices went from 30 percent above U.S. levels to more than 80 percent higher. This trend has continued. Today, an average California home costs $440,000, about two-and-a-half times the average national home price ($180,000).” Page 3; Also see chart on page 9. Also see US Bureau of the Census, “Historical Survey of Housing Tables: Home Values,” [https://www2.census.gov/programs-surveys/decennial/tables/time-series/coh-values/values-adj.txt](https://www2.census.gov/programs-surveys/decennial/tables/time-series/coh-values/values-adj.txt) The table shows that in successive censuses the median California housing costs were relatively stable compared to the US median until 1970 (20% higher in 1940, 30% in 1950, 27% in 1960, 35% in 1970), when they took off (79% in 1980, 147% in 1990, and 148% in 2000).
migrants, but the next 40 years would be hard for some regions, especially southern California, while it would see other regions such as the Bay Area prosper despite very high housing costs.

Growth Rates in Personal Income and Population – 1970-2010

To get a sense of what happened, consider the growth rates (the change in levels from year to year) of personal income and population from 1970 to 2010 in the same 40 largest Metropolitan Statistical Areas (MSAs or Metros) as those depicted in Figure 1. Figure 4 plots the Real Per Capita Personal Income (RPCPI) Growth rate from 1970 to 2010 versus Population Growth rate for these MSAs with 1.5 million people or more as determined by the 2020 US Census.37 These metros comprised over half (52%) of the country’s population in 2020.

There are two sets of axes on Figure 4 that identify higher and lower levels of growth by creating four quadrants. The solid lines are drawn at the median rates of real per capita personal income (RPCPI) growth and population growth for the 40 metros over the 40-year period from 1970 to 2010. Those MSAs in the upper-right quadrant are both above the median in population growth and personal income growth, and those in the lower-left quadrants are below the median on both measures of growth.38 The dashed lines are at the average growth rates of population and real personal income for the almost 400 U.S. metros (comprising about 86% of the US population) for that period. These dashed-line axes (to the left and below the solid line ones) indicate that the growth in population and in real personal income in all metro areas is less than the median rates for the 40 metros.39 It is not surprising that a subset of 40 metros selected on their size is growing faster in both personal income and population than the growth rates for those in all metro areas, but it is surprising to see that these median rates for the 40 metros are just slightly larger than the growth rates for those in all metro areas. Our discussion of the quadrants will focus on those created by the solid lines indicating the medians for the growth

37 The data are from the Bureau of Economic Analysis of the U.S. Department of Commerce. We focus on the 40 largest metros because they comprise a largest portion of the total US population (52%) and an even larger portion of California’s population (76%). The BEA provides current personal income which we convert to real personal income by using the PCE deflator provided by the BEA.
38 Later in this report we will use figures like this to explore long and short-term growth rates using a method called LSGL analysis for Leading, Slipping, Gaining, and Lagging quadrants.
39 The “X” on the graph with the letters “US” next to it denotes where these axes intersect. These growth rates in population and personal income are for the entire metropolitan population of the United States. About 14% of the US population is in non-metropolitan areas, and the population growth rate in non-metropolitan areas is near zero. See: https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=99693 but the personal income rate growth is comparable between metropolitan and non-metropolitan areas, see: https://www.bea.gov/news/2022/personal-income-county-and-metropolitan-area-2021 Note that the move to non-metropolitan areas in 2021 is almost surely the result of COVID. See: https://www.weforum.org/agenda/2021/01/rural-life-cities-countryside-covid-coronavirus-united-states-us-usa-america
rates of the 40 metros, but in any case, the metros in the quadrants are similar whichever measure is used for the “average.”

Figure 4. Average Yearly Real Per Capita Personal Income Growth by Average Yearly Population Growth for 40 Largest American Metros – 1970-2010

Most city booster groups (e.g., most local Chambers of Commerce) would argue that the best place to be is in the upper-right hand quadrant with increasing population and growing personal income above the median values because that means that people want to come to the metro area and that high-paying jobs are available providing high real per capita personal income. Both provide the basis for consumer spending that attracts business. Business booster groups often do not care that much whether total personal income increases because of more people or higher per capita incomes because both forms of growth increase business opportunities. But there is a school of thought that argues that a high real per capita personal income can be a chimera because employers would only provide high RPCPI to compensate people for the disadvantages of living in that metro such as high

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40 Part of the population increase in any area is natural growth due to people having children and this differs somewhat across MSAs, but the immigration from those outside the area is what distinguishes high versus low growth rates in most metro areas.
41 The business opportunities, however, might be of different types because high income people have different needs than low income people.
housing costs. And there is another (quite different) school of thought that argues that population growth can be harmful as well as helpful to a city because of the stress it puts on transportation, housing, and city services. One of our goals is to sort this out.

Whatever ambivalence there may be about the value of high per capita personal incomes or above average rates of population growth, there is less ambivalence about lower than average rates of growth of per capita personal income or negative rates of population growth. If real RPCPI grows more slowly for a metro than the median value for all metropolitan areas, as in the lower two quadrants, even if that metro starts with a high level of RPCPI so that people are well-off in it compared to those people in others, the metro will fall further and further behind the 40-metro median level of RPCPI if it does not at least match the median growth rate of RPCPI. That, it will turn out, has been the story of Los Angeles until recently. There is also agreement that negative rates of population growth as for Cleveland, Detroit, and Pittsburgh during this period, can be devastating as housing prices tumble, neighborhoods are devastated, and the local economy collapses—which is the story of Cleveland and Detroit during this time.

No Relationship between Real Personal Income Growth and Population Growth

Several lessons follow from this plot. First, there is no relationship between per capita real personal income growth and population growth in these metros. This is easy to see by counting the number of metros in each quadrant, and noting that they range from 9 to 11 – essentially evenly split with about ten each among the four quadrants. (If there were a relationship, say with higher growth rates in personal income associated with higher growth of population, then we would expect more metros in the upper-right-hand corner and the lower-left-hand corner and fewer in the off-diagonal quadrants.) This result is a bit surprising because one might suppose that people would flock to those places with high RPCPI. Something else must be going on – and at least part of the story is probably housing costs. When RPCPI is growing quickly, housing costs also grow quickly. Another piece of the story is that people are not quite as mobile as economic theory often suggests.

Higher Population Growth for Metros in the South, Southwest, and West with Three California Metros Growing above the Median and Three Below

Figure 4 also shows that all but one of the 17 metros in the Northeast and the Midwest (the blue squares and purple circles) are on the left of the picture – they

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42 This is simply a mathematical fact. One can imagine conditions where people’s welfare (as opposed to their personal incomes) are better off in such a scenario such as falling housing prices, but most of them seem very unlikely. It is worth noting that having a low real per capita personal income does not “provide room to grow” by providing a springboard for high subsequent growth rates. If anything the level of real per capita personal income is slightly positively correlated with growth rate in personal income so that higher levels are more likely to lead to growth than lower ones.
experienced population growth below the median for the 40 metros. The one conspicuous exception for the Midwest is Minneapolis. And all five metros in the West (pink X's) that are not in California and all but one of the twelve metros in the south (red triangles) have experienced population growth above the median for the 40 metros. The only exception is Virginia Beach in the South, whose population did not grow during this period at quite the median for the population growth of the 40 metros. Its population grew at just slightly below the rate for metropolitan areas. Moreover, with the exception of Minneapolis, Virginia Beach’s rate of population growth is just slightly lower than only one other Midwestern metro, Columbus. Finally, and most importantly for our story, three of the six California metros had population growth rates below the median (San Francisco, Los Angeles, and San Jose) and three had population growth rates above the median (San Diego, Sacramento, and Riverside).

**Higher Personal Income Growth for the Northeast and South with Two California Metros with Very High Growth and Four Lagging**

The seven Northeastern metros are all above the median growth rate in personal income with an average of 2.15%, seven of the twelve southern metros are above the median for an average of 2.03%, the Midwestern metros straddle the median growth rate with an average of 1.80%, and, and four of the five Southwestern and Western metros (excluding California metros) are below the median with an average of 1.69%—only one of them (Seattle) is above the median. In California, San Jose (#2 in personal income growth rate) and San Francisco (#7) are among the top seven in growth, and San Diego (#32), Sacramento (#34), Los Angeles (#36), and Riverside (#39) are among the bottom nine leading to a question we will explore at some length: What happened to personal income in Southern California during those years?  

**Factors Affecting Population Movements**

We start with the story of population growth in America during the 40 years from 1970 to 2010. America’s move to the South and Southwest is a staple of books and commentary on the changes in the geography of the United States in the past 50 years. It helps to understand the factors that led to these changes because they reveal a lot about the history of California’s competitiveness and they suggest

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43 Minneapolis’s exceptionalism is not easy to explain, but it may be a combination of a highly skilled workforce, a high quality of life despite the weather, and the fact that 33 of the nation’s 1000 biggest companies are headquartered there. (That 3.3% of the companies for a metro with 1.1% of the nation’s population.) See: https://www.metroplanning.org/news/7110/Why-is-Minneapolis-growing-almost-five-times-faster-than-Chicago-Its-not-the-weather

44 Sacramento, of course, is in northern California, but as a city dependent upon government its story is more about the growth of government than about business.

concerns for the future. No one thing led to movement to the South, Southwest, and West, but some of the factors that are relevant are the following:

**The Desire for Better Weather**

Winter-time can be hard through the Midwest and Northeast. Many people prefer warmer weather without snow, but traditionally, the South and the Western desert regions had a corresponding liability in their very hot and sometimes humid summers. Whereas cold could historically be countered with fires to keep warm and then in the 19th and 20th centuries with coal and gas furnaces and other forms of heating, hot summers just had to be tolerated. There was no respite from them. Although modern air conditioning using electricity to power units was developed in the early 20th century, during the 1920s and the 1930s the units were prohibitively expensive except for high-end cinemas and department stores which became refuges for people during hot summers. Home air conditioning using window units only became relatively cheap and available in the 1950s after World War II, and the real revolution was the invention of residential central air conditioning around 1970. Combined with the steeply declining real price of electricity per kilowatt hour, people could move to the South or to desert regions and get a respite from hot summers without having to endure snowy winters.46

**Lower Interstate Transportation Costs**

Transportation of goods has become cheaper and faster with the development of the Interstate Highway system starting in 1956 and then with the development and standardization of containerization and container ships and railroad cars in the late 1960s and 1970s. Historically, waterborne shipping was the only economical mode of transporting goods, especially bulk goods. Almost all of the cities in the Northeast and Midwest are located on ports facing the Atlantic Ocean, on bays leading to the Atlantic (Narragansett, Chesapeake, or Delaware), on the Great Lakes (Ontario, Erie, and Michigan), or on major rivers (the Hudson, Delaware, Ohio, or Mississippi) – and sometimes on a great river, a protected bay, and the Atlantic Ocean simultaneously as New York. Many major cities in the South or West and Southwest are not major ports47 or they are inaccessible by waterborne commerce – Atlanta, Austin, Charlotte,

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47 It is telling that three southern metros among the top 40 metros in population in 1970 (see Table 1) that fell off the list by 2020 (see Table 2) were historically important ports: New Orleans, Louisville, and Memphis. Except for a few metros such as Seattle, Houston, Virginia Beach, and the three California metros of Los Angeles, San Francisco, and San Diego, other forces drove the expansion of cities in the south, southwest, and west.
Improvements in truck and railroad transportation are key to their success. Indeed, some of them even go back to the medieval definition of a port as a door to the world by defining themselves as having a “port” without water that is the confluence of airports, railroads, and interstates (e.g., Dallas and Kansas City).

Civil Rights and Changing Culture in the South

Industrialization lagged in the South compared to the North in the late 18th and early 19th centuries because of an “agrarian ideal” that was reinforced by the economic opportunities for profit in agriculture (especially cotton and tobacco) and the slave economy. Despite the effort of some southern elites to create a “New South” after the Civil War, capital did not rush to the region. Many factors led to this neglect, including poor schools, the lack of an educated workforce, and insufficient capital investment by state governments in basic infrastructure such as roads, but the rise of Jim Crow laws and the overt segregation and violence in the South made it especially inhospitable for northern entrepreneurs with enough resources to establish factories. Jim Crow also meant that southern elites focused on maintaining a racial caste system instead of creating infrastructure for manufacturing and growth. The Civil Rights movement of the 1960s and federal Civil Rights Laws of the 1960s helped to change this—often with the tacit assent of Southern entrepreneurial elites who recognized the stigma borne by the South. The rest of the country also had its forms of discrimination, especially in the form of redlining of housing investments, restrictive covenants, and discriminatory practices in hiring, but given the demand for labor in the Northern and West-Coast factories, especially during the two World Wars, jobs were more available to all races.

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48 None of these is among the top 50 ports, primarily because they are inaccessible by waterborne commerce. See: https://www.ngs.noaa.gov/RSD/coastal/projects/coastal/ports_list.html
50 Gavin Wright, 1986, Old South, New South: Revolutions in the Southern Economy Since the Civil War,
51 The Oscar winning movie, “In the Heat of the Night,” captures this dynamic during the time when the civil rights movement was changing America. A northern entrepreneur who wants to build a factory in a small southern town in the early 1960s is murdered in the town. In one of the most dramatic scenes, a local plantation owner, Eric Endicott, who opposes the new factory, is confronted by the visiting Black Philadelphia police officer Virgil Tibbs (Sidney Poitier) who suspects Endicott is the murderer. When Tibbs interrogates him directly, the plantation owner slaps Tibbs, leading to Tibbs, a black man in the south in the 1960s, replying by slapping Endicott, a high-status white man, with the local police chief looking on. Endicott says to the police chief: “You saw that…. What are you going to do about it?” The police chief replies “I don’t know” and Endicott says to Tibbs: “There was a time when I could have had you shot.”
52 The complicated interplay of economic development, race, and politics is described in Byron E. Shafer and Richard Johnston, 2006, The End of Southern Exceptionalism, Cambridge: Harvard University Press.
Abundant Open Land, Flexible Permitting for New Housing, and Urban “Interstates”

Partly because they had not yet developed large metro areas, the South had abundant open land for housing that was made accessible by the construction of urban freeways with “Interstate Highway” funds. In addition, southern metros had fewer regulations regarding permitting than other states, especially California. In “The Rise of the Sunbelt,” Edward Glaeser and Kristina Tobio use data to assess “the relative contributions of rising productivity, rising demand for Sunbelt amenities, and an increasing Sunbelt housing supply to Southern and Sunbelt growth.” They conclude that “rising demand for Sunbelt amenities has had little to do with the growth of the Sunbelt, while rising productivity and, surprisingly, increased housing supply have both played important roles in the growth of the South and the Sunbelt.”

With air conditioning, cheaper interstate transportation, cultural changes in the south, inexpensive labor, permissive permitting for housing construction, and abundant open land in the suburbs made accessible by urban freeways, the South and Southwest began to take off and “converge” with the Northeast and Midwest.

California’s Declining Advantages

These factors help explain the high growth rates in the South, Southwest and West in the past 50 years. They also suggest why California grew so much during the first part of the 20th century before the South and Southwest. Because of its Mediterranean climate along its coast, the cities of San Diego, Los Angeles, and San Francisco-Oakland enjoyed dulcet weather throughout the year. Air conditioning was not needed so that those seeking better weather – the movie industry, airplane manufacturers, and just ordinary people – could move there before air conditioning developed. Because the state had ports in San Diego, Los Angeles-Long Beach, San Francisco-Oakland, and Sacramento, goods could be moved before the Interstate Highway system was built and before containerization took off, and the three transcontinental railroad lines linked California to the rest of America starting in 1869 with the Central (later Union) Pacific, and then the Southern Pacific (1877) and Santa Fe (1883). California also led in infrastructure investment in freeways, water, and a great public university system, and until the 1970s it had a relatively permissive permitting processes for new housing.

Although California had a problematic record with respect to racial minorities, especially Native Americans, Asians, and Hispanics, it still had less overt Jim Crow

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53 Edward Glaeser and Kristina Tobio, 2007, “The Rise of the Sunbelt,” Taubman Center Policy Briefs, John F. Kennedy School of Government, Harvard University. Note that the authors do not discount the impacts of air conditioning: “These results should not be interpreted as suggesting that amenity improvements such as air conditioning or clean water were irrelevant, only that without these improvements people would likely have demanded even higher incomes for living in the South or in places with high July temperatures.”

https://www.hks.harvard.edu/sites/default/files/centers/taubman/files/sunbelt.pdf
segregation than the South, and there were jobs during the World Wars at the shipbuilding and later aircraft manufacturing plants—often federally funded jobs that placed limits on discrimination. California did have unions, at least in the North, with a robust labor movement that led to the San Francisco General Strike in 1934, and their success led to higher wages that attracted more workers, although they may have discouraged some industries from locating there. In the south, the Los Angeles Times worked to limit labor’s influence, and the availability in southern California—in Los Angeles and the San Joaquin Valley—during the 1930s of hundreds of thousands of migrants from the dust bowl helped to depress wages. Eventually, high-paying federally funded work in the defense industry in the 1940s and beyond provided good-paying jobs. Finally, land was available by converting the hundreds of thousands of acres of citrus groves in the South and orchards in the north. In short, California enjoyed many advantages before the South, Southwest, and West. But these comparative advantages declined after 1970. What did this mean for California?

California in the Forty Years from 1970 to 2010

Figure 4 shows, with the golden diamonds, the economic performance of the six major California metros over the 40 years from 1970 to 2010. As already noted, California’s performance is extremely mixed. Starting with the bottom right quadrant and moving counterclockwise:

- **Very High Population Growth and Low Personal Income Growth** – Riverside is sixth highest in population growth along with other fast-growing cities such as Austin, Las Vegas, Minneapolis, Orlando, and Phoenix, but its RPCPI growth is only slightly higher than the metro with the lowest income growth, Las Vegas.

- **High Population Growth and Low Personal Income Growth** – Although Sacramento is in the highest quarter of metros in population growth and San Diego is in the top 40 percent, their RPCPI is in the bottom quarter with Los Angeles.

- **Below Average Population Growth and Very Low Personal Income Growth** – Los Angeles has slightly below average population growth and very low RPCPI growth that puts it in the bottom eighth of the 40 metros at number 36.

- **Below Average Population Growth but Very High Personal Income Growth** – San Francisco has slightly below average population growth, but high RPCPI that puts it among the top fifth of the metros.
Above Average Population Growth but Very High Personal Income Growth – San Jose has slightly above average population growth but spectacular RPCPI that puts it only below Boston.

The story of income growth is one of extremes: There are two metros in the top 20 percent of metros for real income growth (San Francisco and San Jose) with one of them among the highest two, but the other four metros are in the bottom 25% in terms of real income growth (Riverside, Sacramento, San Diego, and Los Angeles) and one of them (Riverside) is among the two worst performers. Except for Riverside that is the sixth highest in population growth (the top 15%), the story of population growth is more average, with San Francisco at the top of the bottom third, Los Angeles just at the median, San Jose just above the median, San Diego in the top 40 percent, and Sacramento at number ten just in the highest quarter.

Population Growth Rates

The lower population growth rates in the 1970 to 2010 period compared to the 1940s to 1970 era of tremendous growth can be explained as the result of older MSAs (Los Angeles and San Francisco) with a long history of growth exhausting their available land and reaching their population limits without further densification although they still are growing at nearly the average rate over this period. Three other older MSAs that started growing later (San Diego in the 1950s and San Jose and Sacramento in the 1960s) are still growing, and finally, one MSA (Riverside) that had a growth spurt in the 1990s continues to have population growth at a rate comparable to the most explosive sunbelt cities (Austin, Las Vegas, Orlando, and Phoenix). Overall, although California’s growth is slower than in the middle of the 20th century, this paints a relatively optimistic picture of population growth rates in California today.

Personal Income Growth Rates

The personal income growth rates are extraordinarily disparate. They are heartening for San Francisco and San Jose and worrisome for the other four metros, especially Riverside and Los Angeles because they constitute such a large part of California’s economy. Figure 5 plots the over-time growth of RPCPI for the Bay Area (San Francisco and San Jose), Los Angeles, Riverside, five comparison metros in the Northeast and Midwest (Boston, Chicago, New York City, Philadelphia, and Washington DC), and the United States.54 Clearly, the Bay Area is doing well, but Los Angeles, which almost matched the five Northeastern and Midwestern metros and even the Bay Area in real per capita personal income in the 1970s, was, by 2020, substantially below both the Bay Area and the five comparison cities. In Figure 1, Los

54 The value for the Bay Area is the simple sum of the real per capita personal income for San Francisco and San Jose MSAs without any weighting for population differences. The same is true for the five comparison metros of Boston, Chicago, New York City, Philadelphia, and Washington DC.
Angeles ranked seventh among the 40 metros with an average real per capita personal income 15% above the U.S. MSA Average in 1970, but because of its persistent below average growth in real PCPI from 1970 to 2010 shown in Figure 4, for three years from 1999 to 2001 it fell below the national average for metros on Figure 5, and it ranked 25th in 2000 among the 40 metros that we have been considering.

As shown in Figure 5, Los Angeles recovered a bit in the next decade (to about 5.6% above the national metro average) but the performance was such that in a 2015 book about “The Rise and Fall of Urban Economies: Lessons from San Francisco and Los Angeles,” Michael Storper, Thomas Kemeny, Naji Philip Makarem, and Tanner Osman and his co-authors warn:

> Los Angeles was clearly in the top club in 1970 and is currently somewhere on the borderline between the top-income and middle-income club, depending on exactly where we place the cutoff. As we shall see, Los Angeles still has significant high-wage activities such as Hollywood and some of its high tech sector, but as a city region, it has an increasing proportion of middle wage activity that is causing it to converge downward to the middle-income urban regions of the interior West and South and some deindustrializing Rust Belt cities.⁵⁵

Riverside looks even worse. It started near the US average but has diverged downward ever since. If we think of the Los Angeles region as also including Riverside, as the U.S. Census Bureau does in its “Combined Statistical Areas”⁵⁶ that put together economically related metros, then the Los Angeles Region seems on a downward path in 2010.

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What Happened to Los Angeles?

The divergence of personal income between San Francisco and Los Angeles presents a fascinating puzzle that puts standard economic theory to the test. Storper and his coauthors solve this mystery with a detailed comparison of the economic history of the two cities for the past 50 years. We follow their argument closely in the following pages.

Standard Account of Regional Change

We start with standard accounts of how regions change. Neoclassical urban and regional economists presume that changes in urban regions depend upon three basic forces, labor movement, firm location decisions, and housing and transportation costs. These three factors determine city sizes, wages, and housing prices.

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57 Housing and transportation costs are put together because people seek housing locations that minimize their travel times to shopping and workplaces and these times depend upon the transportation infrastructure. Two detailed statements of this perspective are Glaeser and Gottlieb, 2009, op. cit. and Edward Glaeser, 2008, Cities, Agglomeration, and Spatial Equilibrium, Oxford: Oxford University Press.
In these models, labor moves from one place to another to seek higher incomes, more amenities (e.g., better weather, less pollution, greater safety, or more arts, sports, and culture), or cheaper bundles of housing and transportation costs. Firms move from one place to another—or start up in one place instead of another—to seek cheaper labor, cheaper inputs such as land or natural resources, higher quality labor, or more productivity from agglomeration economies. Housing and transportation costs change based upon the availability of land, transportation infrastructure, and the regulatory climate for constructing housing. Finally, the factors of production are highly substitutable for one another and fully mobile across locations so that metropolitan areas can find ways to compete with one another—by offering different packages of amenities, housing, wages, and agglomeration economies that are attractive to workers and firms. So, over the long-run, through competition among metropolitan areas and the movement of people and firms and the changes in housing costs, regions should converge toward one another in personal income and gross metro product. That makes the divergence between the Bay Area and Los Angeles quite perplexing, especially since they started in the same place in 1970.

Perhaps the convergence hypothesis is wrong or it needs amendment? Until about 2000, there seemed to be ample evidence for convergence across all metropolitan regions as shown earlier for the convergence of the South toward the rest of the country. In that case, starting with a lower average personal income in 1970 the South had somewhat higher growth rates in personal income from 1970 to 2010 (see Figures 1 and 5) that allowed it to “catch-up.” But convergence has slowed down if not stopped. And it certainly has not occurred between Los Angeles and San Francisco. One explanation for this slow-down in convergence is that American metros in some regions have greater restrictions on housing supply so that “income convergence continues in less regulated places while it has mostly stopped in places with more [housing] regulation.” Housing prices are, in fact, higher in the Bay Area than Los Angeles so that personal income has to be higher in the Bay Area to compensate workers for higher housing costs.

Higher personal income might come about in the Bay Area because, regardless of whether there is convergence across regions or not, standard neoclassical economic theory predicts that firm location decisions, housing and transportation costs, and

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60 Shane Phillips, Carolina Reid, Dana Cuff, and Kenny Wong, March 2022, “Housing and Community Development in California: An In-Depth Analysis of the Facts, Origins and Trends of Housing and Community Development in California,” California 100, see Figures 2 and 3 where median rents in 2021 are highest in the nation in San Jose and San Francisco metros, and Los Angeles rents are lower but not that far behind.
labor movements can lead to equilibria that might require higher personal incomes to attract workers in the following way. First, despite the fact that they pay higher salaries in some areas such as the Bay Area, in equilibrium firms nevertheless will not want to move because there are corresponding benefits such as agglomeration economies that are worth the extra expense compared to places where they could pay lower salaries. Second, builders will not build any more housing because the cost of construction would be too high or the demand for housing would be too low so that housing prices remain stuck at high levels. Third, and most relevant to housing costs, in equilibrium, workers will not want to leave the Bay Area because their higher salaries compensate them for the higher housing costs. Alternatively, greater amenities in the Bay Area compared to Los Angeles might compensate for higher housing costs. Given that Los Angeles and the Bay Area are roughly matched on their very high level of amenities, the Bay Area must have higher personal incomes to make up for the higher housing costs, and Los Angeles has lower housing costs given its lower per capita personal income. This leads to two suspects for explaining higher personal incomes. Either they are higher because more restrictive regulations on housing leads to higher housing costs and the need for firms to compensate employees with larger salaries to make up the difference, or they are higher because agglomeration economies and higher productivity allow firms to pay larger salaries that then lead to the bidding up of housing costs.

Implications of Neo-Classical Model for Evaluating Metro Prosperity

Before exploring these explanations for higher personal incomes, note that there is an important implication of the neoclassical model for evaluating the prosperity of a region. The model implies that judging the well-being of a place by its per capita personal income is a chimera – in equilibrium all workers across all regions have the same utility regardless of personal income. If labor is getting paid more somewhere, it must be because there are disamenities or high housing and transportation costs. If labor is getting paid less, it must be because there are amenities or low housing and transportation costs. Taken to its logical conclusion, it makes no sense to judge places by their per capita personal income, instead “population growth is the most

61 Glaeser and Gottlieb, op. cit., describe these equilibrium conditions this way: “The field’s central theoretical tool is the spatial equilibrium, which assumes that welfare is equalized across space—at least for marginal migrants. The spatial equilibrium concept guides urban models of housing prices and industrial agglomeration as well as empirical work on city growth and the urban wage premium.... [T]he standard spatial equilibrium ... has three core equilibrium conditions—workers must be indifferent between locations, firms must be indifferent about hiring more workers, and builders must be indifferent about supplying more housing. These three conditions provide the labor supply curve, housing supply curve, and labor demand curve that collectively determine area population, wages, and prices. Exogenous differences across space in productivity, amenities, and the construction sector drive differences in density, incomes, and home prices. We allow for the possibility of agglomeration economies, which exist when productivity rises with population.”
relevant yardstick for economic performance, as individuals vote with their feet, and real income—as the index of utility—is equalized among locations.\textsuperscript{62}

By this standard, in Figure 4, it is the metros in the rightmost two quadrants, those that are growing in population compared to the average metropolitan area, that are doing well, not those in the top two quadrants except to the extent that the upper right quadrant involves cities that have both high population growth rates and high personal incomes. Thus the top six most prosperous metros by this population growth standard are, in order on Figure 4, Las Vegas, Minneapolis, Austin, Orlando, Phoenix, and Riverside, and not Boston, San Jose, Austin, Nashville, Houston, and Charlotte which have growing real personal incomes. Moreover, Las Vegas, Riverside, Phoenix, and Orlando are not problematic because of their below-average personal income growth rates. For those who know these cities, this evaluation seems wrong, especially since Las Vegas, Riverside, and Orlando are dominated by low wage service jobs. It will turn out that the resolution of why San Francisco outdistanced Los Angeles helps to clarify why we should pay attention to per capita personal income.

\textit{Explaining Higher Personal Income in Bay Area Compared to Los Angeles}

Returning to the question of why San Francisco has higher real personal income, let us first consider the possibility that more housing regulation in the Bay Area compared to Los Angeles explains the housing cost differences. Storper and his co-authors show that regional land-use regulation levels hardly differ between the two areas, although they are high by American standards, and that yearly building permits per capita since 1980 have usually been more or less equal.\textsuperscript{63} The higher housing costs in the Bay Area are not due to regulatory differences.

So what explains the higher housing costs in the Bay Area? Storper and his colleagues conclude that “If higher housing prices in the Bay Area did not emerge because of tighter regulation or significantly lower growth of housing supply there, then it stands to reason that much of the difference in housing prices is the result of high incomes in the Bay Area, not the cause.”\textsuperscript{64} With higher personal incomes, the price of housing is bid up.

Although this conclusion leads us in a logically valid circle, it nevertheless does not really explain the differences. We cannot explain greater personal incomes in the Bay Area by saying that they are larger because housing prices are higher when those higher housing prices are the result of larger personal incomes. To get beyond this circle, we must ask: Why are firms willing to pay people higher wages in the Bay

\textsuperscript{62} Storper et al., op. cit., page 88.
\textsuperscript{63} Storper et al., op. cit., pages 58-64. They do find that on one measure, the Wharton Residential Land Use Regulation Index, “while both regions are highly regulated by national standards, the Los Angeles metropolitan region is somewhat more restrictive than the Bay Area.” (62)
\textsuperscript{64} Ibid., page 64.
Area? That leads us back to agglomeration economies – firms in the Bay Area are willing to pay higher wages because they are more productive in the Bay Area than in Los Angeles. Storper and his co-authors show how this happened.

In 1970 the two regions were very similar. They had approximately the same per capita personal income. They had the same degree of inequality. They were located within the same state so that they were subject to similar public policies. Their populations were increasing at about the same rate, and they had similar business profiles. Storper and his co-authors conclude:

All in all, the Greater Los Angeles economy in 1970 had large clusters in knowledge-intensive industries such as aerospace, IT, and entertainment. San Francisco showed signs of an emerging focus on information technology, but not in a manner that strongly distinguished it from Los Angeles.

It is true that Los Angeles suffered aerospace downsizing shocks from 1970 to 1990, but this only explains a small fraction of the difference between the paths of the two regions. More importantly, in the next 40 years, San Francisco developed a large information technology cluster, while Los Angeles went in the opposite direction and developed a large low-wage logistics industry. Los Angeles also fell behind in patents granted and in non-routine jobs requiring non-routine cognitive tasks. At the same time, the Bay Area moved ahead in its returns to education.

Storper and his colleagues find the sources of these differences in a number of places. They find that the aerospace industry in Los Angeles failed “to adopt the organizational practices that are required to perform at the higher end of the New Economy” while firms in the Bay Area did adapt with flexible work practices, an emphasis on commoditization of IT for the consumer sector, a tradition of people leaving companies to create start-ups, and the creation of venture capital firms to act as key dealmakers funding startups. The Bay Area also drew upon countercultural “social networks, and hence worldviews, that were not present in the world of Los Angeles.” This worldview drew upon Steward Brand’s Whole Earth Catalog, and the future oriented perspective of the Global Business Network that used scenarios to think about future possibilities, and it was epitomized by Steve Jobs’ concern with integrating technology and daily life through artful design that ultimately led to the creation of Apple’s iPhone.

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65 Storper et al., op. cit., Chapters 1, 3, and 4.
66 Ibid., page 37.
67 Ibid., page 49: “Per capita income, in other words, was about 2.37 percent lower in 2000 in Greater Los Angeles from what it would have been without the aerospace shock. This is a big shock. But it is a rather small fraction of the actual divergence in the per capita incomes of the two regions that occurred in the 1990s.”
68 Ibid., pages 37 (logistics), 40-42 (patents), 44-47 (non-routine jobs), and 64-73 (returns to education).
69 Ibid., pages 77 (organizational practices), 77-84 (firms did adapt), 84-85 (funding startups), and 88-89 (countercultural).
The Bay Area economy had a business and civic elite that focused on creating a high-wage, high-skill knowledge economy for the global marketplace\textsuperscript{70} while Los Angeles’ elite vacillated and “believed that they could still compete directly with low-wage, low-land-cost interior regions.”\textsuperscript{71} Storper and his co-authors show, through an analysis of interlocking relationships across industries on Boards of Directors and an analysis of civic groups, that “there are stronger and more encompassing invisible colleges of actors in the Bay Area than in Greater Los Angeles. Instead of invisible colleges, Los Angeles has separate Worlds.”\textsuperscript{72} Putting all this together, the Bay Area capitalized on an entire ecology that was geared toward innovation and taking advantage of opportunities in technology (semiconductors, integrated circuits, and the Internet) to create a knowledge economy.\textsuperscript{73} As a result, the Bay Area economy has been much more productive than the Los Angeles economy and average personal income has grown much faster in the Bay Area than in Los Angeles.

**Lessons for Evaluating Metropolitan Regions**

The biggest lesson is that while neoclassical equilibrium theory might be right in “the long-run,” it is not clear that it is true in the short or even medium run, which may encompass decades. Specifically, factors of production cannot be put into new combinations as easily as the theory proposes, they cannot be moved about very easily, and it is especially hard to reproduce agglomeration economies. And although people are more mobile than embedded capital, it still requires a lot of effort for people to move from one place to another. It takes a long time for change to occur, and during this time, one area might benefit from better circumstances as indexed by its per capita personal income. Indeed, the economist Enrico Moretti finds that there are “three Americas” that are not converging but going in different directions—the brain hubs (San Francisco, Boston, Austin), cities once dominated by traditional manufacturing that are declining (Cleveland and Detroit), and cities in-between that could go either way (e.g., Los Angeles). The brain hubs provide benefits for all their residents, not just the engineers, scientists, and entrepreneurs who drive their business innovation, and these benefits include higher real personal incomes even after adjusting for living costs.\textsuperscript{74} Simply put, some cities are just richer than others.

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\textsuperscript{71} Ibid., page 143 and Chapter 7 in general.

\textsuperscript{72} Ibid., page 192 and Chapter 8 in general.

\textsuperscript{73} Ibid., Chapter 9. Also see: Sean Randolph and Brian Brennan, March 2022, “Golden Goose: The Present and Future of California’s Technology and Innovation Ecosystem,” California 100.

Kemeny and Storper, for example, analyze worker utility levels, “composed of wages, rents and amenities,” to see if they are being equalized among American cities and find that:

Using microdata on U.S. urban workers in 1980 and 2000, little evidence of equalization is found. Comparable workers earn higher real wages in large cities, where amenities are also concentrated. We find that households in larger American cities enjoy greater access to amenities, higher nominal wages, and most importantly, higher incomes after accounting for differences in housing costs. These real income gaps are evident when we examine city-median real incomes, and they remain when we estimate the wages of individual households, controlling for a host of demographic and housing differences. Moreover, we detect no movement toward equalization at the margin: population growth rates over the 20-year period between 1980 and 2000 are not significantly different in cities with low and high real wages and amenities.\textsuperscript{75}

Because of agglomeration economies such as matching and mixing in highly skilled labor markets, learning through knowledge exchange, future-minded elites and entrepreneurs, institutional innovations such as flexible management structures, and networks of universities, research labs, venture capitalists, business firms, accelerators, and entrepreneurs, San Francisco pulled ahead of Los Angeles from 1970 to 2010.

**The Last 15 Years from 2007 to 2021**

To get a sense of what has happened recently, we chose the period from 2007 to 2021 because it includes a full business cycle starting with the 2007-2008 Great Recession to 2021,\textsuperscript{76} because it is a long enough time to see if real change is occurring, and because it allows us to use the Bureau of Economic Analysis’s recently developed (from 2008 onwards) “implicit regional price deflators by MSA” that adjust for different living costs by metro and for overall inflation.\textsuperscript{77} We use the


\textsuperscript{76} There was also an “artificial” recession in 2020 because of COVID, but the rebound was quite quick.

\textsuperscript{77} We use “MAIRPD Implicit regional price deflators by MSA” at the BEA website. These are the products of the Regional Price Parities (RPP) that are normalized to 100 for the United States average for each year times the overall PCE price index (divided by 100) for that year. Hence, they adjust for both regional differences and inflation over time. “An RPP is a weighted average of the price level of goods and services for the average consumer in one geographic region compared to all other regions in the United States.” Bureau of Economic Analysis, April 2022, “Methodology for Regional Price Parities, Real Personal Consumption Expenditures, and Real Personal Income,” https://www.bea.gov/system/files/methodologies/Methodology-for-Regional-Price-Parities_0.pdf

The metropolitan specific price indexes only became available in 2008. Because we wanted to include a full business cycle and compute growth rates for 2007 onwards (for which we needed observation for 2006), we used
BEA’s overall regional price deflator that encompasses all expenditures, including housing. In 2012 (when the US average PCE price index was 100), the implicit regional price deflator was 92.6 for Cincinnati, 96.19 for Charlotte, 110.91 for Los Angeles, 111.71 for San Francisco, 112.06 for San Jose, and 113.66 for New York City.\(^78\) Real personal income was estimated by dividing by the regional price deflator for each metro, and the growth rate in personal income over the period was just the average of its year-to-year percentage change. The population growth rate is also the average of the year-to-year percentage changes over this period.

_Growth Rates in Personal Income and Population from 2007-2021_

San Francisco and San Jose have continued to rocket ahead in personal income over the past 15 years, but Los Angeles has come back in the last 15 years as shown in Figure 6 where LA’s real per capita personal income growth rate is eighth among the 40 metros. Even Riverside is doing much better.

The population growth rates for California metros are still below or just at (for Riverside and Sacramento) the national population growth rates, but the per capita personal income growth rates are exceptionally high for San Jose (first among these metros), San Francisco (second) and Los Angeles (eighth). Even Riverside is above the mean and San Diego and Sacramento are not far below it.

\(^{78}\) Variations in housing costs were much greater; we come back to this later.
Personal Income in 2020 by Metro Region Adjusted for Regional Living Costs

To determine how well-off the metros are, we look at real per capita income calculated in two ways. One is the same as that we used in Figure 1 where we adjusted for inflation but not for differences in regional costs of living. The other uses the overall regional price deflator (only available from 2008 onwards) to adjust for differences in regional living costs. Figure 7 plots the second measure that adjusts for regional cost of living versus the first. As we would expect, the metros are clustered around a 45-degree line because the measures are somewhat similar, but those above the line have costs of living that are less than the national average (e.g., Indianapolis, Cleveland, and Nashville) and those that are below the line have costs of living that are higher (e.g., San Jose, San Francisco, Boston, Seattle, New York, and many others). The dashed vertical and horizontal lines represent the average per capita income for metropolitan regions in the United States for 2020 in 2012 dollars.
As we’ve seen before, San Jose and San Francisco perform spectacularly, even after adjustments are made for their high cost of living – they rank number one and two among the metros no matter what measure is used.

Because San Jose, San Francisco, Boston, and Seattle stretch out the income scales so much, it is useful to reduce the extent of the axes (and to omit those four metros) to get a better picture of what is happening with other metros. When we do this in Figure 8, we see that Los Angeles is also one of those metros below the diagonal line, so that its cost of living is above the national average. When no adjustments are made for different costs of living across MSAs, Los Angeles ranks number eight from the right-hand side (remembering to count San Jose, San Francisco, Boston, and Seattle) on the horizontal axis, and it is well above the national average in per capita personal income. This ranking is close to the ranking of seven it had in 1970, which is a great improvement over where it was in 2000 when, using the same measure, it ranked 25th and it was below the national average. But once adjustments are made for cost of living, Los Angeles ranks 20th when we count down from the top along the vertical axis, and its personal income per capita is just at the national average. Los Angeles is coming back, but it is hampered by a high cost of living.
Sacramento and San Diego are initially above the average in per capita personal income when no adjustment is made for cost of living, but they fall below when an adjustment is made given their high costs of living. Riverside has the lowest per capita personal income among the 40 metros no matter what measure is used.

The story for San Jose and San Francisco is an unalloyed positive one – despite their high cost of living they provide very high personal incomes. The story for Los Angeles is encouraging in that it is coming back from a decline. If it continues its high growth rates, it may be about to move upward. San Diego and Sacramento both suffer from their high cost of living and their slightly below-average income growth (see Figure 6) suggesting that they will remain in the middle tier. Riverside, despite its somewhat above-average income growth in Figure 6, remains problematic with a very low (less than half that of San Francisco) per capita personal income.

It is also worth remarking on the regional pattern in Figures 7 and 8. In the South, 10 of its 12 metros are below the average personal income once adjustments are made for regional costs of living. Only Nashville and Austin are above. The Midwestern metros are clustered around the center of the picture with seven of ten above the average adjusted for regional living costs. The Northeastern metros are doing better than either the South or the Midwest with all but Providence in the upper right.
quadrant. And finally, the West, especially if we include California, is all over the place. San Jose, San Francisco, Seattle, and Denver are doing very well. We’ve discussed Los Angeles. Portland, San Diego and Sacramento are near the middle of the picture. Las Vegas, Phoenix, and Riverside are in the lower-left quadrant with per capita personal incomes well below the national average by any measure.

_Poverty and Distribution of Income in 2020_

As before, we use poverty rates and the income share of the top ten percent of the income distribution to describe the distribution of income. Census Bureau estimates of poverty rates, using the same method as Figure 2 above, averaged over three years from 2018 to 2020, indicate that California ranks slightly below the national mean rate of 11.2% at 11.0% (ranking 21st lowest among the 50 states) and that historical patterns of poverty persist to some extent with higher poverty in the South (14.0%) and lower rates in the West (10.4%), Midwest (9.8%) and Northeast (8.8%). But this measure of poverty does not adjust for higher costs of living in California. The Supplemental Poverty Rate calculated since 2011 by the Census Bureau makes this adjustment. It also includes cash and noncash benefits from government programs and subtracts taxes and necessary expenditures. Based upon this more accurate measure, California had the highest poverty rate (15.4%) in 2018-2020 followed by Mississippi (14.5%), Florida (14.0%), Louisiana (13.9%), New York (13.3%) and Texas (12.5%). The national average was 11.2%.

Next, we turn to the concentration of wealth in the top ten percent of the income distribution. Although the result is well-documented and widely known, it is still surprising to see the degree to which inequality has increased in America since 1970 when the top 10 percent of the U.S. income distribution had roughly a third of the total income (32.7%) and the top 10 percent in California had 30.9%. Now, using the latest data that are available from 2018, the income share for the top ten percent in the U.S. (see Figure 9) is slightly over 50%. In California, the share is 53.1%, and California is the sixth most unequal of the states by this measure. In fact, while the top half of 1 percent (0.5%) had 5.7% of the total income of California in 1970, these

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82 Using Gini coefficients, Zippia found in 2018 that California ranked fourth in the nation in income inequality behind New York, Connecticut, and Alabama. The next six states were Florida, Massachusetts, Georgia, Texas, Mississippi, and Illinois. The Gini coefficient is sensitive to the entire income distribution so that it captures differences between high and low wage earners as well as the concentration of wealth at the top. See Emmie Martin, 2018, “U.S. states with the highest levels of income inequality.” _CNBC_. [https://www.cnbc.com/2018/03/12/us-states-with-the-highestlevels-of-income-inequality.html](https://www.cnbc.com/2018/03/12/us-states-with-the-highestlevels-of-income-inequality.html).
200,000 people had 19.8%—one-fifth—in 2018. In 2018, the top .01% (4,000 people) had 6.1% of the income while they had only 0.9% in 1970. Overall, the South is still the most unequal region, but it is closely matched by the Northeast and West. The Midwest is somewhat less unequal.\(^3\)

Figure 9. Total Income Share of Top Ten Percent in Income Distribution in 2018 by State

![Figure 9. Total Income Share of Top Ten Percent in Income Distribution in 2018 by State](image)

Source: Authors’ calculations from World Wealth and Income Database.

California is very unequal, and much more so today than in 1970. With its concentration of wealth, high poverty rate, and high cost of living, those at the bottom of the income scale are very vulnerable, especially given the lack of relatively inexpensive housing. The California 100 report on “Economic Mobility, Workforce, and Inequality in California” describes the implications of inequality:

Well-publicized housing problems and strained social safety net programs provide evidence of this inequality’s consequences. Homelessness, for example, is worse in California than most of the country, with 41 unhoused Californians per 10,000 residents; 28 percent of all people experiencing homelessness in the U.S. experience it in California. Employment data illustrates the problem as well, with 32 percent of Californians earning less than $15 per hour despite living in metro areas that rank among the nation’s highest in cost-of-living. Wages among the highest earners (90th percentile)

\(^3\) The ranking numbers are South: 31.5; Northeast: 27.6; West: 25.6; Midwest: 16.4.
have steadily increased since 1979, but median (50th percentile) and low (10th percentile) have largely been stagnant over that same period [see Figure 10]. The wage scenario is compounded by the lack of quality of jobs available to median- and low-earners. Among all employed Californians, fewer than half report being in a “quality” job.84

Homelessness is especially severe in California, and it has gotten worse in the last few years. There were 161,548 homeless in 2020 and 171,521 in 2022 for an increase of 6.2 percent while homelessness was down in the rest of the United States by 1.9 percent. And the per capita number of homeless people in California is more than three times higher than the rest of the United States.85

Figure 10. Wage Polarization in California—1979-2017

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authors of this California 100 report to describe jobs as “polarized” in California. They trace this back to “increasing occupational, skill, and wage polarization,” which they document in their report.86

The polarization of jobs has deep roots in the distribution of people’s skill levels, the changes in technology that have first automated repetitive factory jobs with robots and now more skilled jobs with artificial intelligence, and the structure of American capitalism and the lack of regulation of monopolies by the government. The second section of this report provides more information on where we stand with respect to industries and jobs in California, and the California 100 Report, “The Future of Economic Mobility, Workforce, and Inequality” discusses what might be done about it.87

**Housing Costs in 2020**

Here we focus on one of the consequences of economic polarization that is also the result of policy choices as detailed in the California 100 Reports on housing and governance.88 Figure 11 graphically demonstrates California’s high costs for housing (rents) using the regional price parities of the Bureau of Economic Analysis. These are set to 100 for the entire United States and they indicate the relative cost of housing. Pittsburgh on the left is at about 75% of the national cost and San Jose on the right is at 240%. Housing is overall least expensive in the Midwest (average price parity of 91.3), somewhat more expensive in the South (109.0), still more expensive in the Northeast (126.2) and West excluding California (130.1), but it is very, very expensive in California (181.2)–with San Jose, San Francisco, San Diego, and Los Angeles being the four most expensive metros for housing – even Riverside and Sacramento rank 11 and 12 for highest housing costs.89

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86 Ibid., page 12.
87 Erik Brynjolfsson, Mark Duggan, Christie Ko, and Dan Sholler, May 2022, “The Future of Economic Mobility, Workforce, and Inequality in California,” California 100.
89 The price party averages are the simple averages across metros in each region.
Figure 11. Rent Parity Data for Metros in 2021 by Region

With the tremendous growth of Southern cities, the rankings of the top 40 metros changed dramatically between 1970 and 2020. In 1970, each of the four regions had about the same number of metros (nine, 10, or 11) among the top 40, but the Northeast had five of the top 10, the Midwest three of them, and the West the remaining two – there were no Southern metros in the top 10. By 2020 (see Table 2), New York City, Los Angeles, and Chicago still remained the top three metros, but four Southern metros broke into the top 10: Dallas (4), Houston (5), Miami (8), and Atlanta (9) giving the South as many cities in the top ten as the Northeast with New York City (1), Washington DC (6), Philadelphia (7) and Boston (10) and leaving the West and Midwest with only Los Angeles and Chicago. With this change, the South could legitimately claim to have major American cities that helped set the pace for arts, culture, sports, and business.
Table 2. Population Rankings of 40 Largest Metros in 2020 by Region

<table>
<thead>
<tr>
<th>Rank</th>
<th>Northeast</th>
<th>West</th>
<th>Midwest</th>
<th>South</th>
<th>Population</th>
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<td></td>
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<td>Chicago</td>
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<td></td>
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<td>Dallas</td>
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<td>1,573,598</td>
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Source: Authors’ calculations from Bureau of Economic Analysis data.
Questions could also be raised about the future of California’s system of cities as Los Angeles was not growing very much, and San Francisco had dropped from eighth largest to twelfth. Yet, San Jose had moved into the top 40, and increasingly the Bay Area combined San Francisco and San Jose, which, together, would have ranked sixth in the nation. In addition, Riverside had moved from 28th to 13th, and it was closely connected with Los Angeles. And both San Diego and Sacramento had moved upward from 23rd to 17th for San Diego and from just below 40th to 26th for Sacramento. Moreover, San Diego had a closely linked sister city only 20 miles away—closer than Dallas to Fort Worth, or Miami to Fort Lauderdale, or Tampa to St. Petersburg. Tijuana, Mexico, just over the border from San Diego, grew from a population of 289,000 in 1970 to 2.14 million in 2020. Together, San Diego and Tijuana would rank tenth on the list of American metros. Consequently, California’s cities do not have to worry anytime soon about being eclipsed by other regions: instead, the Los Angeles-Riverside, San Francisco-San Jose, and San Diego-Tijuana conurbations continue to grow, and they are arguably three of the top ten regions in America—a remarkable performance for a state with about one-eighth of the country’s population.

**Summarizing California’s Economic Performance**

The picture is mixed for California as shown in three tables. Table 3 tracks progress in real per capita personal income levels and growth and housing costs across metros, and Table 4 tracks changes in population levels and population growth rates across them. Table 5 presents state-level data on the poverty rate and income share for the top ten percent.

Generally speaking, a lower number indicates better performance, and those with numbers below the median metro of the 40 metros with the largest population in 2020 are indicated with boldface. The picture is mostly positive with respect to personal income growth (especially recently), level of personal income (when not adjusted for living costs), and size of cities, but it is more negative with respect to the growth of population, poverty, inequality, and housing costs.

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90 The remarkable linkages between the two cities are described in Michael S. Malone, 2020, *El Tercer País: San Diego & Tijuana: Two Countries, Two Cities, One Community*, Silicon Valley Press. Minneapolis and St. Paul are 12 miles apart as are San Francisco and Oakland, and obviously the international border creates novel problems for San Diego-Tijuana, but they are finding ways to make things work.
Table 3. Ranking California Metros among 40 Largest Metros in 2020 on Per Capita Income Measures and Housing Costs

<table>
<thead>
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<tbody>
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<td>2</td>
<td>8</td>
<td>2</td>
<td>2/2</td>
<td>39</td>
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<td>San Jose</td>
<td>6</td>
<td>2</td>
<td>1</td>
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<td>40</td>
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<tr>
<td>Los Angeles</td>
<td>7</td>
<td>34</td>
<td>8</td>
<td>8/20</td>
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<td>San Diego</td>
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<td>33</td>
<td>25</td>
<td>10/30</td>
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<td>36</td>
<td>30</td>
<td>18/32</td>
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<tr>
<td>Riverside</td>
<td>24</td>
<td>39</td>
<td>14</td>
<td>40/40</td>
<td>29</td>
</tr>
</tbody>
</table>

Note: Rankings in the top 20 are bolded.
Source: Authors’ calculations from data presented in other figures.

The Bay Area is doing spectacularly well with very high personal income growth and very high personal incomes (see Table 3). It is true that housing costs are the highest in the nation (more than double the US median) in San Jose and San Francisco so that housing is the least affordable in the country, but even after adjusting for cost of living, these areas rank much higher in per capita personal income than any other metros in America. The agglomeration benefits are very large, and they are shared with some of the people who live in those areas. However, the high poverty rates and significant inequality in California as shown in Table 5, means that those at the lower end of the income distribution find it hard to find housing and to live in these areas.

In 1970, Los Angeles was seventh in the nation in real per capita income (using a measure unadjusted for regional cost of living differences) and California housing costs, although high, were manageable. California and Los Angeles were at a high point. LA experienced a period of rising housing prices and slow economic growth from 1970 to the early 2000s when Los Angeles fell to 25th in real per capita income among the 40 largest metros in 2020 using the unadjusted measure—it would have been worse if adjustments were made for housing costs. Things got better from that point to today. From 2007 to 2021 Los Angeles ranked eighth in the nation in per capita personal income growth, and it climbed to eighth in per capita personal income using the unadjusted measure. Unfortunately, the cost of living in Los Angeles is very high (housing is the fourth most expensive among the 40 metros at 181 percent of the U.S. median) and when adjustments are made for that, Los Angeles ranks 20th, just at the median, of the 40 metros. Still, LA’s growth and
prosperity are clearly on the upswing with those who believe that it could be the next great tech ecosystem, and it remains the second largest metropolitan area in America with no close competition.

Whereas San Francisco and San Jose fell in their population ranking (see Table 4) from 1970 to 2020 and Los Angeles stayed in the same place, San Diego, Sacramento, and Riverside all moved upward. Riverside moved from 28th to 13th, San Diego from 23rd to 17th, and Sacramento from 41st to 26th because their population growth rates were above the median from 1970-2010, although they have slowed down in the most recent period. The challenge for these metro areas is their real per capita personal income. Two of them, San Diego and Sacramento, had RPCPI above the median in 1970 and in 2020 by the measure that is unadjusted for living costs, but once adjustments for housing and other costs of living are made, they fall well below the median at 30 and 32 respectively. Their low growth rate in RPCPI over the 2007-2021 period suggests that they need some spurs to grow.

Table 4. Ranking California Metros among 40 Largest Metros on Population Size and Population Growth Rates

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<tbody>
<tr>
<td>San Francisco</td>
<td>8</td>
<td>28</td>
<td>25</td>
<td>12</td>
</tr>
<tr>
<td>San Jose</td>
<td>32</td>
<td>22</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>2</td>
<td>25</td>
<td>35</td>
<td>2</td>
</tr>
<tr>
<td>San Diego</td>
<td>23</td>
<td>14</td>
<td>35</td>
<td>17</td>
</tr>
<tr>
<td>Sacramento</td>
<td>41</td>
<td>10</td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td>Riverside</td>
<td>28</td>
<td>6</td>
<td>21</td>
<td>13</td>
</tr>
</tbody>
</table>

Notes: Rankings in the top 20 are bolded. The population size rankings for 1970 are for the 40 largest metros in that year. All other columns are rankings for the 40 largest metros in the 2020 census.

Source: Authors’ calculations form BEA data.

Riverside is a complicated story. From 1970 to 2010 it grew very fast (sixth among these metros), but it slowed down in the 2007-2021 period to be at the median. More worrisome, whereas it was 24th among the 40 metros in real personal income in 1970, it is 40th in 2020, despite the fact that its per capita personal income has recently (2007-2021) been growing at above the median rate after a long period (1970-2010) of stagnation. Given that Riverside also has very high housing costs, the metropolitan area suffers from low personal incomes and poverty. As discussed in the Cal 100 regional report on The Inland Empire, Riverside has bet heavily on jobs in logistics that are relatively low-wage and perhaps in peril of being replaced by automation. Still, given its proximity and integration with Los Angeles, it may be possible for Riverside to share in a more up-scale innovation economy as summarized in a recent University of California Riverside report from the Center for Social Innovation.

Table 5 indicates the major problem afflicting California. Whereas its poverty rate was 17th lowest among the states in 1970 and its top ten percent share was 21st lowest, these same numbers were 22nd and 45th in 2020. Moreover, if the supplemental poverty rate that adjusts for costs of living and other factors is used, California has the highest (50th lowest) poverty rate. California’s lack of affordable housing in Table 3 is a big part of the problem.

Table 5. Poverty Rates and Top 10 Percent Share of Income – California’s Rankings

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<tbody>
<tr>
<td>California</td>
<td>17th lowest</td>
<td>21st lowest</td>
<td>22nd/50th lowest</td>
<td>45th lowest</td>
</tr>
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</table>

Source: Authors’ calculations from data presented in other figures.

**California’s Future Prosperity**

Urban economist Edward Glaeser says:

“Urban economists infer urban success from high local wages, robust real estate prices, and growth in the number of people within an area. If a place is doing well, then employers should be willing to pay more for workers in that area, people should be willing to pay more for access to that place, and more people should move to that area.”

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California scores well on the first criteria with high local wages, probably too well on the second with too high housing prices, and satisfactorily on the third. The third criteria is, in any case, controversial as some have argued that there are good reasons to have limits to growth. In “Growth without Growth: An Alternative Economic Development Goal for Metropolitan Areas,” Paul Gottlieb proposes:

Some argue that population growth is not an appropriate indicator of the economic health of metropolitan areas since negative effects such as increased traffic congestion, rising home prices and loss of open space are often associated with such growth. Per capita income growth may be closer to policy makers' true goal: to improve the economic welfare of its constituents.\(^5\)

Gottlieb based his work on the fact that (as we found in Figure 4) that there is essentially no relationship between per capita personal income growth and population growth. Hence, he argued that one is possible without the other. In the California data, consider San Francisco on the one hand (not much population growth but a great deal of per capita personal income growth) and Riverside (not much per capita personal income growth but a great deal of population growth). Moreover, San Francisco and San Jose indicate that per capita income can be an indicator of people being absolutely better off, even after adjusting for living costs and amenities, because of agglomeration economies that firms share with their workers. And the low real per capita personal incomes (even after adjusting for living costs) of some areas with large population increases demonstrates that population growth alone does not indicate prosperity. Furthermore, California demonstrates that high housing costs can get out of hand and that one criterion not mentioned by Glaeser, equitable income distribution, is an important consideration when assessing prosperity.

More generally, all of the indicators considered so far are just rough indicators of prosperity and business climate. It is important to “get behind them” and to find out what is going on in a region with respect to the following:

- **Quality of Industrial Structure in California and its Regions** – Are businesses growing in sectors that have agglomeration economies that will be shared with their workforces? Will California continue to prosper compared to other states because of its strong industrial structure? Are prosperous businesses growing in all or just some of California’s regions?

- *Competition from Other States* – What other states provide competition for California? Why are they competitive?

- *California's Productivity Advantages* – Will the factors that make business productive in California continue to provide those advantages?

- *California's Costs of Doing Business and Costs of Living* – Are the costs of doing business and living in California making it hard for business and people to prosper? Is the quality of life in the region getting better or worse with population and income growth?

The next sections of this report consider these issues.
The Vitality of Business Sectors in California

Size and Breadth of California’s Economy

The State of California is home to nearly 40 million people with nearly $3.4 trillion in gross state product as of 2021. California is the largest economy in the United States and the largest sub-national economy in the world. If California were a sovereign nation, it would rank as the world’s fifth largest economy, after India and ahead of the UK. Additionally, as both the most populous US state and one of the most climatologically as well as racially and ethnically diverse states, the economy of California is varied, with many sizable sectors. The most dominant sectors include real estate, manufacturing, information, professional services, and finance.

Much of the economic activity is concentrated in the coastal cities, especially Los Angeles, which has a relative focus on media—most notably Hollywood—and the San Francisco Bay Area, which predominantly concentrates on technology. California’s Silicon Valley is home to some of the world’s leading technology companies, including Apple, Alphabet Inc., and Meta Platforms. In total, over 10% of Fortune 1000 companies were based in California in 2018, the most of any state. California’s Los Angeles is also home to the world’s most famous entertainment giants, including Paramount, Warner Bros., NBCUniversal, and MTV. Film and TV production supports well over 700,000 jobs and nearly $70 billion in wages for California workers.

Both Los Angeles in Southern California and Oakland in the Bay Area, along with San Diego on the border with Mexico, are significant trade hubs to and from the United States. The Port of Los Angeles is one of the world’s busiest seaports and the leading gateway for international trade in North America and has ranked as the number one container port in the United States since 2000. When combined with the adjacent Port of Long Beach, the San Pedro Bay Port Complex is the ninth largest port in the world, handling 31% of all containerized international waterborne trade in the U.S.

Domestic and international tourists contribute $145 billion to the state’s travel industry. Furthermore, California’s agriculture industry has the highest output of any U.S. state, with its Central Valley being one of the most productive agricultural regions on Earth, growing over half the country’s fruits, vegetables, and nuts.

California’s economic prosperity relies on the pre-existing mix of businesses already in the state and governmental policies that affect the business climate. “Business

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climate” is a loosely defined concept, and numerous business climate ratings and rankings published by the media, think tanks, trade associations, and policy institutions provide different interpretations of it. One interpretation is that it refers to the strength and vitality of business in a state. Another is that it is more narrowly focused on those policy choices by a state that helps or impedes business success. We take an expansive view because any complete understanding of a state’s business climate requires both a definition of what we mean by business success and prosperity and an elucidation of the factors that lead to that success.

One measure of business success is the strength of a region’s economic base—the kinds of businesses that it has and the kinds of goods they produce. This theoretical concept is developed in more detail below, but roughly a region with a strong economic base has businesses that bring wealth into the region and provide for economic growth. This report explores the strength of California’s overall and regional economic bases in detail.

More generally, this report considers a state’s “business climate” to be shaped by the facilitators and barriers to the growth and prosperity of businesses located there or considering a move there. Because different ranking systems place different priorities on a selective subset of promoters that enhance business productivity (e.g., talent availability) or barriers that impose costs of running businesses (e.g., tax policy), California’s business climate ranking varies. However, California’s “anti-business” reputation is quite consistently reflected in the Golden State’s disappointing placement in various rankings, including 50th in 2021 Chief Executive’s list of the “Best and Worst States for Business” Survey, 33rd in CNBC 2021 ranking, and 43rd in Forbes’ “Best States for Business” 2019 list.

In sharp contrast to these rankings and perceptions, California actually has enjoyed impressive economic prosperity rooted in a strong economic base; for example, it is 6th among all 50 states in GDP growth and 9th in both employment and per capita income growth in 2017-2019. This disparity between the ranking systems and the results for California presents a paradox. Our examination of various ranking systems
leads us to resolve this paradox by concluding that California tends to be ranked very high along indices pertaining to facilitators of business (i.e., the productivity dimension) while being placed near the bottom along those pertaining to barriers (i.e., the cost of doing business dimension). In fact, we find that California arguably ranks very highly on the productivity dimension.

Furthermore, the current aggregate indices of either productivity or cost dimensions of business climate largely ignore the impacts of industrial clustering and concentration on business location decisions. Despite the high cost of doing business, some industries’ high concentration in California still attracts new businesses and investments that maintain California’s economic growth, as shown in the first section of this report. Even *Chief Executive Magazine*, ranking California at the bottom for the business climate, has observed that “while the Golden State often ends up at the bottom of *Chief Executive’s* list of the Best and Worst States,… there is no shortage of companies eager to invest in new projects and expand here. Despite the regulations, taxes, and high cost of living, many find the availability of talent, access to ports and Asian markets and incentives attractive.”

**Economic Base Theory**

What explains regional economic growth and productivity? Although the rudiments of the theory were developed at least 25 years before his use of it, in 1955, the Nobel Prize-winning economist Douglass North advanced the view that economic base theory could be used to explain long-term regional growth. North proposed that economic growth depended upon having businesses in a region that produced goods for trade (export) to other regions—these businesses constitute the economic base. He went on to distinguish between the export sector that drives growth by providing tradable goods, and the residentiary sector that produces goods primarily for the local market. Exportable goods (now typically called “basic” or “tradable” goods by economic base theorists) produced by the economic base include natural resources required by the larger national economy (e.g., coal, oil, iron ore, forestry products, and agricultural goods produced beyond local needs), manufactured goods consumed beyond the locality (e.g., cars, appliances, textiles, televisions), and services used by others outside the region (e.g., legal, architectural, consulting). Non-basic residentiary goods, consumed and traded within the region, include housing, retail trade (e.g., grocery stores), and personal services (e.g., barbershops).

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108 The term “basic goods” thus refers to goods produced by the export *base* of the region. The term is somewhat unfortunate because it can be confused with the notion of “basic goods” required for subsistence that might be thought to be produced by what North calls the “residiitary sector” or the “non-basic” sector.
North argued that exportable tradable goods brought wealth into a region. Export sectors thrived because of some comparative advantage of a region: the existence of some natural resource (e.g., coal, lumber, fertile land), location and transportation advantages (e.g., natural harbors and proximity to markets or resources), or the development of manufacturing and technological capabilities (e.g., automobiles in Detroit, textiles in New England, and computer chips in Silicon Valley). The residiency sector depended upon the strength of the export sector. “While the export sector produced goods and services for the rest of the world, the residiency sector (principally, [retail] trade, services, and local government) served the regional market.”

Economic base theory raises questions about the definition of a region, the definition of the export base, other factors beyond the export base that might contribute to regional growth, and the nature of regional comparative advantages. We employ two different definitions of a region. We consider California to be a region for some overall analyses, and we compare it with a set of similar American states. Perhaps more than any other state, California is self-contained. In 1889 James Bryce famously said that “California has more than any other [state] the character of a great country, capable of standing alone in the world.” Today, all of California’s major metros are within the state, and they do not flow over into other American states as do New York or Washington D.C. But insights can also be gained from considering groups of California counties that have relatively strong economic relationships so that they form an economic region.

We also define the economic base at a very aggregate level using two-digit NAICS (North American Industry Classification System) categories producing 19 sectors. That is not ideal because research suggests that more useful results can be obtained from a four or even six-digit analysis combined with an input-output model of the economy, but performing that analysis would require much more work than we can devote to the project here. Nevertheless, it is important to remember that some important tradable goods such as those produced by the entertainment industry in Los Angeles or the retail trade industry (Amazon) in Seattle are missed using two-digit codes. The arts and entertainment and retail trade sectors are usually considered residiency goods, but in some places, they can expand to produce tradable goods.

Finally, we will also consider three other factors that might lead to regional growth. One is disproportionate spending (compared to tax payments from the region) by the national government, such as military bases, large infrastructure projects (e.g.,

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111 The one exception is the San Diego metro which includes Tijuana in Mexico.
112 Ibid. Also consider Storper et al., op. cit., Chapter 3 who uses six digit NAICS codes.
dams or roads), and transfer payments to residents. Secondly, “migration for non-economic reasons may lead to expansion of residentiary activity without any expansion of the export base”\textsuperscript{113} as new residents require goods and services. North says that these two sources of growth are “exceptional in character,”\textsuperscript{114} and he does not include them as part of the economic base. He does not elaborate, but the first involves taking money from elsewhere and putting it into a regional economy and the second involves having people from elsewhere move into a region. In both cases, the region benefits from increased demand for residentiary goods and services, but other regions are deprived of either income or people. It is not clear that these transfers of money or people produce net growth for the entire economy. Nevertheless, some states and regions have used in-migration as a major driving force for their economies, even though the typical result is to expand the residentiary sectors without expanding the tradable sectors.

A third source of regional growth is tourism, where people come for amusement parks (e.g., Disneyland), beaches and mountains, national and state parks, or other entertainment (e.g., Las Vegas). Partly because it was not thought to be an important part of regional development and partly because it fits uneasily into the concept of economic base theory with its focus on exports, tourism has only recently been recognized as a factor in economic growth.\textsuperscript{115} By a bit of legerdemain, it can be considered a form of exports where people come to a region temporarily and upon their return home they “export” their memories and experiences, but that interpretation may be too artificial and it is not clear whether tourism can be considered part of the economic base. Moreover, there are questions about the kinds of jobs created by tourism that tend to be low-wage, low-skilled, and often seasonal. Some literature even suggests that tourism can immiserate rural tourist destinations.\textsuperscript{116} The leading textbook on economic base theory would include all three additional factors as part of the economic base,\textsuperscript{117} but we will use a narrower definition that excludes these three factors. We shall call this the “standard economic base,” recognizing that some people might expand the definition.

\textsuperscript{114} Ibid., page 167.
\textsuperscript{115} Claudio Calero and Lindsay W. Turner, 2020, “Regional economic development and tourism: A literature review to highlight future directions for regional tourism research, \textit{Tourism Economics}, 26: 1, 3-26.
\textsuperscript{117} Conway, op. cit., “As a practical matter, whether one is engaged in regional economic forecasting, analysis, or planning, the concept of the economic base should be broadened to encompass anything that brings money into the region. This includes exported goods (e.g., corn and airplanes), specialized services (e.g., software publishing and architectural services), tourism, military bases, federal construction projects, retirement communities, remittances from abroad, and even commuters who live in the region but work outside it (8).”
Economic base theory suggests three requirements for the economic growth of a region:

- **A Standard Economic Base with Tradable Goods** – In order to grow, a region must produce some exportable products for which it has a comparative advantage so that they can be traded with other regions. For California, examples of products that have driven growth are—very roughly in historical order when they first became important—gold, wheat, fruits and vegetables, petroleum, movies, ships, planes and aerospace, computer chips, and information technology.

- **Products for its Standard Economic Base for Which Demand is Increasing** – A region can prosper into the future if it produces products for which demand will be strong in the future, for which supply will continue to be available, and for which the tradables are based on highly skilled work that produces high salaries for workers. A region, for example, that produces coal today is not well-positioned for the future, but one that produces information technology is probably well-positioned. A region dependent upon logistics (e.g., Riverside County) would be in-between. It may benefit from high future demand, but it will rely upon low-skilled and low-wage workers.

- **Having a Portfolio of Multiple Products** – A region may be still better situated if it has a portfolio of products for which there is strong demand because unexpected downturns in demand for one product are less likely to create an economic crisis for the whole region.

In the following pages, we examine how well California satisfies these three requirements for future economic growth.

**Indicators and Comparison States**

In the following pages, we compare California’s economic performance and economic base with a subset of states using the economic indicators from the

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118 Storper et al., op. cit., “Bringing all this together, the best effects of specialization on regional per capita income emerge in regions that contain a high proportion of tradable sectors, and where a high proportion of the tradables are in turn innovative and based on nonroutin and highly skilled work. By contrast, regions that specialize in activities with low innovation or skill levels or routine work will have relatively low per capita income (page 31).”

119 This requirement is somewhat more controversial because there are also benefits to specialization called Marshallian externalities that provide a critical mass for progress in an industry. At the same time, there are benefits from diversity across industries called Jacobs externalities. See: Catherine Beaudry and Andrea Schiffauerova. 2009. “Who’s Right, Marshall or Jacobs?” Research Policy. 38:2,318-337. But if a region has attained the critical mass for Marshallian externalities in several industries, then that is clearly better off than just having a critical mass in one industry and it may have spillover impacts in terms of Jacobs externalities.
Economic Prosperity Metrics

We analyze and compare the following bell-weather indicators in terms of absolute magnitude and growth rates: Gross Domestic Product (GDP), Total Employment, Total Firms, and Population across states and regions within California. Collectively, they offer insights into local economic conditions and the economic base from different perspectives that can help guide decisions on investment and policymaking.

GDP is the most comprehensive measure of output for all goods and services produced within one area. Though GDP, as a measure, may not be able to capture everything about income, consumption, and non-market activities, it represents the “producing power” of the area. GDP can increase in two ways—through population growth and per-capita increases in economic activity.

Employment numbers remain the most popular and frequently cited statistics used for tracking local area economic conditions and trends; these numbers capture “full and part-time wage and salary employees, plus the number of proprietors of unincorporated businesses.” Employment is the opportunity for people to participate in value-creating activities; therefore, its size and growth receive particular attention from policymakers. Employment can increase because of population growth or because of an expansion in the economy that leads to a reduction in those not-working. Total firms provides a count of the total number of firms in the area; its size and growth reflect the size and investment intensity of the local economy.

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120 https://california.reaproject.org/
124 Citation from: https://california.reaproject.org/analysis/comparative-trends-analysis/total_employment/tools/93610000/94010000/
125 Kolko et al., op cit.
126 https://www.census.gov/programs-surveys/bds/documentation/codebook-glossary.html
**Sample of States for Comparison**

We consider states in the top 16 in population\textsuperscript{127} with at least one large metropolitan area whose population is among the top 15\textsuperscript{128}. That leads to thirteen states: California (3 metros in the top 15, one more in the top 20), Texas (2), Florida (1 metro in the top 15, one more in the top 20), New York (1), Pennsylvania (1), Illinois (1), Georgia (1), Michigan (1), New Jersey (1), Virginia (1), Washington (1), Arizona (1), and Massachusetts (1). Even though New Jersey and Virginia are in this group, we excluded them because they do not have large metros centered in the state while all of California’s metros are “contained” within California.\textsuperscript{129} We selected the remaining eleven large states (one of which, Arizona, borders on California), and we added two smaller states adjoining California—Nevada and Oregon to have all the states bordering on California.

**California’s Economic Prosperity in Terms of GDP**

We begin with a comparison of California to all 50 states using data on each state from 2017 -2019 (the most recent three years before COVID19). We make comparisons in terms of GDP, employment, the number of firms, and population. For each metric, Table S-1 reports each state’s value, growth rate, and ranking among all 50 states. (Tables and Figures designated with an “S” are supplemental and available upon request.)

**California Rankings in Size of Economy and Growth Rate**

In 2017-2019, California’s mean\textsuperscript{130} GDP in current dollars (not adjusted for inflation) was $2.893 trillion, ranked # 1 among all 50 states; its GDP growth rate was also ranked among the top: #6 or 5.91\% using current dollars which include inflation.\textsuperscript{131} This GDP growth rate is much larger than the per capita personal income growth discussed in the preceding section for two reasons. First, the growth in GDP includes growth due to population increase. In the 2017-2019 period population growth in the United States averaged 0.66\%. Second, the growth in GDP in current dollars does not


\textsuperscript{128} None of the metros in Ohio (Columbus), North Carolina (Charlotte), or Tennessee (Nashville) have populations ranked in the top 15 nationally.

\textsuperscript{129} New Jersey and Virginia are left out because they do not have metros within the state that meet the requirement. New Jersey is part of the New York metro, but most of the population is within New York. Virginia is part of the D.C. Metro, but most of the population is in D.C. or Maryland. Virginia is also not included because the D.C. metro is dominated by government jobs. Note that in California, the San Diego metro can be said to include Tijuana which is in another country, although not in another one of the 50 states.

\textsuperscript{130} We use the arithmetic mean when calculating the mean values.

\textsuperscript{131} GDP is reported in current dollars, and the growth rate uses current dollars so that part of the growth is due to inflation, but that inflation is common across all the states so that the same ranking results would be obtained with GDP figures adjusted for real dollars.
adjust for inflation which averaged 2.13% over those three years. Hence the GDP growth figures will typically be bigger by about 2.79%. Given the sheer size and growth rate of the economy of California, it is not surprising to observe that California was tops in the number of firms, business establishments, and employment, with growth rates ranked 9th (1.37%), 12th (1.11%), and 9th (2.16%), respectively.

California has the largest population, 39,404,290 people, among all the states. In contrast, its population growth rate is only 0.25% (ranked 33rd), indicating that California’s population growth is not, as with some other states such as Florida and Texas, propelling its economic growth. California increased its GDP during this period by increasing economic activity in the state, not by adding more people. These results are consistent with our data on the metropolitan areas within California reported earlier. In sum, at the aggregate level, the economic development of California is impressive, especially considering its sizable economy and its more or less stagnant population growth.

The overall picture here is one of a state that is the highest on economic prosperity in absolute terms and high in relative terms. Population growth stands out in being strikingly low in relative terms. How then can these rankings be reconciled with a variety of observations about the business climate in California? In the next section, we delve deeper, comparing California with comparison states along with economic prosperity metrics.

*California's GDP Size and Short-Term Growth Compared to Thirteen Large or Nearby States*

Figure 12 compares California to the thirteen comparison states on GDP short-term growth rate and total GDP. As already noted, in 2017-2019, California’s GDP in current dollars was the largest at $2.893 trillion, 62% more than the second (Texas’ $1.784 trillion), 71% more than the third (New York’s $1.692 trillion), and 173% more than the fourth (Florida’s $1.059 billion) largest economy. More importantly, its short-term growth rate of 5.91% outpaced all but two other states that had much smaller economies: Washington with a growth rate of 7.06% and an economy less than one-fifth California’s size –($560.77 billion) and Nevada with a growth rate of 6.18% and an economy less than 1/16th California’s size ($170.96 billion). These are very impressive absolute and relative rankings in terms of GDP.
Industrial Composition Across States

Economic base theory indicates that we should look at the industrial composition of each state to determine whether it has a strong economic base. The GDP composition of each of the 50 states is broken down by the share of the economic output for each of the 19 industry sectors in Table S-2. The industry sectors are classified using the 2-digit NAICS codes (Table S-3 provides a detailed description of each industry sector). States vary in their most important sectors. For Washington State and the four largest states in population the top five industries are the following:

- California — Real Estate (15.1%), Manufacturing (13.2%), Information (11.1%), Professional Services (10.3%), and Healthcare (7.2%) make up 56.9% of the state’s GDP.

- Texas — Manufacturing (14.6%), Real Estate (11.9%), Mining (8.9%), Wholesale Trade (8.7%), and Professional Services (7.9%), make up 52% of the state GDP.
New York — Finance (21.9%), Real Estate (14.7%), Professional Services (9.6%), Information (9.1%), and Healthcare (8%), make up 63.3% of the state GDP.

Florida — Real Estate (20.3%), Healthcare (9.4%), Professional Services (8.1%), Retail Trade (7.9%), and Wholesale Trade (7.8%), account for 53.5% of the state GDP.

Washington — Information (15.2%), Real Estate (14.2%), Manufacturing (12.8%), retail trade (9.8%), and Professional Services (7.7%), account for 59.7% of the state GDP.

These states have different industry profiles. A very rough classification would say that real estate, retail trade, and healthcare are mostly in the non-basic “residiary” sector. Parts of professional services and wholesale trade are in both the basic and non-basic sectors, and most of finance, manufacturing, information, and mining are in the basic tradable goods and services sector. When looked at this way, Florida appears to have a much smaller basic tradable sector than the other states. None of Florida’s top five sectors is primarily focused on tradable goods, but 24.3% of California’s, 23.5% of Texas's, 31% of New York’s, and 28.0% of Washington’s are. Instead, Florida is heavily reliant on residientiary goods and services such as real estate (one-fifth of its industry at 20.3%), health care (9.4%), retail trade (7.9%), and accommodations (5.0%). In fact, Florida has followed a growth strategy that is heavily dependent upon tourism and population growth and the provision of residientiary goods for its tourists and new residents.

As noted earlier, this approach can expand

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132 Considering all 19 sectors, if we classify six of them—agriculture, mining, manufacturing, information, finance, and management—as mostly tradable goods, then 34.0% of California’s economy is in these industries, 36.6% for Texas, 37.8% for New York, and 35.6% for Washington — but Florida has only 19.5% in them. We classify four areas as both tradable and residientiary goods and services (wholesale trade, transportation and warehousing, professional and technical services, and other services). The five states have similar percentages ranging from 19% to 23% for these. The remaining nine categories—utilities, construction, retail trade, real estate, administration and support, educational services, health care, arts and entertainment, and accommodation and food services—are primarily residientiary goods and services. Of the five states, Florida’s economy has by far the greatest overall share (58.0% compared to between 40.5% and 45.3% for the other states) in these areas. Indeed, it has the greatest share among the five states in six of them (utilities, construction, real estate, administration and support for services, health care, and accommodations) and it is second in arts and entertainment to New York and second in retail trade to Washington with the big difference being Amazon. (Note that Amazon’s products are traded beyond the state of Washington so that part of it should be considered part of the state’s economic base.)

133 A recent report concludes that the five (of ten) sectors driving the Florida economy are Financial Activities (including Real Estate), Health Care and Social Assistance, Leisure and Hospitality, Professional and Business Services, and Trade, Transportation, and Utilities. Non-drivers are Construction, Manufacturing, Information, Agriculture, and Government. Although the sectors combine basic and non-basic activities, the result strongly suggests that Florida is heavily reliant on non-basic activities (real estate, health care, trade, transportation, and utilities) or on basic ones (e.g., Leisure and Hospitality) with low wage jobs. Sarah Crafton, Santiago Marrou, and Victoria Roberts, 2018, What Drives The Florida Economy? https://coss.fsu.edu/economics/wp-content/uploads/sites/10/2022/01/FLEcon.pdf. A state report noted that “For Florida to continue to be competitive, our economy must rely on more than our natural resources and a continued stream of new residents and visitors. As Florida’s economic vision is realized, Florida will transition from being a state driven primarily by [population] growth to a state driven by talent, innovation, quality of life, and global connectivity.” Florida
the residentiary sector, but it might not appreciably increase the per capita wealth of the state.

Texas is unique in having a strong Mining sector — namely oil and natural gas extraction and refining, but the long-run future of the petroleum industry is uncertain. Texas is also strong in other sectors. New York is unique with its strong Finance sector — businesses engaging in financial transactions (transactions involving the creation, liquidation, or change in ownership of financial assets) and facilitating financial transactions – the sector is almost 22% of the state's economy, but its major city, New York, may be too dependent on this sector.\textsuperscript{134} Washington, California, and New York have strong Information sectors, and Washington and California also have strong Manufacturing sectors.

The varied industry compositions of the states impose unique challenges and suggest opportunities for the states. Different industry sectors require different inputs for their growth. For instance, the Real Estate sector relies heavily on property, plant, and equipment (PP&E) inputs; the Information sector depends on R&D inputs and highly skilled labor; the Professional Services sector needs highly skilled labor inputs; and Manufacturing, Transportation, and Utilities sectors are sensitive to PP&E and capital inputs.\textsuperscript{135} For California's top five GDP industries, Real Estate and Manufacturing are heavily influenced by the policies regulating land and space availability such as zoning and environmental regulations. Healthcare and Professional Services depend on the policies and practices regarding labor supply such as the quality of higher education and unionization, and Information varies with policies that promote or inhibit R&D, such as R&D tax credits or support for research.\textsuperscript{136}

Given these different profiles, it is worth knowing which states have industry profiles that “look” like California. Using a similarity measure based upon the rankings of the size of the industry sectors, Washington, Georgia, and Oregon are the states most


similar to California. Washington and California share four industries in their top five GDP industries—these are Real Estate, Professional Services, Information, and Manufacturing. Considering Washington’s fast growth and similarity with California, policymakers in California must take into account competition from Washington. In addition, Georgia has three industries (Real Estate, Manufacturing, and Information), and Oregon has four (Real Estate, Manufacturing, Healthcare, and Professional Services) in their top five GDP industries that are the same as those of California.

**GDP by Industry: Leading, Slipping, Gaining, and Lagging (LSGL) Analysis for California**

Once we have characterized the economic base of each state, we want to know which industries are propelling economic prosperity by growing over both the long and short terms. There are two ways to understand this growth—within the state or across states. We can ask which industries are the fastest growing within a state, and we can ask which states of the 50 states have the fastest growing industries. We start with the first question and then move on to the second.

To do this, we employ the LSGL tool in the U.S. Census Bureau’s regional economic analysis project to analyze the growth status of industries in California and to analyze the performance of industries across states. LSGL analysis plots a measure of long term growth versus a measure of short-term growth for each industrial sector, and it compares that sector’s growth rates to the overall growth rates in that specific region or across regions. If the industry has high levels of long-term growth rate and short-term growth rate—that is, if it has above average growth rates compared to overall growth rates in that region or across regions—then the industry will be in the leading quadrant in the upper-right corner. High long-term but low short-term growth rates place the industry in the slipping quadrant in the upper left. Low long-term but high short-term growth rates put it in the gaining quadrant in the lower right. Low levels on both put the industry in the lagging quadrant in the lower left. Generally speaking, it is best to be in the upper-right “leading” quadrant with both high long-term and short-term growth, but failing that, it is good to be in the lower right “gaining” quadrant. Being in the upper left and “slipping” suggests trouble ahead for the industry, and being the bottom left and “lagging” indicates long and short-term difficulties.

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137 Using the data in Table S-2, we calculate the sum of absolute differences between each industry’s ranking in California and other states to determine similarity. The smaller the value, the more similar with California’s GDP and economy composition.

138 Using California as an example: https://california.reaproject.org/analysis/lsgl/
Figure 13. LSGL Analysis for California’s Industries within California

The colors of the dots on Figure 13 indicate the size of the sector with smaller sectors in green, somewhat larger ones in yellow, and large ones in red.

Within the state, California has 8 industries in the leading quadrant, 4 in the slipping, 6 in the lagging (including mining which is not on the chart), and 1 in the gaining. The average growth rate of all industries in California is 5.08% for the long term and 5.73% for the short term. More specifically,

- *Both Exportable Goods and Residentiary Goods Industries in the Leading Sector* — The leading quadrant consists of the following industries:
  - Information (8.44%, 6.81%), Construction (7.90%, 7.67%), Food Services (7.59%,...
5.87%), Transportation (7.57%, 11.75%), Management of Companies (6.50%, 7.55%), Professional Services (5.87%, 7.98%), Entertainment (5.51%, 7.76%), and Manufacturing (5.11%, 6.40%). Information and Manufacturing are two large sectors that produce exportable goods; Professional Services is another large sector that produces some exportable goods. Although it is a relatively small sector and it is generally thought of as providing residiency sector goods, at least part of Entertainment in California is the television-cable-movie business in Los Angeles that produces exportable goods.

- **Residentiary Educational Services in Gaining Quadrant** — The gaining quadrant consists of Educational Services (4.78%, 6.29%), a residiency service.

- **Mostly Residentiary Goods Industries in the Slipping Sector** — The slipping quadrant includes the following industries: Finance (5.73%, 4.15%), Wholesale Trade (5.28%, 4.89%), Administrative Services (5.21%, 5.39%), and Healthcare (5.13%, 5.58%). Except for Finance, these are mostly residiency goods.

- **Natural Resource Sectors and Residentiary Goods Sectors in the Lagging Sectors** — The lagging quadrant consists of Utilities (3.84%, 3.07%), Other Services (3.84%, 4.33%), Retail Trade (3.70%, 4.47%), Real Estate (3.41%, 5.37%), Agriculture (3.27%, -1.73%), and Mining (-6.67%, -2.37%). Except for Agriculture and Mining (which are small sectors—relatively speaking—in California, although they are important for some regions in California), these are residiency goods.

Four of the top five industries in California have an above-average long-term growth trend (Manufacturing, Professional Services, Healthcare, and Information), and three of them are also above the short-term average (Manufacturing, Professional Services and Information), and these last three produce exportable goods. California's agricultural sector is lagging, especially in the short run, because of droughts that have limited it for the past five years. Its future depends upon the availability of water and the impacts of climate change.\(^{139}\) Mining includes the production of petroleum, and here California has the sixth largest proven reserves of crude oil,\(^{140}\) and it is the sixth largest producer of petroleum.\(^{141}\) California's production is comparable to that of Alaska and Colorado, but it is less than one-tenth of Texas. One reason for the declining production is that California's oil fields in Kern County in the Central Valley are aging. Another is that California has chosen to aggressively decarbonize its economy, and it has not chosen to pursue new oil production.\(^{142}\)

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\(^{139}\) Anastasia Telesetsky, October 2022, “The Future of Agriculture and Food Systems in California,” California 100.


\(^{142}\) Politico, December 17, 2022, “Oil Industry Faces End of the Road in California Regardless of Newson Penalty on Profits—Fossil Fuel Companies Face an Existential Threat in California as the State Shifts to a Carbon Neutral...
GDP by Industry: LSGL Analysis Across Comparison States

The LSGL analysis above is in a fixed geographical area, i.e., California. In the following, we apply the tool to a set of fixed industries (i.e., the top 5 industries' in Californian GDP) and study their development in the comparison states. The average long-term and short-term growth rates are now for the United States for each specific industry, and our goal is to see whether California's sectors, especially those producing tradable goods, are doing well compared to the same sectors in other states.

We first focus on the large sectors producing tradable goods. Figure 14 presents comparative data on three sectors—manufacturing, information, and professional services—that produce tradable goods that constitute more than a third (34.7%) of California’s economy. California, Arizona, Florida, and Texas are in the leading quadrant for Manufacturing. Although short-term growth in Nevada and Arizona is significantly higher than in all the other states, the size of the manufacturing sector is very small for them so small absolute changes make a big difference. This sector is much larger in California and Texas than in the other leading states, and both short-term growth and long-term growth in this sector in California are much faster than in Texas, indicating that California is very strong in this area.

Likewise, for Information, Washington, Arizona, and Nevada had significant short-term growth though California’s long-term growth is second only to Washington, demonstrating the strength of this sector in California and indicating that Washington is a significant competitor. For Professional Services, Washington, Texas, Oregon, California, and Florida are in the leading quadrant, but California again has the largest share of this sector, and it is staying up with all of its smaller competitors. California is clearly a leader in manufacturing, information, and professional services.

In non-tradable areas, California is in the leading quadrant for health, where it has strong long-term and short-term growth. In real estate, it is far from the growing states such as Georgia, Florida, Texas, and Washington. Instead, it is grouped more

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143 Among the four largest states and Washington, only Washington has a comparable percentage (35.7%). These three sectors are 26.7% of the Texas economy, 23.4% of the New York economy, and only 18.4% of the Florida economy. As we’ve noted earlier, manufacturing and information are mostly tradable goods and professional services are split between tradable and residiency goods. Given California’s large percentage for professional services and given what we know about the California economy, it seems likely that a large fraction is tradable for California.

144 See Figure S-4 for the data supporting the following discussion.
with Massachusetts, New York, Pennsylvania, and Illinois. No doubt, this reflects the complexities of the California housing market.

**Figure 14. LSGL Analysis Across U.S. States for Three Industries in California's Economic Base**

![LSGL Analysis Chart](image)

Source: Authors’ calculations from BEA data.

**California's Economic Prosperity in Terms of Employment**

In this section, we consider the size and growth of employment. As one would expect, the growth in employment closely follows the growth in GDP, and the amount of employment is closely related to the level of GDP, although it is also affected by the rate of population growth in a state. From 2017 to 2019, California had the largest employment (14.83 million) and 5th fastest employment growth rate (2.16%) among comparison states. Texas had the second-largest employment of 10.70 million, with a growth rate of 2.02%. Given California's large size and low population growth rate, being 5th among comparison states in employment growth is noteworthy. However, the rank is lower than its GDP growth rate, which is 3rd (see Figure 13). The neighboring states of Arizona and Nevada and the West Coast state of

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145 Figure S-6 presents these data.
Washington have the fastest growth rates of employment of 3.07%, 2.79%, and 2.52%, respectively, mostly because they also have high population growth rates.

**Job Creation and Destruction Rates**

One mark of a dynamic economy is high job creation and job destruction rates. As expected, we found a positive correlation between the job creation rate (the ratio of newly created jobs in the total number of jobs) and the job destruction rate (the ratio of lost jobs in the total number of jobs) in Figure 15. Texas, Georgia, and California have relatively higher job destruction rates (and job creation rates, too), indicating the economy in these states is more dynamic than that of other comparison states. Whereas these state economies are attractive to new businesses and have a high job creation rate, the resultant intensified competition may also lead to more job loss at the same time leading to high job destruction rates\(^\text{146}\). A complementary explanation is that local firms and employees are relatively young in these states, and younger firms tend to have higher job creation and destruction rates while younger employees might have higher job mobility\(^\text{147}\).

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LSGL Analysis Applied to Employment

Applying the LSGL tool to long-term and short-term employment growth across industries in California, we find some differences from what we obtained when looking at GDP growth. When changing the economic activity measure from GDP to the amount of employment in each industry, California’s economic status seems to be less promising than suggested in the GDP LSGL analysis. Looking within California, the number of industries in the leading quadrant declines from 8 to 6, and those in the lagging increase from 6 to 9. More importantly, for the top 5 industries in GDP, Manufacturing moves from leading to lagging, Information from leading to slipping because of a slower than average employment growth rate, and Professional Services from leading to gaining as its long-term growth rate in the past decade is below average. These results suggest that those large industries’ employment growth is not catching up with their GDP growth. Indeed, when

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148 See Figure S-8 for and S-9 for the plots upon which this discussion is based.
employment growth in these three sectors is considered across states, California is leading only in the Information sector. California’s major industry sectors like Manufacturing, Information, and Professional Services are better at producing high-value outputs that boost GDP growth than at generating jobs. The relatively slower growth in jobs than in GDP could be an alarming sign that jobs might be off-shored or that GDP growth is inflated by the increase in prices and salaries that leads to greater inequality. In sum, California’s employment growth is not as positive as GDP growth.

**California’s Small and New Businesses**

California has been viewed as one of the worst states for small businesses, according to some reports. In this section, we analyze the growth of firms and employment in the comparison states by firm size and age. These numbers can be considered behavioral measures or “revealed preferences” of those starting new businesses, and they suggest that small business is doing well in California.

In terms of number and percentage, California is friendly to small firms. California has a high percentage of small firms (i.e., with 1-19 employees) compared to the other 13 comparison states; the ratio of 87.4% is only lower than New York’s 88.4%, and Florida’s 89.5%, and the median is Illinois at 84.9%. California also has the smallest percentage of large firms (500+) at 0.95% which is much smaller than the median of 2.18% across the states. Not only does California have a large fraction of small firms, but they are also growing robustly. California’s 1.37% ranked 5th, following Arizona’s 1.48%, Texas’s 1.56%, Florida’s 1.62%, and Nevada’s 1.65%, and well above the median of 1.19%. These data suggest that despite the standard lore, California is still a place where small businesses choose to locate.

These results are confirmed by using other indicators of the role of small businesses in California’s economy. California ranked 4th in terms of the share of employment from small businesses, and it ranked 3rd (1.12%) in terms of the growth in employment from small businesses, following Arizona’s 1.22% and Nevada’s 1.56%. California also has the fourth-highest share of startups (i.e., firm age is 0) among the 13 comparison states. Its rate of 9.67% is slightly lower than Florida’s 10.55%, Nevada’s 10.92%, and Texas’s 10.05%, but it is well above the median of 9.23%. California also has 28.9% of total firms in the firm age group of 1-5 years (4th in the comparison states), following Texas’s 29.66%, Florida’s 30.62%, and Nevada’s 31.51%. California’s growth rate of

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151 See Figures S-11 panel 1 and panel 2 for these data.
152 See Figure S-12.
153 See Figure S-13.
startup firms is 1.62% (ranked 4th), slower than Nevada's 1.84%, Arizona's 2.09%, and Texas's 2.29%.

These and other data show that, at least in terms of the actions of small business owners, California is not un conducive to small businesses as its share in total firms and total employment are 3rd and 4th among comparison states, with growth rates ranked at 5th and 3rd, respectively. Second, in terms of startups, its share in total firms and in growth rate of firms ranked 4th. Third, new firms (i.e., firms aging 0-5 years) are also doing well in California, but to a lesser extent when compared to startups. Fourth, although the absolute numbers are much smaller, it is important to note that neighboring states like Nevada and Arizona outperform California in attracting small and new businesses. Last, growth in small (employee size, 0-19 employees) and new (firm age zero) firms is concentrated in Construction, Transportation, Information, and Entertainment, while Manufacturing, Wholesale Trade, and Retail Trade have negative growth rates in terms of both new and small firms. As those industries require more inputs of labor, property, plant, and equipment, the fact may signal an adverse trend in supplying those inputs in California.

California's Population

California is the most populous state at 39.4 Million people, but the growth rate from 2017 to 2019 (0.25%) is only slightly higher than for Michigan (0.10%), Pennsylvania (0.03%), New York (-0.30%), and Illinois (-0.40%). The neighboring states of Nevada (1.92%) and Arizona (1.64%) have the top 2 highest growth rates, and Washington, Florida, and Texas follow with growth rates of 1.41%, 1.38%, and 1.26%, respectively. Indeed, according to a report from Stacker.com (2021), in 2019, the top five states Californians moved to are Texas and the nearby states of Arizona, Nevada, Washington, and Oregon, which all witnessed significantly higher population growth rates. While the population of California has grown significantly more rapidly than the national average in the past decades, the Golden State’s population growth fell behind the national average in recent years (since 2000), leading to its delegation in Congress shrinking from 53 to 52 beginning in 2023. The declining population in

155 See Tables S6-A and S6-B.
156 Op cit. Manyika et al.
California can be attributed to factors such as the decreasing birth rate\textsuperscript{159}, the reduction in domestic migration to California, and the high cost of housing\textsuperscript{160}.

**Summary of Facts: California's Economic Prosperity**

With the analyses of economic prosperity metrics of GDP, employment, and population at whole-economy and industry levels, we can now draw some conclusions about California’s economic prosperity:

- **Very Large Economy with High GDP Growth** — Even with the largest economy among all the states, California’s GDP growth rate is impressive, ranked 3\textsuperscript{rd} among the 13 comparison states. The top 5 industries in GDP in California are Real Estate (15.1\%), Manufacturing (13.2\%), Information (11.1\%), Professional Services (10.3\%), and Healthcare (7.2\%), making up 56.9\% of the state GDP.

- **Employment Lags GDP Growth** — California’s employment growth, ranked 5\textsuperscript{th} among comparison states, is not as high as that of GDP ranked 3\textsuperscript{rd}. There are indications that many of the leading sectors are better at producing GDP growth than employment growth, suggesting that this is leading to higher salaries in these sectors that exacerbate inequality.

- **Population Growth is Slow** — California’s population growth is relatively slow (0.25\%, ranked 9\textsuperscript{th}). More importantly, population is growing much faster in neighboring states like Nevada (1.92\%) and Arizona (1.64\%), and states with similar economies and industry compositions like Washington (1.41\%), Florida (1.35\%), Georgia (1.02\%), and Oregon (1.00\%). This is a critically important issue for policy, especially since many of the states that are growing in population are nearby (Arizona, Nevada, Oregon, and Washington).

- **Mostly Strong Tradable Goods Industries** — California has a strong economic base producing tradable goods in the areas of Information, Manufacturing, Professional Services, and Entertainment. It also has strong sectors providing residentiary services. Sectors such as Construction, Transportation, Information, Professional Services, Management of Companies, Administrative services, Healthcare, Entertainment, and Food Services are in the leading category with above-average growth rates in both long- and short-term measured by two or more economic performance metrics. In this category, Information, Professional Services, and Healthcare are the 2\textsuperscript{nd}, 4\textsuperscript{th}, and 5\textsuperscript{th} largest industries in California. Agriculture, Mining, Utilities, Manufacturing, Wholesale Trade, and Retail Trade are in the lagging category.

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\textsuperscript{160} Op. cit, Johnson et al., 2016.
with below-average long-term and short-term growth rates. Among this group of lagging industries within California, Manufacturing is especially important because it is the 3rd largest industry in California, and it produces tradable goods. Its “lagging” within California (Figure 13) might be a cause for concern, but California’s manufacturing sector is doing well (see Figure 14) when compared with other states.

- **No Behavioral Evidence that Small Businesses Shun California** — There is no significant behavioral evidence that California is not “friendly” to small businesses and new businesses, though small and new businesses are not growing well in some labor-intensive and cost-sensitive industries. However, neighboring states like Arizona, Nevada, and Oregon have higher growth rates than California in the number of small and new businesses and related employment. Thus, California will have to work harder to compete more effectively with neighboring states.

- **Similar States** — A set of states have similar economies and industrial compositions to that of California. Georgia, Oregon, and Washington are similar to California in **GDP composition by industry**. Georgia, Florida, and Oregon are similar to California in terms of industry LSGL pattern measured by **GDP growth**. Georgia, Florida, and Illinois are similar to California in terms of industry LSGL pattern measured by **employment growth**. Florida, however, is quite different in its economic base and appears to be following a much different strategy from most other states, with an emphasis on population growth and tourism. Oregon is relatively small. Texas appears different because of its large mining (petroleum) sector, but it is otherwise a useful comparison state because it has a large Manufacturing sector and it is trying to move forward in Information. California might want to pay special attention to Texas, Georgia, and Washington while keeping an eye on the much different approach being taken by Florida. These states and their policies may hold particular relevance to California.
The Vitality of Business Sectors in California's Regions

This section considers the economic prosperity of different regions in California. Defining regions is always somewhat arbitrary, but we have tried to define ones that make sense to the people who live in them and that have economic ties to one another. That works better for some regions than for others. For example, the Far North is a very large region with distinctive sub-regions, but we consider it as a whole here.\textsuperscript{161} The first and second columns of Table 6 indicate the correspondence between the nine regions considered here and California’s 58 counties.\textsuperscript{162} As indicated by the third column, five of these regions contain metropolitan areas in the top 40 in the United States. We have discussed those metropolitan areas in the earlier part of the report, but we will say a lot more about them here. Of special interest are the four regions, the Central Coast, Sierras, San Joaquin Valley, and Far North, that have not yet been considered.

These regions differ greatly in their economic prosperity and population size and growth. Table 6 includes measures related to the economy and population. Two measures gauge the size of the regions—GDP shares and population shares. A third measure provides an indication of the relative size of the economy to the population—the ratio of GDP share to population share with values above one indicating a region with a greater share of GDP than its population share. This measure indicates which regions have more GDP per person than other regions. Two additional measures assess the growth of the regions: overall GDP growth rate (in current dollars that include inflation) and population growth rate. It is worth remembering that GDP can grow either through adding people to a region or by increasing the per capita size of the economy, which provides either more jobs or higher wages for people already in the region.

\textsuperscript{161} In the California 100 report on the Far North we divide it into three subregions: the North Coast, the Northern Sacramento Valley, and the Shasta Cascade. see: California 100 Research Team, May 2023, “The Far North Region: A California 100 Report,” California 100.

\textsuperscript{162} In the California 100 regional reports, somewhat different definitions are used for the South Coast, the Central Coast, the Sacramento Metro, and the Far North. The South Coast in this report includes Ventura County but that county is included in the Central Coast for the regional reports. The Sacramento Metro in this report does not include Glenn and Colusa counties which are placed in the Far North region. Including Ventura County in the South Coast recognizes that its major city, Oxnard is only 70 miles from downtown Los Angeles, but Oxnard is only 47 miles from Santa Barbara on the Central Coast. The inclusion of Ventura County in the South Coast in this report certainly does not affect conclusions about the South Coast, since Ventura County has a population (840,000) that is one-fifteenth that of the combined Los Angeles and Orange County definition of the South Coast. Not including Ventura County in the Central Coast might have an impact on the conclusions about that region in this report since the remaining five counties have a population of 1.3 million. Glenn and Colusa Counties have populations of 29,000 and 22,000 respectively, so that their inclusion in the Sacramento Metro of 2.4 million would make no difference. Even the impact of their exclusion on the analyses for the Far North region would be fairly small since that region has a population of about 1.2 million.
### Table 6. Regions in California: Population and GDP Shares and Growth Rates

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Bay Area</td>
<td>Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma</td>
<td>San Francisco, San Jose</td>
<td>32.5%</td>
<td>19.6%</td>
<td>1.66</td>
<td>7.91%</td>
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<tr>
<td>South Coast</td>
<td>Orange, Los Angeles, Ventura</td>
<td>Los Angeles</td>
<td>36.6%</td>
<td>35.7%</td>
<td>1.02</td>
<td>4.97%</td>
<td>-0.19%</td>
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<td>Southern Border</td>
<td>San Diego, Imperial</td>
<td>San Diego</td>
<td>8.3%</td>
<td>8.9%</td>
<td>.94</td>
<td>4.62%</td>
<td>0.25%</td>
</tr>
<tr>
<td>Central Coast</td>
<td>Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz</td>
<td></td>
<td>3.1%</td>
<td>3.8%</td>
<td>.83</td>
<td>4.74%</td>
<td>0.10%</td>
</tr>
<tr>
<td>Sacramento Metro</td>
<td>El Dorado, Placer, Sacramento, Yolo</td>
<td>Sacramento</td>
<td>4.8%</td>
<td>5.9%</td>
<td>.80</td>
<td>5.55%</td>
<td>1.03%</td>
</tr>
<tr>
<td>Sierra</td>
<td>Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, Tuolumne</td>
<td></td>
<td>0.3%</td>
<td>0.5%</td>
<td>.68</td>
<td>5.74%</td>
<td>0.63%</td>
</tr>
<tr>
<td>San Joaquin Valley</td>
<td>Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare</td>
<td></td>
<td>6.4%</td>
<td>10.7%</td>
<td>.59</td>
<td>5.04%</td>
<td>0.81%</td>
</tr>
<tr>
<td>Far North</td>
<td>Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Nevada, Plumas, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yuba</td>
<td></td>
<td>1.8%</td>
<td>3.1%</td>
<td>.57</td>
<td>4.54%</td>
<td>0.05%</td>
</tr>
<tr>
<td>Inland Empire</td>
<td>Riverside, San Bernardino</td>
<td>Riverside</td>
<td>6.2%</td>
<td>11.7%</td>
<td>.53</td>
<td>5.64%</td>
<td>0.98%</td>
</tr>
</tbody>
</table>

Note: GDP growth rate is for current dollars so that it includes increases due to inflation.

Source: Authors’ calculations based upon BEA data.
Richer and Poorer Regions

The nine regions are ordered with those with higher GDP per person at the top and those with lower GDP per person at the bottom. Note that the five richer areas at the top of the table are coastal areas, or in the case of Sacramento in the middle of the table, located on a delta area whose rivers lead to the coast. The poorer areas at the bottom of the table are mostly inland. Not only are the areas at the top of the table richer, but they generally have slower (or even declining) population growth rates as population growth has moved inland. Specifically, these data show that:

- **California Economy Dominated by Five Regions with Metros in the Top 40 in the United States** – Most of the GDP (88.4%) and most of the population (81.8%) is in the top 40 Metro Regions of the South Coast (Los Angeles), Bay Area, San Diego, Sacramento, and the Inland Empire. Moreover, altogether these regions are richer (with the conspicuous exception of the Inland Empire) than the rest of the state because they have a larger share of the GDP than population, but there are important differences across region:
  - **South Coast has the Largest Share of GDP and Population** – With more than a third of the state’s population (35.7%) and a third of the state’s GDP (36.6%) the South Coast is a major part of the California Economy. Its population growth rate is slightly less than zero which makes even more impressive its GDP growth rate of 4.97%—above the US average of 4.78%.
  - **Bay Area has the Second Largest Share of GDP and Population** – The Bay Area has 32.5% of the GDP and 19.6% of the population making it the richest region in the state. With only minuscule population growth, it has a phenomenal GDP growth rate of 7.91%. Together, the South Coast and Bay Area comprise over two-thirds of the California GDP (69.1%) and over half the population (55.3%).
  - **Inland Empire Poorest of the Regions** – With 11.7% of the population, Riverside and San Bernardino have only a 6.2% share of GDP. But interestingly, the Inland Empire has a relatively high GDP growth rate of 5.64% (for current dollars), and it leads in the growth of the number of firms and business establishments, partly because it also has a relatively high population growth rate at 0.98%. These results are similar to what we found earlier for the Riverside MSA (see Figure 7).

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163 See Table S-10.
164 The Inland Empire’s growth in GDP is not all due to population. When we subtract the population growth rate of 0.98% from the GDP growth rate 5.64% for the Inland Empire, we get 4.66% which is still above the US average GDP growth of 4.27% when US population growth of about 0.70% is subtracted from 4.97%.
Areas without Top 40 Metros Generally Are Poorer and Have Smaller GDP to Population Share – Except for the Central Coast (where Santa Barbara and San Luis Obispo are located) with a GDP to population ratio of .83, all of the remaining less densely populated areas (Sierras, Far North, and San Joaquin Valley) have ratios of GDP Share to Population Share that are between .57 and .68 indicating that they are less rich than the coastal areas. In addition, the Far North has an especially weak growth rate (4.54%).

The Coastal Parts of the State are Growing Slowly in Population—if at all—compared to the Interior Parts of the State Near Major Urban Areas – The greatest population growth is in the “middle” parts of the state in Sacramento (1.03%), the Inland Empire (0.98%), the San Joaquin Valley (0.81%), and the Sierras (0.63%). Every other part of the state is growing at less than 0.25% and sometimes declining in population.

In summary, California’s wealth is concentrated near its metropolitan coastal areas and these areas (except for the more inland Sacramento) are not growing in population, although they are growing economically with GDP growth rates near or above, sometimes far above as in the Bay Area, the US GDP growth rate. Except for the Far North, the less well-off inland areas are growing in population, but their GDP growth is highly dependent upon this population increase.

Different Industrial Structures Across Regions

Regions thrive because of the strength of their economic bases that produce tradable goods that bring wealth into the region. Table 7 explores the structure of the regional economic bases. Using the same classification of the 19 two-digit NAICS industry codes as before, the table classifies sectors into the basic tradable goods sector, the mixed sector, and the non-basic residentiary sector. Remembering that the regions are ordered on the table from those that are best off to those who are least well off (in terms of their per capita share of GDP), it is evident that as we go from the top to the bottom of the table, the “GDP Share for Mostly Tradable Goods Sectors” goes down from 43.2% for the Bay Area to 16.3% for the Inland Empire. The one big exception is the San Joaquin Valley. Further exploration of the industry structure of the regions explains what’s going on.

To explain the dynamics of the regional economies, we use a measure that identifies the major industrial sectors in each region. The third, fifth, and seventh columns calculate “location quotients” (LQs) that identify the major industries in each region for the three types of basic, mixed, and non-basic goods. A location quotient measures “a region’s industrial specialization relative to a larger geographic unit (usually a nation).”165 In our case, the reference unit is the state of California, not the nation, and we compute LQs by taking the GDP shares for each industrial sector in

165 Bureau of Economic Analysis, “What are Location Quotients (LQs),” https://www.bea.gov/help/faq/478
each region and dividing by the share for that sector for California. LQs above one indicate that the region’s economy has a greater share of that industry sector than California as a whole.

Just a glance indicates that the Bay Area, at the top of the table, has a vastly different structure from the Inland Empire at the bottom. The Bay Area’s GDP share for basic tradable goods of 43.2% is composed of thriving sectors with LQ’s above one, such as Information, Manufacturing, Management and Finance. It also has a strong Professional Services sector in the “Mixed” column. The Inland Empire only has a 16.3% share in mostly tradable goods, and its economy is concentrated in the residiary sector. There is a mixed sector comprised of Transportation and Wholesale Trade, reflecting its heavy involvement in logistics and warehousing. In between, we find the South Coast with a substantial fraction of tradable goods in finance, information, management, and manufacturing and a concentration in the mixed goods areas of wholesale trade and transportation – reflecting its investment and leadership in its San Pedro Ports of Los Angeles and Long Beach. San Diego gets close to the California average in the basic goods sectors of management, manufacturing, and finance with a strong mixed goods professional services sector. Sacramento has strengths in the basic goods sectors of finance and management, although it has the largest concentration of “administration” in what is usually considered the non-tradable non-basic sector—reflecting its role as the state capital.

The remaining regions—the Central Coast, Sierras, San Joaquin Valley, and the Far North have basic goods sectors concentrated in mining and agriculture. Except for the San Joaquin Valley, these basic goods sectors are relatively small. The San Joaquin Valley has a very large oil-producing (mining) sector and a very large agricultural sector. These are certainly tradable goods, so why is the San Joaquin Valley not richer? The last two columns, which summarize information about the growth rates of important sectors in each region, tell the story.

These last two columns consider the long-term (2010-2019) and short-term (2017-2019) growth rates for the high LQ basic, mixed, and non-basic sectors listed in columns three, five, and seven. Take, for example, the four basic goods sectors listed for the Bay Area (Information, Manufacturing, Management and Finance). Looking at the long and short-term growth rates for each sector in the Bay Area, we determine the percentage of times that these eight growth rates (two for each of the four sectors, one for the long-term and one for short-term) are above the US average short-term growth rate for that period of 5.91%. This percentage is reported in the penultimate column for basic goods sectors in the first number in the table and for mixed goods sectors in the second number just below it (with the number of growth rates in parenthesis).

The final column reports the same statistic for the high LQ sectors for non-basic goods sectors.
As we might expect, the Bay Area has high long- and short-term growth rates in every high LQ sector with percentages of those exceeding the benchmark ranging from 88% to 100%. The South Coast does less well, with only a quarter of its growth rates for its basic goods sectors showing growth beyond the benchmark, although one of its mixed goods sectors (transportation) demonstrates both short and long-term growth. Again, this speaks to the success of the San Pedro Port complex. More generally, the South Coast has somewhat below-average growth rates of about 3.5% to 4.0% for the important sectors of manufacturing, information, and finance. There are reasons to be optimistic about the South Coast, given the vitality of the Los Angeles metropolitan area described earlier in this report, but the region is still trying to find its way back to where it once was.

The Southern Border region looks promising, with growth rates ranging from 5.22% to 8.91% in its three major basic goods areas of manufacturing, finance, and management. It also has some strengths in its non-basic goods sectors, such as construction, administration, and health. There are portents of growth in the Central Coast and Sacramento Metro, but both need a stronger economic base. Sacramento is doing well in the mixed goods wholesale trade sector and in the non-basic goods sectors such as construction, accommodations, and health-care. The Central Coast is also growing in the manufacturing, management, and professional services sectors, but none of these are large sectors of its economy. One of them (management) has a relatively high LQ of .94, but it is a very small sector. The other two sectors (manufacturing and professional services) are larger in absolute terms, but they are not highly developed in the Central Coast economy with LQs around .65.
Table 7. Economic Structure and Dynamics of Regions Using Economic Base Analysis

<table>
<thead>
<tr>
<th>Regions</th>
<th>GDP Share for Mostly Basic Tradable Goods Sectors</th>
<th>High Basic Sector LQ’s (.90 or higher)</th>
<th>GDP Share for Mixed Goods Sectors</th>
<th>High Mixed Sector LQ’s (.90 or Higher)</th>
<th>GDP Share for Mostly Non-Basic Residential Sectors</th>
<th>High Non-Basic Sector LQ’s (1.00 or Higher)</th>
<th>% High LQ Basic/Mixed Sectors with Long &amp; Short Term Growth Rate Above 5.91%</th>
<th>% High LQ Non-Basic Sectors with Long and Short Term Growth Rate Above 5.91%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bay Area</td>
<td>43.2%</td>
<td>Information 1.55</td>
<td>Prof. Services 1.38</td>
<td>Education 1.07</td>
<td>Basic: 88%  (8)</td>
<td>Mixed: 100%  (2)</td>
<td>100% (2)</td>
<td></td>
</tr>
<tr>
<td>South Coast</td>
<td>32.3%</td>
<td>Finance 1.12</td>
<td>Wholesale Tr. 1.25</td>
<td>Entertainment 1.71</td>
<td>Basic: 25%  (8)</td>
<td>Mixed: 50%  (4)</td>
<td>Non-Basic: 40% (10)</td>
<td></td>
</tr>
<tr>
<td>Southern Border</td>
<td>27.3%</td>
<td>Management .96</td>
<td>Prof. Services 1.30</td>
<td>Accommod. 1.34</td>
<td>Basic: 50%  (6)</td>
<td>Mixed: 25%  (4)</td>
<td>Non-Basic: 36% (14)</td>
<td></td>
</tr>
<tr>
<td>Central Coast</td>
<td>29.0%</td>
<td>Agriculture 6.91</td>
<td>Transport. 1.03</td>
<td>Utilities 3.15</td>
<td>Basic: 17%  (6)</td>
<td>Mixed: n/a</td>
<td>Non-Basic: 8% (12)</td>
<td></td>
</tr>
<tr>
<td>Sacramento Metro</td>
<td>19.0%</td>
<td>Finance 1.24</td>
<td>Wholesale Tr. .98</td>
<td>Construction 1.80</td>
<td>Basic: 0%  (4)</td>
<td>Mixed: 67%  (6)</td>
<td>Non-Basic: 57% (14)</td>
<td></td>
</tr>
<tr>
<td>Sierra</td>
<td>18.1%</td>
<td>Mining 2.83</td>
<td></td>
<td>Utilities 8.52</td>
<td>Basic: 75%  (4)</td>
<td>Mixed: n/a</td>
<td>Non-Basic: 10% (10)</td>
<td></td>
</tr>
<tr>
<td>San Joaquin Valley</td>
<td>33.5%</td>
<td>Mining 10.62</td>
<td>Transport. 1.59</td>
<td>Health 1.43</td>
<td>Basic: 0%  (4)</td>
<td>Mixed: 75%  (4)</td>
<td>Non-Basic: 50% (6)</td>
<td></td>
</tr>
<tr>
<td>Far North</td>
<td>22.0%</td>
<td>Agriculture 3.31</td>
<td></td>
<td>Construction 1.43</td>
<td>Basic: 17%  (6)</td>
<td>Mixed: n/a</td>
<td>Non-Basic: 25% (12)</td>
<td></td>
</tr>
<tr>
<td>Inland Empire</td>
<td>16.3%</td>
<td>Mining 3.31</td>
<td></td>
<td>Construction 1.77</td>
<td>Basic: n/a</td>
<td>Mixed: 100%  (4)</td>
<td>Non-Basic: 50% (14)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors’ Calculations Based Upon BEA Data

Perhaps, however, the most telling percentage is the zero percentage of growth rates beyond the benchmark for the two most important sectors in the San Joaquin...
Valley (Agriculture and Mining). In fact, the growth-rate numbers are worrisome: the long-term growth rate for agriculture is a respectable 5.29%, but the short-term is -2.27%; and both the short-term and long-term growth rates for mining (petroleum) are negative at -7.74% and -3.24%. Earlier we discussed the reasons for these numbers – the growing precarity of agriculture and the state of California’s decision to decarbonize its economy. There is some growth in the transportation and wholesale trade areas, but overall the San Joaquin Valley faces a difficult future. The California 100 reports on “The Future of Agriculture and Food Systems in California,” “The Future of Energy, Environment, and Natural Resources in California,” and “The San Joaquin Valley Region” describe some of the possibilities, including new forms of farming, more efficient utilization of water, and leadership in carbon sequestration and renewable energy.\textsuperscript{166}

The data for the Inland Empire suggest once again that it is growing in transportation and wholesale trade as the logistics industry expands and in areas like construction, accommodations, and health care as more people move there, but it is not clear that it has a strong economic base for future growth. The information sector is very small, and the larger finance and manufacturing sectors (LQs of .53 and .72 respectively) have growth rates all below 4.3%. The mining sector shows significant signs of growth with long-term and short-term growth rates of 6.6% and 20.7% respectively, but the sector is very, very small and would have to grow a lot to make a difference. Nevertheless, there has been talk of mining lithium, an essential element for electric cars, near the Salton Sea and an industry could develop.\textsuperscript{167}

That leaves the Sierras and the Far North. The Sierras are experiencing some growth in agriculture because of agro-tourism and because the area has lower temperatures than the central valley – making it an option for agriculture as climate change affects temperatures in California. But the biggest impacts on the economy of the Sierras come from tourism, accounting for its disproportionately big utilities, accommodations, real estate, construction, and retail trade sectors. As explored in detail in the California 100 report on this region, the results for the region are very mixed. Tourism does create jobs, but they are often seasonal and low-paying. It has also led to an inflated real-estate market as people from the coast seek second homes and bid up the prices for the available real estate, thus outbidding local residents.


The Far North is less affected by these forces, but it is affected by not being near any major urban centers. The three MSAs in the Far North counties are Chico (population 208,000) in Butte County, one-hundred miles north of Sacramento, Redding (population 182,000) in Shasta County in the center of the region and 170 miles northwest of Sacramento, and Yuba (population 182,000) in Sutter and Yuba Counties 60 miles north of Sacramento. Yet the farthest reach of California to the border with Oregon is 430 miles from Sacramento to the northwest, and 320 miles to the northeast. Humboldt Polytechnic University is 280 miles from Sacramento. These numbers indicate that even the three MSAs are far from many parts of the Far North region, and, moreover, they are small in population as metros go ranking 215, 235, and 237 in 2020. The long-term issue for the Far North is whether economic development might occur around a hub such as Humboldt Polytechnic. Among other problems, land is limited because of the mountainous terrain. For more on both the Sierras and the Far North, see the California 100 regional reports on them.  

Facts about California's Regional Economic Prosperity

We can draw the following conclusions on California's regional economic prosperity:

- **Concentration of California's Economy in its Coastal Regions** – Three quarters of California’s GDP is produced in the Bay Area, South Coast, and San Diego. The figure becomes 85.3% if we include the Central Coast and the Sacramento Metro. The agricultural and rural regions of the Sierras, San Joaquin Valley, and Far North produce only 8.5% of the GDP. A final 6.2% is produced in the Inland Empire.

- **Richer and Poorer Regions** – Not only do the regions differ in overall size, but they differ dramatically in share of GDP. The Bay Area has a 66% bigger GDP share than one would expect given its population and the Inland Empire has half of what would be expected given its population. As a result, the Bay Area's per capita GDP is three times that of the Inland Empire. The South Coast and San Diego have shares of GDP proportionate to their population, and the Central Coast and Sacramento are at about 80%. The Sierras, San Joaquin Valley, and the Far North are between 57% and 68%.

- **Richer Areas are Not Growing in Population but Are Growing in GDP** – The metropolitan coastal areas, except for the more inland Sacramento, are not growing in population although they are growing economically with GDP growth rates near or above, sometimes far above as in the Bay Area, the US GDP growth rate. Except for the Far North, the less well-off inland areas are

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growing in population, but their GDP growth is highly dependent upon this population increase.169

- The Bay Area, South Coast, and Southern Border have Strong Standard Economic Bases, the Central Coast and Sacramento Are Doing OK, but the Other Regions Either Lack a Standard Economic Base or Their Base is Struggling – The three metropolitan regions on the coast have substantial economic bases consisting of prosperous sectors with significant growth such as manufacturing, information, finance, or management. The Bay Area is doing spectacularly well, but the other two regions also show signs of strength. The Central Coast has a significant standard economic base and it shows portents of growth. The Sacramento Metro has a small standard base and it is heavily reliant upon the fortunes of government. Both the Central Coast and Sacramento need to nurture more basic industries. The San Joaquin Valley has a significant standard economic base, but it is concentrated in agriculture and mining which are struggling. The Inland Empire does not have a standard economic base except to the extent that it has concentrated in the “mixed” sectors of transportation and wholesale trade. Given the relatively low-wage jobs in these sectors, it is not clear if the region can prosper based upon this specialization alone. The Sierras and Far North lack a standard base and are heavily dependent upon tourism and natural resource sectors, whose fortunes are uncertain.

**Ratings of Business Climate: Costs and Productivity**

**Disparities in Business Climate Rankings**

So far we have presented evidence that business thrives in the state of California and that the state is doing relatively well. In that respect, the business climate is good. Housing costs and inequality create difficult problems for workers and their employers, but otherwise (and it is a big “otherwise”), California is doing well by national standards. Now we want to explore the causes of California’s success and sources of its weaknesses, especially with respect to government policies.

It is, of course, possible that business has done well in spite of the policies of California’s government. Nowhere is this possibility more visible than in the many business climate rankings that rate California very low because of its supposed lack of support for business. Table 8 provides rankings of the 13 comparison states on eight different ranking systems found on the Internet using search terms such as business climate, business environment, and business competitiveness. These are published by various groups, and we do not consider them to be definitive in any

169 Regarding employment, Sacramento Metro (3.33%) and Bay Area (3.17%) have achieved the highest growth rates; the other two large economies, South Coast (1.27%) and Southern Border (1.93%), only achieved modest growth.
way – we simply present them as illustrative of what has been done. These rankings use different indicators that embody different theories about what is needed for business to prosper – and these theories may or may not be right. In fact there are extensive academic debates over how the components of these measures such as taxes, infrastructure, regulations, input costs, the legal system (especially litigation), education and human capital, quality of life, income distribution, and support for technological innovation affect business prosperity. And there are complicated tradeoffs among them such as the degree to which business taxes which are clearly a burden might be used for infrastructure (or education or scientific research) that might be a net benefit to business.
Table 8. Positions of Comparison States in Different Business Climate Rankings

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<tr>
<td>1. U.S. News</td>
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<td>12</td>
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<td>13</td>
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<td>16</td>
<td>28</td>
<td>19</td>
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<td>2. Forbes</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>19</td>
<td>18</td>
<td>31</td>
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<td>28</td>
<td>20</td>
<td>35</td>
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<tr>
<td>3. 24/7</td>
<td>18</td>
<td>20</td>
<td>22</td>
<td>4</td>
<td>1</td>
<td>24</td>
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<td>4. Site Selection</td>
<td>4</td>
<td>15</td>
<td>1</td>
<td>25(&gt;)</td>
<td>25(&gt;)</td>
<td>7</td>
<td>19</td>
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<td>5. Crowd Funding</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>19</td>
<td>1</td>
<td>14</td>
<td>3</td>
<td>21</td>
<td>17</td>
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<td>7. Motley Fool</td>
<td>4</td>
<td>3</td>
<td>34</td>
<td>19</td>
<td>30</td>
<td>7</td>
<td>11</td>
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<td>23</td>
<td>8</td>
<td>28</td>
<td>27</td>
<td>38</td>
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<td>8. CNBC</td>
<td>4</td>
<td>19</td>
<td>6</td>
<td>9</td>
<td>14</td>
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<td>Points in Condorset Tournament (Rank)</td>
<td>247</td>
<td>209</td>
<td>199</td>
<td>191</td>
<td>158</td>
<td>157</td>
<td>154</td>
<td>125</td>
<td>100</td>
<td>99</td>
<td>96</td>
<td>71</td>
<td>49</td>
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</tbody>
</table>

Source: Authors' calculations from these sources:
6. https://www.thumbtack.com/survey#/2021/2/states (We converted the letters into numbers by ranking: A+ = 1, A = 2, A- = 3, B+ = 4, B = 5, B- =6, C+ = 7, etc. We averaged the numbers for 5 years (2016-2021). Rounded them up to integers (whole numbers); Converted the numbers back to letter grades);
Indeed, these measures produce disparate results, suggesting that some of them just measure one aspect of business climate or that they are wrong or incomplete. In Table 8, for example, California has several low rankings (e.g., Forbes: 31th, CNBC: 33rd, and Small Business Friendliness: D+), but there are some putting California at the top (e.g., U.S. News at 2nd and Crowd Funding at 1st), and two putting California among the top quarter of the states (Motley Fool at 11 and 24/7 at 13). Overall, in a Condorcet tournament where each state competes against each of the others using each rating system, and scores are assigned of 3 for a win, 2 for a tie, and 0 for a loss, California comes in at the middle of the pack (see bottom line of Table 8) because it does well on some ratings and poorly on others.

These differences are not surprising. In a study of eleven different business climate indexes, Kolko and his co-authors found that the difference for each state between the maximum of all eleven indices and the minimum was never less than 21 and the median difference was between 34 and 35. California had one of the largest differences at 43 (only matched or exceeded by Alaska and New Jersey at 43, Minnesota, South Dakota, and Wyoming at 45, and Massachusetts at 47 near the maximum possible of 49).

Upon further analysis, Kolko and his co-authors concluded that five of the indices focused on “productivity of the workforce or quality of life factors” and five others focused “heavily on taxes, costs, and regulation and litigation.” They determined that these were distinct “productivity” and “cost” dimensions. Since high rankings on productivity are good and high rankings on costs are bad, we will refer to the cost dimension as “affordability” so that being ranked highly (typically having a low number indicating being at the top) is good for both dimensions. In fact, these dimensions of productivity and affordability are somewhat negatively correlated with one another, suggesting that they are quite different. For example, California’s average rank on the first set of productivity indices was 15.3 and its average rank on the second set of affordability indices was 45.6—California was in the top third for the productivity of its economic activity and in the bottom tenth of the states for affordability in terms of taxes, costs, and regulation. California ranked 31st on an eleventh measure—“A Fiscal Policy Report Card on the Nation’s Governors”—developed by the free-market Cato Institute that focuses on limiting taxes and spending.

These results suggest that we should unpack business climate ratings to discover the dimensions on which states are scored. By doing this we will have a set of theories about what might matter for business. After identifying these theories, we

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171 Ibid., Using the data on Table 2 we calculated the correlation to be -.178, although the correlation is not statistically significant.
172 Ibid., page 232 and Table 2 on page 226.
can ask the “payoff” question – do these things really matter for growth and prosperity?

**Four Dimensions of Business Climate**

In order to find these dimensions, we focus on the CNBC rankings, which provide rankings of all the states on ten sub-factors (using a total of 85 indicators) that cover most of the considerations in the other rankings. Using a statistical method that determines groups of sub-factors on which states tend to get similar rankings – indicating that these sub-factors measure similar things – we obtain four basic dimensions. These dimensions make theoretical sense as we think about how a business might make the decision to locate in a state:

- **Standard Business Inputs Available and of High Quality** – Businesses first look at a state to see if it can provide standard business inputs of labor, capital, land (infrastructure), and technology of high enough quality and in enough quantity to make it feasible that the business would thrive there. Without these factors, it makes no sense at all to locate a business in the state. This dimension correlates with the CNBC factors of “workforce” (e.g., educational attainment of a state’s workforce, its productivity, availability of STEM workers, and union membership and right-to-work laws), “access to capital” (e.g., availability of venture capital and bank lending), “infrastructure” (e.g., the transportation system, condition of highways, access to markets, broadband, quality of utilities, and availability of sites for expansion and development), and “technology and innovation” (e.g., number of patents issued per capita, health, science, and agriculture research grants, and the vitality of each state’s technology ecosystem based on people, companies, and investment). Over the period 2007 to 2023, California ranks #22 on workforce, #1 on access to capital, #24 on infrastructure, and #1 on technology and innovation.

- **Costs of Doing Business and Living in the State are Reasonable** – Next businesses consider the costs for actually doing business in the state just as

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173 The 11 factors (and the weights used by CNBC) are: cost of doing business (16%), infrastructure (15%), life, health and inclusion (15%), workforce (13%), economy (10%), business friendliness (8%), access to capital (7%), technology & innovation (7%), education (6%), cost of living (3%). Where the other rankings include subfactors, they are similar. For 24/7-USA Today: cost of living (%), economic conditions (1), business costs(1), state infrastructure (1), availability and skill of workforce (2), quality of life (%), regulation (1); Motley Fool: tax climate (0.2), consumer spending in state (0.2), state of new entrepreneurs (0.15), business survival rate (0.2), labor costs (0.15), physical climate (0.1); U.S. News: business creation rate, patent creation rate, low tax burden, top company headquarters, venture capital; Forbes: business costs, labor supply, regulation environment, economic climate, growth prospects, quality of life.

174 The method used is factor analysis for which there are many variants. The input was the average CNBC ranking of the state on each of the 10 factors from 2007 to 2023. Using two different factor analysis methods, we get slight variations on these same four dimensions.
any textbook entrepreneur would consider the “cost function” for the factors of production. This dimension correlates with the CNBC factors of “cost of doing business” (e.g., taxes, wage and utility costs, prices of office and industrial space, and incentives and tax breaks offered by the state) and “cost of living” (e.g., places where prices are stable and daily living is affordable for housing, food, and energy). California ranks #48 on cost of doing business and #48 on cost of living.

- **The General Economic Environment in the State is Good** – Businesses want to locate in stable areas where there is economic growth, solid governmental finances, and support for new businesses. This dimension correlates with the CNBC factor of “economy” (e.g., economic growth, strong state credit rating, fiscally responsible governments with reserves and reasonable pension obligations, a healthy housing market, and other corporations located there) and with “business friendliness” (e.g., a legal and regulatory framework that does not overburden business). California ranks #49 on overall business friendliness and #19 on its economy.

- **Support for Equitable Human Resources Policies** – Finally, many businesses are also beginning to consider the degree to which a state provides support for its population through education, health, and other programs to promote equity. This dimension correlates highly with the CNBC factor of “Education” (e.g., strong schools at both the K-12 and university level) and “Life, Health, and Inclusion” (e.g., livability factors like per capita crime rates, health care, and environmental quality and protections against discrimination). California ranks #33 on education and #20 on life, health, and inclusion.

The first of these two dimensions are similar to the “productivity” and “affordability” dimensions identified by Kolko and his colleagues, and as those researchers found, they are slightly negatively correlated with one another. In the CNBC rankings, the first two dimensions count for 61% of the overall ranking. Just as Kolko and his colleagues found that California scored highly on the productivity dimension at 15.3 on their eleven indices, a simple average of California’s ranking on the four components of the “Standard Business Inputs” from the CNBC data yields a result of 12. Similarly, just as California scored low on its affordability dimension at 45.6, the simple average of the two components on the “Costs of Doing Business and Living in the State” yields a score of 48. On the third component of “General Economic Environment of the State,” which might be considered another measure of costs, California scores an average of 34. In short, California does well (in the top quarter of

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175 Op. cit., Kolko et al. Some of the factors in our third dimension “General Economic Environment in the State” are also in their productivity measures and in their third fiscal health indicator. And some of the factors in our “Human Resources and Equity” measure are in their productivity measures.
the states) on the productivity factors that facilitate business, but it does not do so well on the barriers.

The CNBC evaluations are cross-validated in the other ranking systems and by other sources of data. For instance, U.S. News ranks California 2nd in both patent creation rate and venture capital investment,\textsuperscript{176} and Crowd Funding ranks California 1st because of capital availability.\textsuperscript{177} According to U.S. News' ranking of infrastructure quality,\textsuperscript{178} California ranks 6th for Internet access but only 39 and 45 for energy and transportation infrastructure, respectively. In addition, California has the third-highest average retail electricity price among U.S. States, at $0.203/kWh. In contrast, the retail price in Texas is $0.087/kWh in 2021.\textsuperscript{179} This certainly adds more burden to business operations.

California's high housing prices captured in the “Costs of Doing Business and Living” dimension certainly impose constant challenges to businesses. These were discussed earlier in this report, but it is worth noting that at least partly due to the many regulations in California, the number of new houses is not keeping up with population growth in recent years, pushing up prices of residential properties, retail properties, and rental units. For example, data from the U.S. Census Bureau Building Permits Survey (2022) shows that California has only half of the number of building permits that were granted in Texas despite the fact that Texas has 25% fewer residents than in California.\textsuperscript{180}

“California’s regulatory burden” is captured by the “General Economic Environment” dimension, especially by the “Business Friendliness” sub-dimension. California’s regulatory regime has been described by George Mason University’s Mercatus Center as “most burdensome” among the 44 states for which there is data.\textsuperscript{181} According to the Center, the top five states for regulatory burden are California, New York, Illinois, Ohio, and Texas.\textsuperscript{182}

Lastly, on the human resources dimension, California ranks 20th in life quality and 33rd in education. Life quality is determined by livability factors like per capita crime rates, health care, and environmental quality. According to FBI reports, California ranked 17th in 2020 by violent crime rate (Arizona 6th, Nevada 13th, Texas 16th, Illinois 19, Georgia 23, Pennsylvania 25, Florida 26th, New York 27th). For education, according to the Education Data Initiative, California’s spending per pupil is only 19th ($13,642). The other comparison states rank as follows: New York (1st), Massachusetts (5th), Pennsylvania (7th), Illinois (10th), Washington (17th), Oregon (24th), Georgia (32nd), Texas (39th). It is worth noting that even though California’s K-12 spending is almost at par with the national level and pays much higher average teacher salaries ($72,230), California scores poorly with a weak rating on all three metrics used in a state-by-state assessment.

After diving into those factors in-depth, we conclude that California has key inputs for economic growth and productivity such as an educated workforce, strong technology and innovation, and the availability of capital. But the Golden State also imposes higher costs to its local businesses, e.g., cost of doing business, cost of living, and cost of regulation. This suggests that California may be good for some businesses but not for others. California may be a desirable location for industries that rely more on technological innovation and skilled and knowledgeable employees, but it is probably a less friendly environment for industries that are cost-sensitive.

Finally, although those factors selected in the ranking systems are consistent with those in more rigorous academic studies, California’s overall business climate ranking can vary from favorable to poor depending on how much emphasis one ranking system puts on productivity versus costs. For example, the Chief Executive Survey ranking places weights of 37% on “tax policy” and 35% on “regulatory climate” (35%) and only 25% on “talent availability” (25%). It is not surprising to see why California ranked 50th in 2021 Chief Executive’s list of the “Best and Worst States for Business” survey.

**Focusing on the Cost and Productivity Dimensions**

The preceding discussion suggests that “business climate” may depend upon the industry involved and the perceptions of chief executives. Given what we know about California, it seems that it would be difficult to locate some businesses such as a new chemical plant in the state, but it would be almost foolhardy for a new tech

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entrepreneur to dismiss California as a starting place. Hence, the questions confronting California may be more about what kinds of businesses it wants and how it will create a climate that nurtures those businesses. Nevertheless, it is worth asking whether there is any evidence that productivity and affordability factors actually matter for business prosperity.

In their very carefully done 2013 article, Kolko and his colleagues try to provide an answer by relating the business climate indices for the states to measures of economic growth such as growth in total employment, growth in total wages, and growth in gross state product. They find that only the “cost” indices appear to have an impact with higher rankings (“lower costs” and “greater affordability”) having an impact on all three measures—especially on total employment and even more in the manufacturing sector where the impacts are roughly twice as large. The productivity measures have no impact except when they consider three “footloose” sectors—finance, personal services, and information—and a specific measure that emphasizes technology-related productivity factors. They observe that “business climate measures geared toward specific industries may predict growth in those industries better than they predict growth for the economy overall.”\textsuperscript{186} Productivity measures as well as cost measures, also matter when they consider a fourth measure of growth in employment in new establishments. They conclude that “Our results indicate that the indexes capturing taxes and other costs of doing business seem to capture something meaningful about state business climates, insofar as the outcome of interest is economic growth, whereas those capturing elements of productivity and quality of life do not.”\textsuperscript{187}

Following this work, we consider the first two dimensions of the CNBC ratings to create two dimensions related to productivity and affordability. The first principal component is highly correlated with capital access, technology and innovation, education, workforce, and the general economy; we refer to this component as productivity. The second principal component is positively associated with living cost and business cost and negatively with life quality, and we refer to this as affordability. Infrastructure has significant loadings on both dimensions.

Figure 16 results from applying a clustering algorithm to the states’ evaluations on the productivity and affordability dimensions from the CNBC data. The states cluster elegantly into the four combinations of productivity and affordability at low and high levels. California and other West Coast states belong to the high-productivity and low-affordability group in the lower right hand corner. Most states in the Midwest fall into the low productivity but high affordability category. Many states in the Great Lakes area and the South are in the high productivity and high affordability quadrants. Lastly, a few states in the New England area as well as Hawaii and Alaska,

\textsuperscript{186} Kolko, op cit., page 245.
\textsuperscript{187} Ibid., page 253.
are in the low productivity and low affordability quadrant. The position of Texas, Ohio, and Georgia in the upper right-hand corner suggest that they are well-positioned to compete with California.

Figure 16. State Clustering on Productivity and Affordability Dimensions of CNBC Business Climate Ratings

Focusing on the period from 2010 to 2019, corresponding to the years of coverage of the CNBC data, for the 50 states as units of analysis, we then regress, in separate regressions, the growth rates of GDP, employment, and income for the whole state economy and for each industry on two dummy variables: high affordability, which indicates if a state belongs to the highly affordable state cluster, and high productivity, which indicates if a state is in the high productivity state cluster. We also add year-fixed effects in the model. Unlike the regressions of Kolko and his colleagues, we do not add control variables, and we use a more limited set of dependent variables.

Unlike Kolko and his co-authors, we find that high productivity matters for all three dependent variables for the state’s economy, but affordability does not matter. The results for the 19 industries are more complicated, but the patterns suggest that

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188 The regression results are qualitatively similar without the year fixed effects.
productivity matters while affordability does not.\textsuperscript{189} There are also three industries where the coefficient for the productivity measure is positive for all three dependent variables: Information, Professional Services, and Construction. The first two are two of the “footloose” technologically oriented sectors identified by Kolko and his colleagues as possibly related to one of the productivity indices that they study. Only one industry, Wholesale Trade has significant negative coefficients for the cost dimension for all three regressions. This is consistent with the findings in previous research that the wholesale trade industry is sensitive to tax burden.\textsuperscript{190}

In sum, we find that productivity is more relevant than affordability in influencing economic prosperity as well as the performance of specific industries. This result could explain why California ranks low in many business climate evaluations but still demonstrates growth more than commensurate with its size—because its productivity advantage boosts growth. However, this finding is at variance with the results from Kolko and his colleagues who studied more business indices, more dependent variables, and arguably used a better specification that controlled for confounding variables. Yet our work takes a sensible approach, and it comes to a different answer.

What are we to make of this? We should probably be skeptical of any one business climate index, and we should know that there are at least two fundamental dimensions of these indices, productivity and affordability, and states can differ along those dimensions. Moreover, although the empirical results sometimes stress the importance of one of these dimensions over the other, common-sense and economic theory suggest that both should matter. There are excellent theoretical and empirical reasons to believe that the factors embedded in each of them matter for business success. It would be unwise to conclude that high performance on one dimension can be excused because it does not matter.

Another conclusion is that there may be different models for success. Each of the two dimensions is the result of numerous policy choices and decisions that may involve trade-offs between them such as: Should the state impose a higher taxes that will increase business costs in order to fund its higher university system and to improve its roads because these actions will provide a more productive environment for business? Consequently, different states might want to choose different mixes of imposing costs and improving productivity. One model might be low cost (low taxes, little regulation, right-to-work laws, etc.) with small investments in productivity (low

\textsuperscript{189} There are six to nine significant (at the .10 level) coefficients (for 19 industries) for the high productivity dummy variable for each of the three dependent variables, and the significant coefficients are always of the right sign. There are four to seven significant coefficients for the high affordability dummy variable (for a total of 15) and about half of them are positive and about half are negative—indicating that affordability does not have an impact.

\textsuperscript{190} M.J. Wasylenko. 1980. “Evidence of fiscal differentials and intrametropolitan firm relocation. Land Economics, 56(3), 339-349. One sector, Accommodations and Food Services had three significantly positive coefficients on the high cost dummy variable.
educational spending, little investment in infrastructure, few programs for the poor or those who lose jobs). Another might be higher costs with greater investments in people and infrastructure. Each model might be attractive to some industries, but not others. Labor and land-intensive industries might prefer the first model; technology and human capital-intensive industries might prefer the second. As a result, probably the most important policy choice is to choose an appropriate model and to be cost-effective within the strictures of that model.

Conclusions: Ensuring that the California Model Succeeds

California has chosen a model for economic prosperity. It stands out as a state with high government spending per citizen, high taxes to cover the costs of the spending, highly productive industries generating high incomes for some people, and technological innovation behind it all. For decades domestic migration fueled California’s economy but more recently international migration has helped to provide abundant labor and expertise. The model has been exceptionally successful for many members of California’s population, but some people and some areas have been left behind. With its high incomes, California has bid up the cost of housing, and through these high housing prices, it has priced less well-off people out of the market and it is probably discouraging people from coming to the state. So California needs to consider carefully the ways that it can sustain its technological leadership and promote business development, the ways that it can improve its governmental performance to justify its high taxes, the options for increasing the production of housing to provide for all groups and to encourage population growth, the policies that will encourage immigration, and the ways that it can ameliorate economic inequality.

The argument for California’s model is that it fosters economic growth through government investments and services, and it provides, to those who are already in the state, a high quality of life through regulations and government spending. For example, California’s state and local governments spent $16,145 per resident in 2019 while Texas’s counterparts spent just $10,024, and, in results that could be attributed to California’s higher spending, California has a much longer life expectancy and much lower infant mortality rate than Texas.

Nevertheless, California’s governmental performance does not always correspond with its spending level. For example, despite the level of pre K-12 education spending in California being almost at par with the national average, the Golden State performs weakly in all three metrics used in 2017’s state-by-state assessment, and it

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has a much higher student-to-teacher ratio (23.2 in California versus 16.0 national). Similarly, California spends significantly more on police per state resident, at $526 versus $302 in Texas.\textsuperscript{193} But, California’s violent crime rate is higher than that of Texas and much higher than the national average. Additionally, California’s per-mile spending on roads ($206,924) is three times that of Texas ($75,153). Yet, California’s highway system ranks 45\textsuperscript{th} in the nation in overall cost-effectiveness and condition, while Texas ranks 16\textsuperscript{th}. On rural Interstates, 3.05% of pavement is in poor condition, while in Texas the percentage is 0.75%. On urban Interstates, 8.08% of pavement is in poor condition, while in Texas, the percentage is 3.43.\textsuperscript{194} California has been a leader in innovations in some areas of governmental policy, such as corrections, health care, and energy policy—demonstrating its ability to make changes, but overall, California’s policymakers might well focus on increasing the efficiency of their use of government funds and tax revenues.\textsuperscript{195}

In addition, California’s policies have not solved two pressing problems: The high cost of housing and growing inequality in California. The cost of housing in California makes it hard for people to live in the state, and it may be choking off immigration to the state. The problem is exacerbated by the growing inequality between people and regions that makes it very hard for low-income people to live in California. As described in the California 100 reports on housing and transportation,\textsuperscript{196} California needs to find ways to produce more housing and to make housing more affordable through subsidies. As described in the California 100 report on “The Future of

\textsuperscript{193} Ibid.
Economic Mobility, Inequality, and Workforce,” California must also develop policies to deal with its increasing inequality.\(^\text{198}\)

Figure 17. LSGL Analysis for Short-Term and Long-Term GDP Growth

![Figure 17. LSGL Analysis for Short-Term and Long-Term GDP Growth](image)

Source: Authors’ calculations from BEA data.

On the productivity dimension, California is globally known as the world’s leading force for technology, innovation, and entrepreneurial opportunity, and it continues to do well economically. Consider Figure 17, which plots long-term average GDP growth for 2010-2019 versus short-term GDP growth for 2017-2019 for the thirteen comparison states. The State of Washington displays especially spectacular growth rates, but California is also doing very well with 5.08% long-term growth and 5.73% short-term growth. It far outdistances Michigan, Pennsylvania, and Illinois, and it is doing very well against Texas, Florida, New York, Georgia, and Massachusetts—states that are often thought of as direct competitors. The smaller states of Nevada, Arizona, and Oregon that border California are also doing well, especially on short-

\(^{198}\) Erik Brynjolfsson, Mark Duggan, Christie Ko, and Dan Sholler, May 2022, “The Future of Economic Mobility, Workforce, and Inequality in California,” California 100.
term growth for Arizona and Nevada. Certainly, California has competition, but it is also quite definitely in the race—and it is arguably a leader.

California also beats the US long-term average for employment growth at 2.21%, but it is not doing as well in employment growth as some of the other 13 states such as the leaders, Florida (2.73% long-term) and Texas (2.42%). Their greater growth in employment is due to much greater population growth than California, whose population growth is tiny compared to Florida and Texas.\textsuperscript{199} Long-term population growth increases employment in not only Florida and Texas, but also Arizona, Oregon, Nevada, Georgia, and Washington, but as we have argued earlier with respect to metropolitan regions, California’s strong GDP growth suggests that economic growth does not require population growth. Still, a lingering question is the degree to which California should be concerned about its population growth.

Earlier in this report, the case was made that California does not need, as the American South did during the past 50 years, population growth to create a system of world-class, densely populated metropolitan areas. California already had such a system by 1970. This system has gotten stronger in the past 50 years, and it seems likely to remain strong. Yet migration is important for other reasons in California. In California in 2021, more than one-quarter (27%) of the population was foreign born, the most of any state and almost double the foreign born population in the rest of the country (14%).\textsuperscript{200} There is strong evidence that California’s economy has benefited from the migration of international immigrants into the state.\textsuperscript{201} Among other impacts, migrants have helped to reduce the state’s average age, thus providing current and future workers who can support aging Californians.\textsuperscript{202} Projections suggest that California’s over-65 population is growing faster than any other group, and it will be more than one-quarter of the state’s population by 2050 while it was less than half that at 11.5% in 2010, so that California needs younger workers to support those who are retired.\textsuperscript{203} There are indications of difficulties to come. For years, California has depended on large flows of international migration for a net flow of newcomers to the state because net domestic migration (people coming from other states to California

\textsuperscript{199} Once we adjust for average population growth, Florida and Texas have less employment growth.
\textsuperscript{201} See the California 100 report on immigration: Thai V. Le and Manuel Pastor, April 2022, “California Becoming: Immigrant Integration and the Future of the Golden State,” California 100. Among other impacts, immigrants have helped California’s population remain relatively young compared to other states so that
\textsuperscript{202} Perez et al., op cit. While the total population of foreign born is 27% of California’s population, 35% of workers at the prime working ages of 25 to 54 are foreign born.
\textsuperscript{203} California Department of Finance, July, 2021, “Report P-1C: Total Estimated and Projected Population for California by 5-year Age Groups and Sex, July 1, 2010 to 2060.” The California Department of Aging, “Master Plan for Aging,” https://mpa.aging.ca.gov/ projects that one-quarter of the state’s population will be over 60 by 2030 which agrees with the Department of Finance projections.
minus those leaving California to go to other states) was negative. A 2022 study found that while there is “no evidence of a pronounced exodus from the state,” the “net entrances from domestic migration — defined as entrances from other US states minus exits to other U.S. states — have dropped significantly since the start of the pandemic. On net today, California loses twice as many people to domestic migration as it did before the pandemic.” Moreover, the Bay Area seems to be especially hard hit, leading to concerns about the future of San Francisco.

Because it is hard to know the exact size of the future inflow of international migration since it depends upon policy choices at the national level and since it has a significant component (22%) of undocumented immigrants, it is not clear whether international migration will continue to exceed the losses from domestic migration. And the recent drop in net domestic migration suggests that the domestic losses might get even bigger. The study cited above suggests what might be driving these results, although we really do not know for sure what is going on. “In subsequent reports, we will explore what factors are driving these trends, both statewide and in the Bay Area. Media reports suggest that Bay Area trends could be due to steep housing prices or more flexible remote-work policies in the technology sector.” If these factors, especially housing costs, do matter for decisions about why to come to or to leave California, then policy-makers have even more reasons for finding ways to reduce the cost of housing. They also have incentives to keep up a steady flow of international migration.

Given California’s decision to focus on growth through leadership in technology and innovation, California must work to ensure the continued success of the San Francisco/Silicon Valley Bay Area and to extend that success to other parts of the state. California’s strength in science, technology, and innovation has placed the state in a leadership position, both nationally and internationally. The self-reinforcing ecosystems for innovation and industrial concentration structure have contributed to tremendous advantages for California, which may sustain it beyond the short term. However, technological changes are rapid and other cities, states, or nations might replicate California’s success if the state slows its pace of investing in talent through support of higher education or if it puts barriers in the way of innovators.

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206 Perez et al, op. cit. This number is for all foreign born in the state as of 2019.
207 Holmes and White, op. cit., page 10.
such as failing to deal with its housing crisis. On the west coast, for example, the state of Washington is building upon a very strong set of companies such as Microsoft, Boeing, Amazon, and Starbucks, and a world-class university at the University of Washington. Texas is also trying to build its capabilities for innovation through investments in education,\textsuperscript{210} movie-making, semiconductors, space programs, and higher education research excellence.\textsuperscript{211} And the state’s bordering California—Arizona, Nevada, and Oregon—are trying to encourage start-ups in science and technology.\textsuperscript{212}

In addition, more has to be done to make sure that every region is benefitting from new inventions and technological advances. Some regions, such as the South Coast, San Diego, and the Sacramento Metro are already developing efforts to provide leadership in various sectors, and there are efforts to make the San Joaquin Valley a leader in innovation in farming, mining, and new renewable sources of energy.\textsuperscript{213} Maintaining and expanding its technology edge is key to maintaining California’s future competitiveness and the state’s ability to maintain economic prosperity and improve economic well-being.


\textsuperscript{211} Greg Abbott, 2023, “Governor’s Budget: 2024-2025, see pages 15, 16, 17, and 8. For example: “I recommend the 88th Legislature provide $350 million for the creation of The Texas Space Commission to support the development of a coordinated strategic plan that will position Texas as a global leader in space travel, research, and technology (page 17).” \url{https://gov.texas.gov/uploads/files/organization/budget-policy/Gov_Budget_2024-25_FINAL_PRINT_PDF.pdf}

\textsuperscript{212} One extreme example of this is proposed legislation in Nevada that would allow tech startups to create their own governments: Associated Press, February 3, 2021, “Nevada bill would allow tech companies to create governments,” \url{https://apnews.com/article/legislature-legislation-local-governments-nevada-economy-2fa79128a7bf41073c1e9102e8a0e5f0}

\textsuperscript{213} Anastasia Telesetsky, October 2022, “The Future of Agriculture and Food Systems in California,” California 100.