



PPIC

PUBLIC POLICY
INSTITUTE OF CALIFORNIA

California's Businesses

Technical Appendix

CONTENTS

Introduction

Key Facts about California Businesses

Who Owns California Businesses?

Economic Contributions of Businesses are Critical to the State

Recent trends and the pandemic impact on businesses

Conclusion

Data sources and definitions

Additional Tables and Figures

Shannon McConville, Jane Sawerengera, and Sarah Bohn

Supported with funding from the James Irvine Foundation and the Blue Shield of California Foundation

Introduction

The vitality and strength of the business sector is deeply intertwined with California’s economic future, driving both the state’s productive capacity and the economic opportunities available to the vast majority of its workers. Understanding the diversity and contours of California’s businesses is essential for effective policymaking to support a robust economy and plans for future growth.

In this report we focus on businesses in the private sector that have paid employees. These businesses are responsible for about 90 percent of the state’s GDP and over 85 percent of California jobs. At the end of 2022, there were more than 1.7 million private sector businesses with employees. A companion report on California’s self-employed includes additional information on business owners, including those who do not have paid employees (e.g. sole proprietorships). While there are a large number of sole proprietorships—and these may seed innovation and future jobs—they contribute relatively less to GDP and are less visible than brick and mortar establishments.¹

California’s private sector businesses are the core engine of job creation in the state, but it is important to note that the public sector is also a major employer in California. While public sector entities comprise only 2 percent of California employers, they account for 13 percent of total jobs—2.5 million (Figure B1, available at the end of this piece). Public sector jobs are concentrated in a few industries: public administration (federal, state and local government jobs) and educational services (local public school districts and state colleges and universities).

Throughout this report we will refer to private sector businesses with employees as “businesses,” and where applicable remind the reader of employers not covered in our analysis.

¹ We focus on employer businesses in this report. Non-employer businesses have no paid employees but are subject to federal income tax. In 2019, the most recent available data, California had about 3.5 million non-employer business establishments and about 88 percent of these were sole proprietorships. The remaining 12 percent were S-corporations, C-corporations and other partnerships. See Appendix Table B1 for additional information.

Definition of Terms and Data Sources

Businesses are entities that generate revenue by producing goods or services.

Employers include all business entities that have paid employees. Some businesses are classified as non-employers because they do not have any paid employees but are required to submit federal taxes because they generate revenue. We do not include information on non-employer businesses in this report.

Business **establishments** are the physical location where business activities occur and jobs are located. Establishments typically engage in one type of economic activity that can be assigned a detailed industry code (NAICS).

Firms are business entities that are defined by a unique Employer Identification Number (EIN) issued by the Internal Revenue Service. Firms can have multiple establishments, though most businesses do not (Sadeghi et al. 2016). Firms can have establishments across multiple states and may engage in business activity across multiple industries. Firm-level information is useful to the extent that multi-establishment businesses may make at least some decisions at a corporate level rather than as a collection of individual establishments. One example of a large firm in California is Apple Inc., which is headquartered in Cupertino and also operates retail stores that are counted as separate establishments.

This report relies on business data from a number of official sources:

- **Quarterly Census of Employment and Wages (QCEW).** The QCEW provides monthly employment counts and quarterly counts of businesses and wage information at the establishment level. It reflects the most comprehensive tabulation of jobs and establishments at the county and detailed industry level.
- **Annual Business Survey (ABS).** The ABS provides detailed ownership characteristics at the firm level, including industry and owner demographics. We use the ABS to understand the characteristics of business owners in California as it currently provides the only annual source of this data for the state.
- **Business Dynamics Statistics (BDS).** The BDS provides annual measures of job creation and destruction, establishment births and deaths, and firm startups and shutdowns. With some detail on industry and geography, these data are useful for understanding changes in business activity in aggregate across the state and its regions.
- **Quarterly Workforce Indicators (QWI).** The QWI are a US Census Bureau product that provides labor market statistics aggregated by geography, industry, worker demographics, and employer age and size. We use the QWI to characterize the distribution of employment in industrial sectors and regions across the state by the age of the firm.

We also draw on data from the California Employment Development Department (EDD) on employment by firm size and the US Bureau of Economic Analysis for trends in Gross Domestic Product (GDP) across industries.

Further details on the data and methodology and supplementary tables and figures can be found at the end of this report.

Key Facts about California Businesses

Health care and social assistance is the largest sector

California businesses are spread across a wide range of industries.² Figure 1 shows the share of businesses, jobs, and state GDP broken down by major sectors. The health care and social assistance sector—which includes hospitals, doctor’s offices, long-term care facilities, and home-based care services—is the state’s largest major sector. It comprises about 40 percent of business establishments and generates more than 16 percent of jobs statewide.³

Professional and technical services and retail trade are the next largest sector based on the share of business establishments—about 11 percent and 7 percent respectively. Retail trade generates more employment than professional services—about 11 percent of jobs compared to about 9 percent. Other sectors with relatively high shares of jobs include accommodation & food service businesses (11%) and manufacturing (9%).

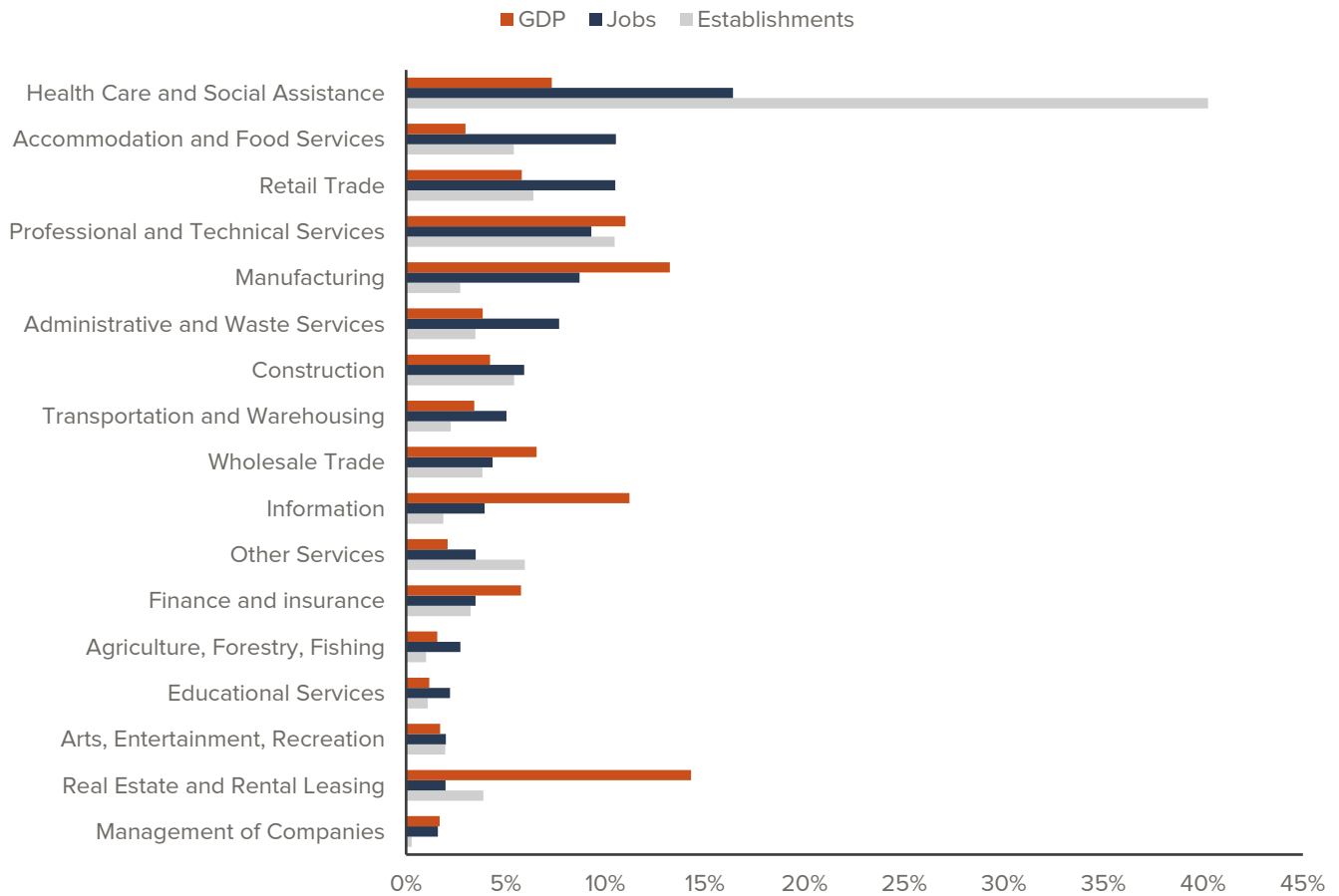
When we look beyond counts of businesses and jobs to measures like Gross Domestic Product (GDP) that reflect the value of goods and services produced by businesses, we see some different patterns. Two relatively small sectors based on number of establishments or jobs -- information and real estate, rental and leasing – contribute much higher amounts to GDP, about 11 percent and 14 percent respectively. Other sectors that account for outsized shares of GDP relative to their share of businesses or jobs include manufacturing (13%) and professional services (12%).

² Note that we use “industry” and “sector” interchangeably in this piece.

³ The high share of business establishments in the health and social assistance sector is driven by large numbers of businesses in the individual and family services sector which provides care to older adults and people with disabilities. Most of these businesses are quite small (1–4 employees) so they do not account for a high share of jobs. Most of the jobs in the health care and social assistance sector are at health care providers such as hospitals.

FIGURE 1

Health care and social assistance account for the most jobs but a relatively small share of GDP compared to other sectors



SOURCE: QCEW, 2022 Annual Data on jobs and establishments. U.S. Bureau of Economic Analysis, 2022 annual GDP estimates for California.

NOTES: Establishment and job counts are based on monthly averages for the year. Business establishments are assigned to a detailed industrial sector (NAICS code) based on the primary business activity that occurs at the location. GDP is measured in current (2022) dollars.

Across all regions, health care and social assistance is the largest sector based on both businesses and jobs. There are regional differences in the next largest industry sectors; urban coastal regions look different than inland and northern parts of the state. In the Bay Area and Los Angeles, Orange, and San Diego counties, professional and technical services account for the second largest share of businesses, followed by retail trade and other services. In the Sacramento, the Inland Empire, and Northern regions of the state, construction businesses are the second largest industry behind health and social assistance, followed by retail trade.

In general, the regional distribution of business establishments and jobs is proportional to the number of residents. There are some exceptions: the Central Valley/Sierra region and the Inland Empire have relatively fewer businesses and jobs relative to their population. In contrast, the Bay Area and coastal Southern California counties (Los Angeles, Orange, and San Diego) have a relatively higher share of statewide business establishments and jobs relative to their population share (Table B4, available at the end of this report).

Most California businesses are small, with less than 20 employees

Regardless of whether we measure the size of a business at the firm or establishment level, more than 90 percent of California businesses have 19 employees or fewer and less than 1 percent have 500 employees or more. 93 percent of firms have 19 or fewer employees; 92 percent of establishments do (Figures 2A and 2B). About 99% of establishments or firms have fewer than 500 employees (see text box for discussion of the term “small business”).

However, jobs are distributed more evenly across business size because there are a few large businesses that employ many Californians. When evaluating the distribution of jobs across size of business, the distinction between firms and establishments is important; firms with multiple establishments across California make up an outsized share of jobs. At the firm level, less than a quarter (24%) of California jobs are at firms with fewer than 20 employees even though 93% of firms are in that category (Figure 2a). At the establishment level, a higher share of jobs are at business establishments with fewer than 20 employees (29%), though an outsized number of establishments are in that size category (Figure 2b).

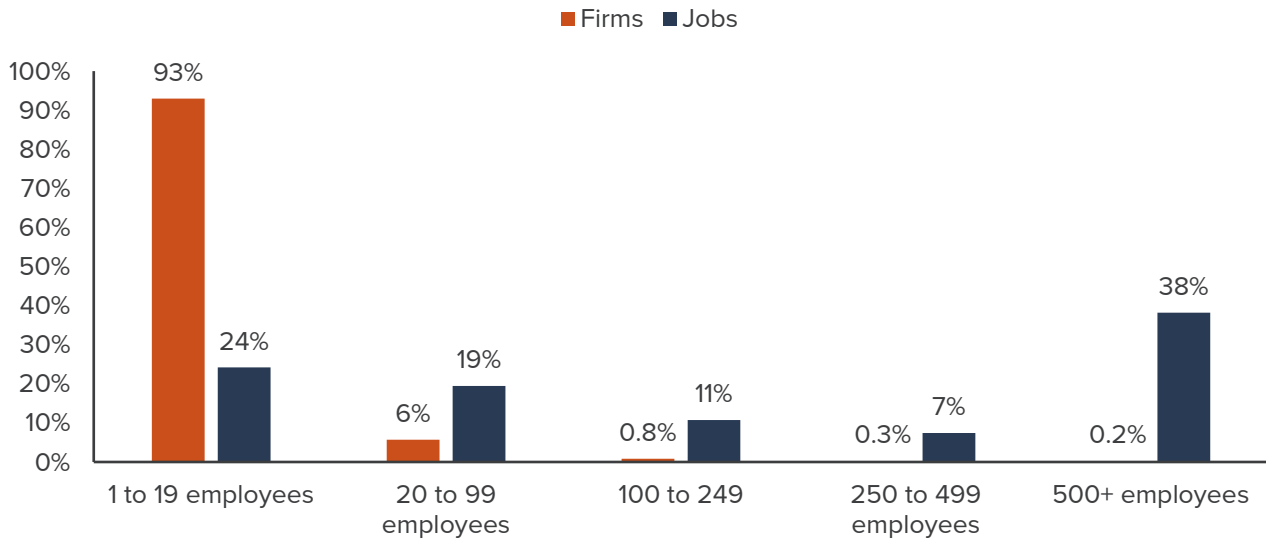
Nearly 40 percent of jobs are in firms with 500 or more employees and more than 20 percent are in firms with 3,000 employees or more. At the establishment level, only about 1 in 5 jobs are in large business establishments with 500 or more employees.

Defining small businesses

Small businesses are often the focus of targeted programs and advocacy to support entrepreneurship. However, defining what constitutes a small business is more nuanced, as size standards are industry-specific (Small Business Administration, n.d.) and lack consistency in both California law (Micheli, 2022) and the US Tax Code (Karlinsky, 2007). Most government programs such as loans and contract preferences classify businesses into sizes—most often by either their average number of employees or average annual receipts—as a way of identifying qualifications for participation. For example, a technical assistance program operated by the California Office of the Small Business Advocate defines a small business as one with 500 employees or less for most manufacturing and mining industries and \$7.5 million or less in average annual receipts for non-manufacturing industries; this includes for-profit and non-profit entities.

FIGURE 2A

Nearly 4 in 10 jobs are in large firms with 500 or more employees

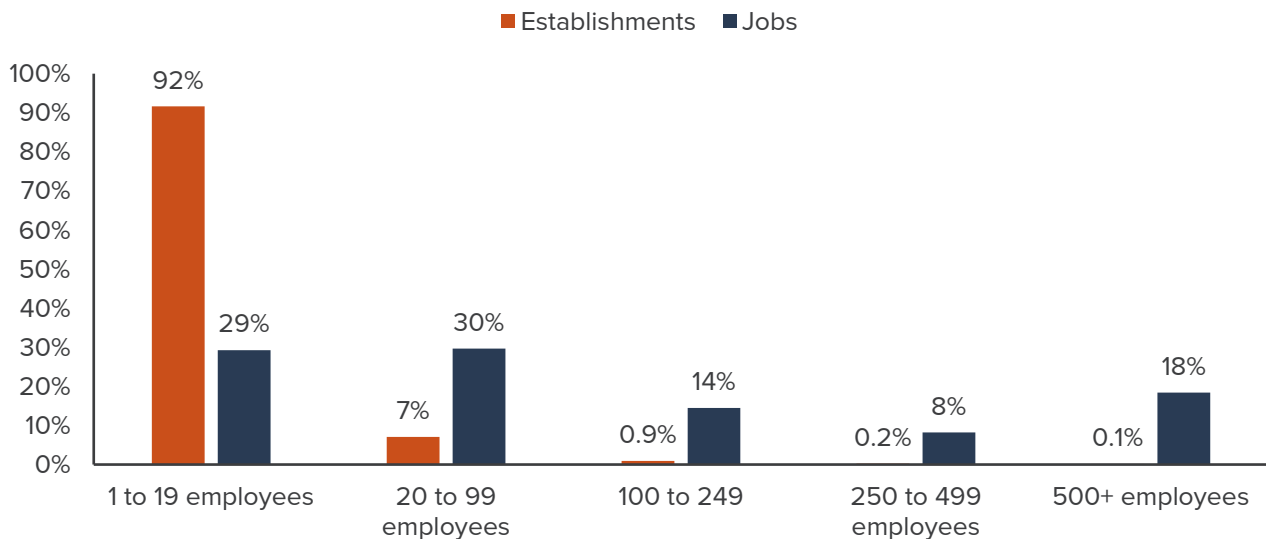


SOURCE: California EDD, Q1 2022.

NOTES: Firm size data is based on characteristics at the EIN level. The share of jobs only includes those located in California.

FIGURE 2B

Less than 20 percent of jobs are in large business establishments



SOURCE: QCEW, Q1 2022.

NOTES: Establishment size is based on the number of employees at the location of the job. All establishments and jobs are located in California.

California’s large businesses—those with at least 500 employees—tend to be concentrated in manufacturing, administrative and waste management, and transportation and warehousing. Each of these sectors account for more than 10 percent of statewide businesses with 500 or more employees.⁴ There has been little change in the

⁴ Industry is only available at the establishment level and thus size is based on the establishment and not the firm.

distribution of business establishments by size in California over the past 15 years. Between 2006 and 2022, there was a slight uptick in the share of business establishments with less than 20 employees in the aftermath of the Great Recession and after the COVID pandemic (Figure B2).

Established businesses account for three in four California jobs

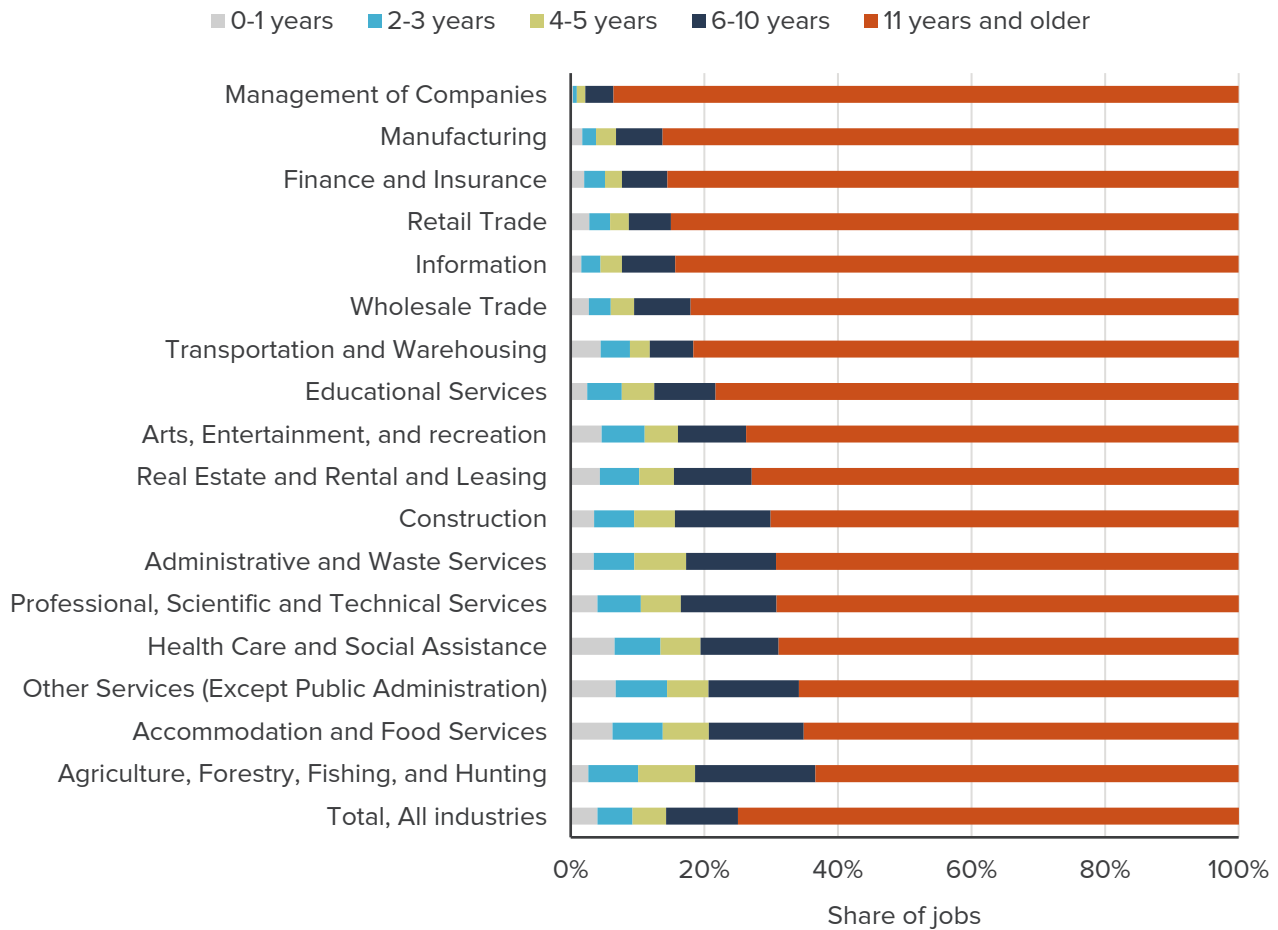
In California, three-quarters of all jobs are in well-established firms that have been in operation more than 10 years. Only about 1 in 10 jobs are at firms that have been in business 3 years or less.⁵ There is some variation across sector, though regardless of sector the majority of jobs are in longstanding businesses.

The prevalence of jobs in established firms is more pronounced in certain sectors including manufacturing, finance, retail trade, and information, where about 85 percent of jobs are in firms with 11 or more years in operation. On the other hand, there are relatively more jobs in newer businesses (less than three years) in accommodation and food services, other services, and health care. Perhaps this explains why the Northern region—which has the highest share of its employment in the health and social services sector and one of the highest in accommodation services—has a smaller share of employment in firms aged 6 years and more (83% relative to the other regions (85% and over).

⁵ The age of a business is measured at the firm level. Information on firm age is only available in terms of employment or jobs. We do not have information on the number of firms or establishments by age.

FIGURE 3

Most jobs are in well-established firms regardless of sector



SOURCE: Quarterly Workforce Indicators, Q2 2022.

NOTES: Age of business is based on the firm as determined by an Employer Identification Number, not the establishment. Job counts refer only to jobs located in California.

Even though well-established businesses are responsible for the majority of California jobs, job *growth* is more closely tied to new, young businesses (less than one year). That makes sense because new businesses add employees in their attempt to launch and thrive. Even though the process is risky and volatile, young businesses are a driver of job growth. Though measuring business dynamics is a difficult endeavor, longitudinal data suggests new businesses have accounted for most of the net job creation in the state annually, which has helped balance out jobs lost through business closures or reductions in staffing.⁶ In the United States, young businesses are more sensitive to cyclical shocks and more vulnerable to downturns in local demand compared to older firms (Fort et al, 2013). The high rates of business closures thus make the rate of job destruction in young firms high.

Firm size is also connected to job growth. Small firms account for more of the net job creation annually than large firms. However, firm age trumps firm size in terms of the impact on job creation: small, older firms are not a major contributor to job growth but small, young firms are (Haltiwanger, 2013). Because young firms are also

⁶ The Business Dynamic Statistics data is produced by the Census Bureau using state Longitudinal Business Databases (LBD) and provides annual measures that track changes in business dynamics over time, including job creation and destruction, establishment births and deaths, and firm startups and shutdowns. Table B5 includes information for California on net job growth by firm age.

more volatile, to the extent that policy can reduce the risk or barriers to startups, it may preserve job growth—more so than incentivizing job creation at small, older firms.

Who Owns California Businesses?

California is home to both small family-owned businesses and some of the most well-known and highest valued companies in the world: Apple, Chevron, Walt Disney Corporation, and Alphabet (parent company of Google) to name a few. In this section, we examine characteristics of business owners. Business ownership statistics are not available for firms where ownership is dispersed among a large number of people or there are no owners with 10 percent or more of the business stock.⁷ Large, publicly traded firms that have many stock owners and the jobs they generate are not reflected in these statistics. Likewise, as in the previous section, businesses with no paid employees are also not included.

More than one-quarter of California businesses are family owned

About 27 percent of California businesses for whom ownership can be categorized were family owned in 2021 (the most recent year data is available). To be classified as family owned, two or more members of one family—defined as spouses, unmarried partners, parents, children, siblings, or close relatives—own the majority (51% or more) of the business. Similar shares of businesses are family owned nationwide, though California has higher shares compared to other large states like New York (19%) and Illinois (24%). One in ten California businesses are jointly owned by spouses, and the vast majority of those business (77%) are operated by the male spouse.

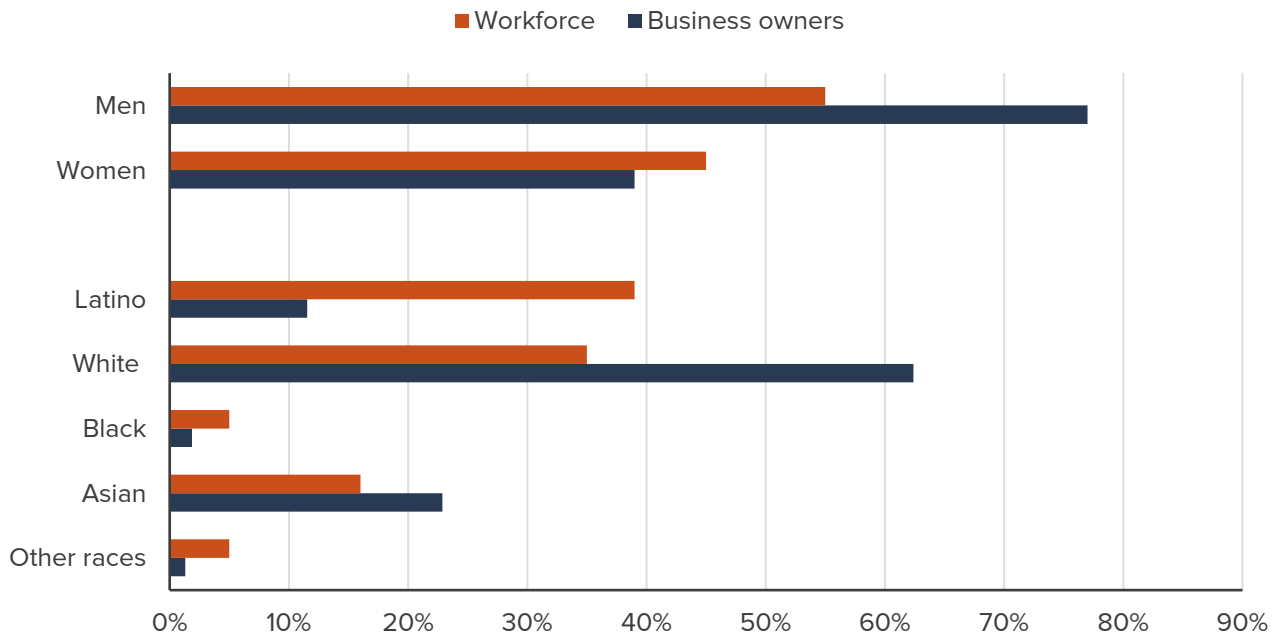
Some California metro areas have higher rates of family owned businesses. More than 35% of businesses in the Santa Rosa (Sonoma county), Chico (Butte county), and Stockton-Lodi (San Joaquin county) metro areas are family owned.⁸ Among large metros with at least one million residents, Fresno county has the most family owned businesses (34%).

⁷ This section draws from the ABS, which is an annual survey of firms with paid employees using business register and other administrative sources to create a sampling frame designed to be representative for states and by industry. Nonetheless, many firms – especially large firms are not classifiable by owner characteristics. In the 2022 data, which reports information on ownership for calendar year 2021, about 750,000 firms accounting for about 7.2 million employees were classified by owner characteristics like sex and race/ethnicity.

⁸ Metro areas refer to Metropolitan Statistical Areas (MSA) which are defined by the US Office of Management and Budget and are composed of individual counties or county groups. California has 27 MSAs in total.

FIGURE 4

Female, Black, and Latino Californians are under-represented as business owners relative to their share of the workforce



SOURCE: Annual Business Survey, 2021.

NOTES: Men and women ownership rates include 16% of businesses that are jointly owned by men and women. Ownership is defined as having more than 50% of the stock or equity in a business. Many businesses—especially large businesses with a large number of owners and/or no owner with at least 10% stock or equity—are not included.

Relatively few California businesses are women or minority owned

For non-publicly traded firms where ownership can be determined, business ownership is generally not representative of the demographics of the state’s population or workforce. For instance, nearly 40 percent of California firms are women owned or owned equally by men and women, whereas women comprise 45 percent of the workforce (Figure 4). Only 14 percent are Latino owned and about 2 percent are Black owned; their comparable share of the workforce is 39 percent and 5 percent, respectively. While Latino and female Californians are under-represented among business owners, these shares were a little higher compared to national statistics—where 36 percent of firms are women owned or owned equally by men and women and shares of Latino owned firms are about 8 percent. A higher share of California’s business owners are white or Asian compared to their share of the workforce.

The demographics of business owners varies substantially across sectors. Nearly half of businesses in education and health care and social assistance sector are either owned by women or equally owned by women and men. Businesses in finance and insurance sectors and construction are largely owned by men. Women-owned businesses are relatively more concentrated in firms with fewer employees (94% have less than 20 employees) compared to male owned businesses (89%). For large firms, the disparity in ownership grows: men own 5 times as many businesses with 500 or more employees compared to those owned by women (see Tables B6 and B7 for more detail).

White-owned businesses dominate most sectors in California; only the transportation and warehousing sector and the accommodations and food services sector do not have a majority of white ownership. Asian-owned businesses account for about 45 percent of firms in the accommodation/food services sector, 37 percent in trade (combination of retail and wholesale), and 33 percent in health care and social assistance. Most sectors have very few Black-

owned businesses, though arts, entertainment, and recreation (8%) stand out as an exception. Latinos have higher shares of business ownership in transportation and warehousing (27%), administrative and waste services (25%), and construction (22%). See Table B8 for more details on ownership by industry and race.

Several federal and state programs aim to support entrepreneurship among people who historically have lacked access to wealth or business opportunities, including women, veterans, and certain racial/ethnic groups. For example, the US Small Business Administration runs the Office of Women’s Business Ownership, which supports female entrepreneurs through programs including business training, federal contracting, and access to credit and capital. In California, the Governor’s Office of Business and Economic Development (GO-Biz) also administers programs and grant funding to support business ownership across a broader group of Californians.

Economic Contributions of Businesses are Critical to the State

The focus of this report has been on employer businesses. That starting point alone suggests a key economic contribution of businesses: employment opportunity for millions of Californians. The majority of businesses are job creators—though with some variation depending on firm age, size, and sector as discussed above. All together, these businesses reported \$1.3 trillion in total wages paid in 2022.⁹ Of course, the relationship is symbiotic. In the most basic way, job opportunity for a California worker is a business’s critical input to the production of goods and services; earnings reflect the value of this exchange to both parties. This is a simple description of a fundamental relationship and process that has major impacts on workers and businesses, and is the subject of much regulation at local, state, and federal levels. The imperative of job creation also motivates a set of major policies in the state aimed at incentivizing businesses to create jobs, sometimes in particular sectors, geographic areas, or worker subgroups (Neumark and Wohl, 2023).

Private sector businesses were responsible for \$2.6 trillion of state GDP in 2022

California’s total Gross Domestic Product (GDP)—the value of all the goods and services produced in the state—reached \$3.6 trillion in 2022. Private industries were responsible for over \$3.2 trillion—about 90 percent.¹⁰

Real GDP, which has been adjusted for inflation, has grown more than 40 percent since 2006, a year before the start of the Great Recession (Figure 5). The information sector has grown the most in terms of real GDP more than tripling in value over the past 15 years. The information boom over this period that included growth in data processing, hosting, and other information services and publishing were key drivers. Other large sectors that saw substantial growth in real GDP include professional and technical services, health care services and social assistance, and manufacturing. See Table B9 for more detailed information on changes in real GDP across industries.

As in California, the information sector registered the greatest growth in real GDP in the rest of the US for the period—but its share in the national GDP is much smaller than what it is in California. Management of companies

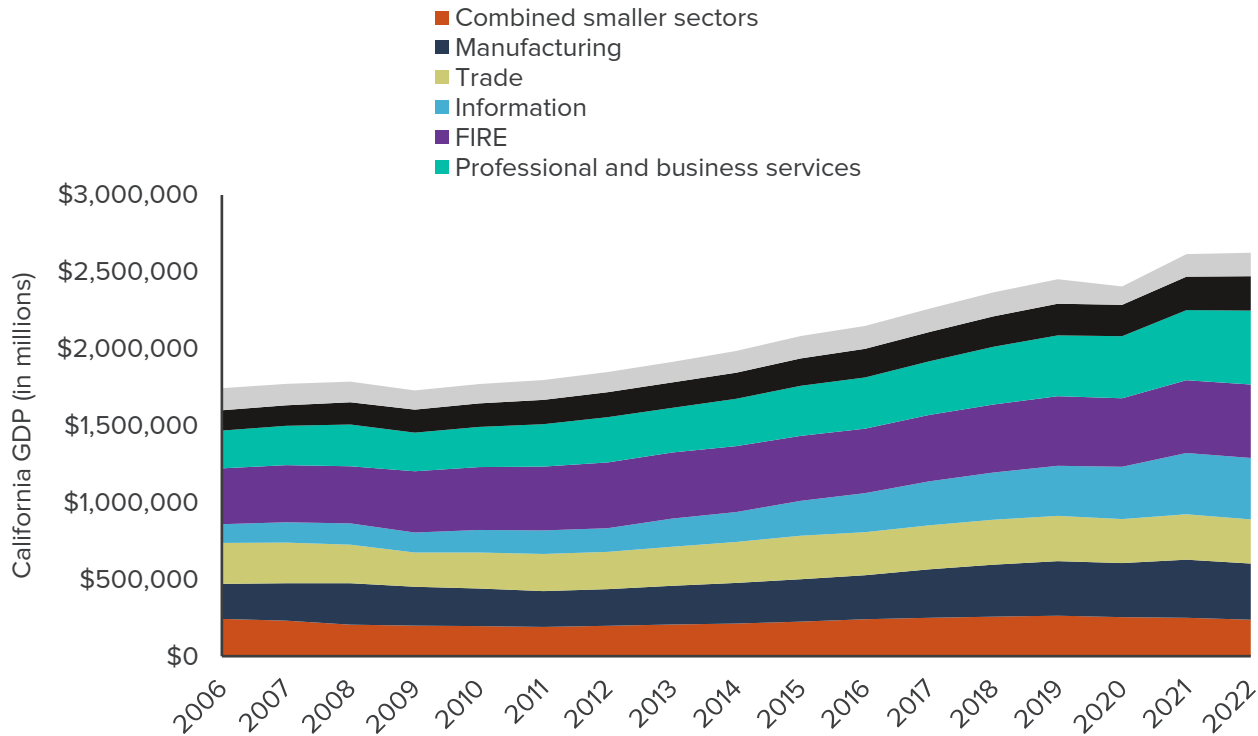
⁹ Based on QCEW reports of total annual wages paid for all private sector industries in California.

¹⁰ US Bureau of Economic Analysis, “SAGDP9N Real GDP by state,” (accessed May 18, 2023). The BEA is in the process of updating its estimates of real GDP so that they are adjusted and chained to 2017 dollars. We used the version of estimates that were chained to 2012 dollars, which are slightly different. In addition, real GDP estimates are not comparable with the current dollar GDP estimates presented in Figure 1 of this report.

and enterprises and professional and technical services were the next two sectors with large GDP growth nationally.

FIGURE 5

Private sector GDP has grown more than 40 percent since 2006



SOURCE: US Bureau of Economic Analysis.

NOTES: California gross domestic product for private industries in chained 2012 real dollars. Certain sectors were combined into single categories; for more detailed sectors see Table B9. FIRE includes finance, insurance, real estate, and rental and leasing.

Businesses are major contributors to state and local revenues

Beyond their contributions to the state’s productivity, California businesses are also an important component of annual revenue streams, statewide and locally. The most obvious contribution is through corporate taxes. All businesses operating in California not registered as a flow-through entity (such as a sole proprietorship, a partnership, or an S-Corporation) must report their income and pay both California and federal corporate income taxes on their earnings. The state’s general corporation tax is currently a flat tax set at 8.84 percent of net income for businesses; banks and financial corporations are taxed at a higher rate (10.84%). The minimum tax for corporations is \$800 and new corporations do not have to pay taxes on net income for their first year in business. Compared to other states, California’s corporate tax rate is among the highest, though lower than seven states, including Illinois (9.5%), Pennsylvania (8.99%), and New Jersey (11.5%).¹¹ (Tax Foundation 2023).

Businesses also contribute through their collection and remission of sales tax, providing crucial revenue streams for both local and state governments. While consumers pay a portion of this tax, businesses also bear some of the burden or incidence.

¹¹ Some states do not have corporate tax rates including large states like Texas and Ohio, but do tax gross receipts from businesses which are not directly comparable.

Based on historic trends, California’s corporate taxes on private businesses are typically the third largest revenue source, accounting for about 10 to 17 percent of state general funds. Personal income taxes have comprised the majority of state general fund revenue for the past few decades, with sales and use tax the second largest source—between about 20 and 30 percent (California Department of Finance 2022). Sales and use tax revenues, however, have declined since the pandemic making up only about 15 percent of state revenue since 2020.

In the **2023–24 enacted state budget**, about 20 percent of general fund revenues (\$42 billion) were expected to come from corporate taxes levied on businesses, and about \$33 billion (16%) from sales and use tax. Even before the sales tax decline, the importance of corporate taxes to the state’s budget has grown as the share of revenues from corporate taxes has grown in nominal and real dollars (California Department of Finance 2022; McConville et al. 2017).

Recent trends and the pandemic impact on businesses

The COVID pandemic created unprecedented economic challenges across the globe and throughout California. Despite this massive upheaval, it did not seem to have as dramatic an impact on business establishment counts as it did on employment levels.

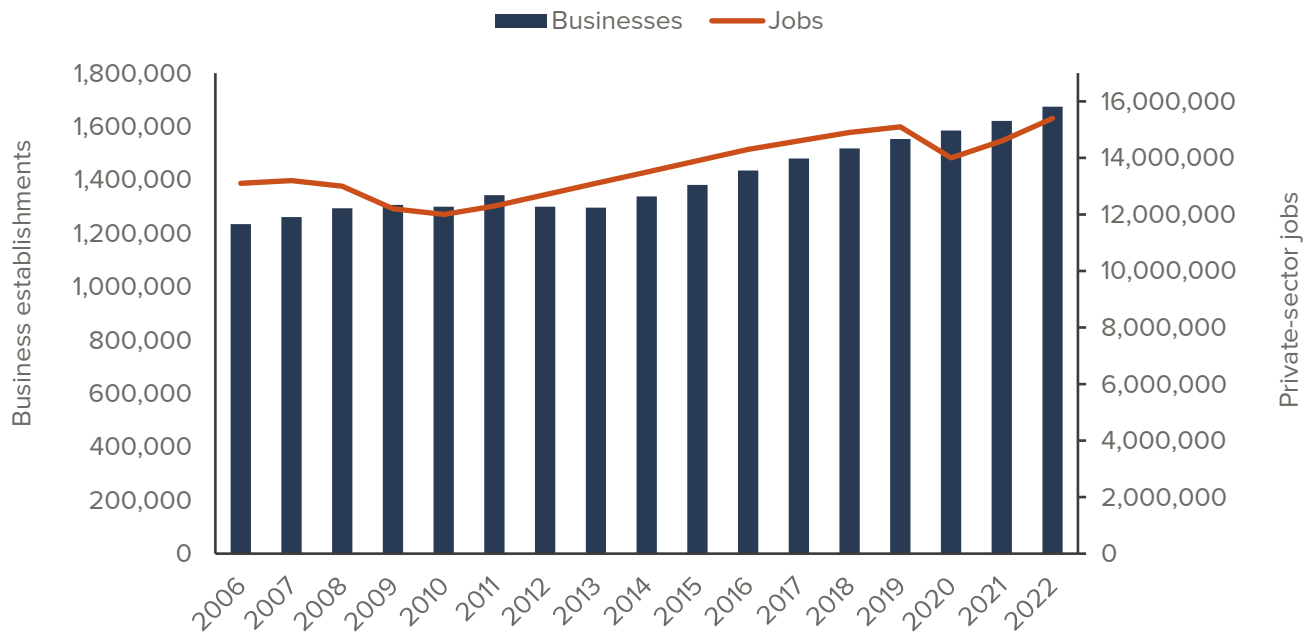
The number of California businesses continued to grow during the pandemic

In the first few quarters of 2020, the aggregate number of establishments in California dropped about 1 percent, but that evened out by the end of the year, so that ultimately there was actually a small increase (2%, Figure 6). However just prior to 2020, establishment counts declined in the first two quarters of the year so it is hard to draw definite conclusions on how the pandemic impacted business closures at an aggregate level.

In 2021 and 2022, the number of establishments grew 2 percent and 3 percent respectively. Compared to the Great Recession and the long recovery period—when the aggregate number of California businesses stayed flat or declined slightly on an annual basis—the COVID recession was much less pronounced and much shorter. This does not, however, capture dynamic changes and ongoing challenges for California businesses. An upward trend in the number of business establishments year to year is consistent with research that found increased rates of business closures—particularly for small businesses—in the first two quarters of 2020, but also a larger rebound in the third quarter of the same year (Fairlie 2022; Walls & Associates 2023).

FIGURE 6

The Great Recession led to more pronounced decline in business establishments than the pandemic period



SOURCE: QCEW Annual data.

NOTES: Number of businesses is at the establishment level. Annual counts of businesses and jobs represent the 12-month average during the year.

Some industry sectors fared worse than others during pandemic

While the number of businesses statewide seems to have held steady, businesses in some sectors did not fare as well as others during the pandemic. The number of establishments in the accommodation and food services, wholesale trade, and retail trade sectors fell by about 1 percent between 2019 and 2020. Likely driven by stalled economic activity, especially for in-person services, these small declines contrast with the transportation and warehousing sector, which grew by 10 percent. Businesses that were able to switch to remote work and services fared better; for instance professional services, information, and real estate and rental sectors saw an increase (3–4%) in business establishments during this time period.

Pandemic relief to businesses may have helped

Given the abrupt and severe shock of the pandemic on economic activity, the federal government sought to buoy businesses and help retain jobs. One of the largest programs, the Paycheck Protection Program (PPP), provided small businesses with fewer than 500 employees up to \$10 million in loans that would be forgiven if businesses maintained pre-pandemic employment and wage levels. Nationwide, the program distributed about \$800 billion and reached more than 90 percent of eligible firms. Firms with between 10 and 49 employees received the largest share of PPP dollars, followed by those with 49–150 employees; relatively less funding flowed to very small firms (1–4) or larger firms (300–499) (Autor et al. 2022). About one million California businesses received over \$100 billion in PPP loans (Legislative Analyst’s Office 2024).

Early evidence suggested that PPP increased the survival of small businesses though longer term impacts remain to be seen (Hubbard and Strain 2020). Other research finds the program preserved as many as 3 million jobs nationwide. However, the cost per job (full year of employment) saved was substantial—between \$169,000 and

\$258,000, substantially higher than median annual earnings. More than two-thirds of the funding did not go to paychecks, but rather accrued to business owners and shareholders. This was largely attributed to the program’s lack of targeting to businesses or geographic areas in need, though later distributions did make more effort to distribute program funding based on revenue losses from the pandemic. (Autor et al. 2022).

Several other programs—both state and federal—also provided pandemic relief to businesses primarily via loans and tax credits. Most of these programs also targeted small businesses or businesses in certain hard-hit sectors like restaurants and live event venues. To date, there has been little research on how successful these programs were at preserving businesses in the state.

In light of the disruption from COVID as well as shifts in the economy coming out of the pandemic—such as the shift to remote work in some sectors, higher inflation, and more population movement—California businesses have new challenges to consider. This could have profound implications for workers, regional economies, and the state. Moreover, with climate risks, technological innovation like AI, and federal investments in infrastructure and economic development, the set of challenges and opportunities may require business adaptation. The extent to which California policy sets the conditions for business innovation and growth amidst an evolving context will be key to the state’s competitiveness in the future.

Conclusion

Understanding California’s business landscape is essential to crafting policy that supports the state’s economy. Focusing on the private sector, we document the state’s large and diverse set of employers, who provide a wide range of goods and services and drive California’s economic productivity.

While most businesses are small in terms of number of employees, much of the state’s employment is concentrated within a relatively small set of large businesses. This means that even as a lot of new jobs created come from small, new firms, the *stock* of jobs in the state is largely determined by relatively few large, well-established firms. Furthermore, access to career ladders, varied work experience, and potential for wage growth shape economic mobility for workers and larger firms may offer a premium on some of these (Haltiwanger et al, 2022). However, a business landscape dominated by large firms may impede entry of new, small firms, creating downsides for innovation in the economy. Nonetheless, California’s large, highly productive global firms are a strength of the state’s economy, and many started as small businesses not that long ago.

California’s businesses are led by owners that are more diverse compared to the nation, but are still skewed toward white, Asian, and male owners compared to the state’s workforce. While not surprising given what we know about income and wealth disparities across the population, addressing systemic factors that prevent skilled potential entrepreneurs from pursuing business ownership would benefit the state’s economy.

Data sources and definitions

We rely on aggregate tabulations from the Bureau of Labor Statistics, the US Census Bureau, and the California Employment Development Department (EDD) to describe the California business landscape. The main data

source we use to examine businesses and jobs by industry and region is the Quarterly Census of Employment and Wages (QCEW). We also rely on aggregated state-level data from the Annual Business Survey to detail business ownership characteristics; Business Dynamics Statistics to examine net job creation; and Quarterly Workforce Indicators to describe firm age. Each source is described in more detail below.

Quarterly Census of Employment and Wages (QCEW)

The QCEW is a Bureau of Labor Statistics (BLS) program that tabulates data on employers—such as industry, worksite location, and ownership—as well as monthly employment, and quarterly wages for workers. In California, the data is collected by EDD and submitted to BLS. It represents the most comprehensive tabulation of jobs (not employed workers) available at the state and county level and includes information on all businesses that participate in the State Unemployment Insurance program. The data is available at the 6-digit North American Industry Classification System (NAICS) industry level if BLS standards set to protect identity of employers in the industry are met. With the data being aggregated, we are unable to identify individual employers or workers. We use the data to understand how the business landscape is structured across industrial sectors and regions in the state.

The data is released as quarterly files about five months after a referenced quarter, and annual files about six to eight months after a reference year. The data is also available by size of establishment using number of employees at each establishment for the first quarter of each year. Employment is counted for the pay periods that include the 12th of the month.

QCEW employment counts include almost all jobs located in California with the exclusion of the unincorporated self-employed, unpaid family members, certain farm and domestic workers, railroad workers covered by the railroad unemployment insurance system, workers who earned no wages during an entire pay period, some federal and local government officials, and members of some certain national security agencies.

Annual Business Survey

The Annual Business Survey (ABS) is administered by the US Census Bureau with support from the National Center for Science and Engineering Statistics. It provides information on employer firms (at the firm level) and their owners by select owner demographic characteristics, microbusiness research and development, and other relevant topics. Data from the survey, which is the primary source, is supplemented with data from the Economic Census and administrative records. We use the ABS to understand the characteristics of business owners in California as it currently provides the only annual source of this data for the state.

The 2022 ABS was administered nationally to about 300,000 randomly selected employer businesses with \$1,000 or more in receipts from a list of all businesses operating in 2021 in the Bureau's Business Register. The Register is compiled from a combination of business tax returns, economic census, and data collected on other economic surveys. It includes sole proprietorships, partnerships, and corporations who report business activity to the Internal Revenue Service (IRS). Probabilities that a business was owned by a woman or someone who does not identify as white estimated from data using administrative records, previous surveys, 2010 census and business names from other published sources were used to frame the universe by characteristics of race and gender. Then the universe was partitioned by state, industry, and frame with large companies having 500 or more employees or exceeding stratum specific payroll and receipt cut-offs included with certainty and representing only themselves and the rest being randomly selected according to their strata. We do not have specifics of the California sample. Data is provided at the state level aggregated based on various characteristics at the 2-digit 2017 NAICS code

(some characteristics such as family ownership, franchising, number of owners only available as totals for the state). Firm age in the ABS is based on the initial year the business was available from the Business Register.

Excluded from the ABS are employers in crop and animal production; rail transportation; postal service; monetary authorities (central bank funds, trusts and other financial vehicles); organizations such as religious, grantmaking, civic, professional, and similar; private households; and public administration.

The ABS asks businesses for information about the previous year (reference year) but uses the year in which the data was collected in the survey product name with results released the fall of the following year. Thus, we use ABS 2022 data, which refers to calendar year 2021,

Business Dynamic Statistics

The Business Dynamic Statistics (BDS) are produced by the US Census Bureau and provide annual measures that track changes in businesses such as job creation and destruction, establishment births and deaths, and firm startups and shutdowns over time. The data is available up to 2-digit NAICS code at the state, county, and MSA levels aggregated by establishment and firm characteristics for California. Employment used is for the pay periods that include the 12th of the month, so the changes are March to March.

We use BDS data to understand if changes in employment in the state are reflected differently by differences in how many years firms have been in business.

BDS are compiled from a Longitudinal Business Database (LBD) of microdata available through the Bureau's secure Federal Statistical Research Data Centers. They include the total private non-agricultural sector of the economy, which excludes the self-employed (proprietors and partners of unincorporated businesses), domestic service workers, railroad employees, agricultural production workers, most government employees, employees on ocean-borne vessels, and employees in foreign countries. Employers with establishments across states are linked to a national firm based on an aggregation of establishments under common ownership by a corporation for firm level data. The data are typically released in September two years after the reference year.

Quarterly Workforce Indicators

The Quarterly Workforce Indicators (QWI) are a US Census Bureau product that provides labor market statistics aggregated by geography (an individual's place of work), industry, worker demographics, and employer age and size. We use the QWI to characterize distribution of employment in industrial sectors and regions across the state by the age of the firm. We use this firm level data to complement the QCEW, which does not report information on firm age, as the two have a comparable job frame.

QWI data are available at the state, metropolitan/micropolitan areas, county, and workforce investment areas (WIA) in addition to the national level.

The QWI uniquely provides data that link individual workers to their employers (firms) at the level of the job from a Longitudinal Employer-Household Dynamics (LEHD) microdata database. The LEHD data is collected from a collaboration between the federal government and EDD. Sources of the data include QCEW and Business Dynamic Statistics for employer information, and unemployment insurance earnings which are uniquely linked to demographic data from sources such as the 2000 and 2010 Census, American Community Survey, Social Security administrative records, and worker individual tax returns. The link makes it possible to track firm and worker characteristics over time.

All jobs covered by unemployment insurance within a quarter are counted, with a job existing when a firm reports that an individual received earnings in a calendar quarter. An exclusion is federal employment. California data is available since the first quarter of 1991.

Definitions

We present the information both at the levels of the firm and the establishment (business). Firm level data based on Employer Identification Number (EIN) issued by the Internal Revenue Service (IRS) makes it possible to look at businesses with multiple establishments as a unit instead of a collection of individual establishments. We believe this is helpful for understanding corporate decision making such as hiring, downsizing, etc. It is also the level at which many government programs define qualifications by employment size.

Data at the establishment level makes it possible to classify each establishment in a specific location and industry, which is not easy to accomplish at the firm level for multi-establishment firms. To capture both elements, information on distribution of businesses by size is presented at both the firm and establishment levels, and length of business is presented at the firm level.

Establishment size is based on the number of employees for each establishment in an industry and a given geography determined by the March employment level. Firms are an establishment or collection of multiple establishments defined with an EIN. Firm size data is based on the firm's presence overall, though job counts by firm size include only jobs located in California establishments.

Firm age is determined using the age of its oldest establishment at the time it first reports positive employment in the Longitudinal Business Database (LBD), which provide a history for each establishment (at time of birth), and accumulates with every year after that. A national multi-establishment firm may frequently be older than the part of that firm found in the state (though employment levels are specific to California).

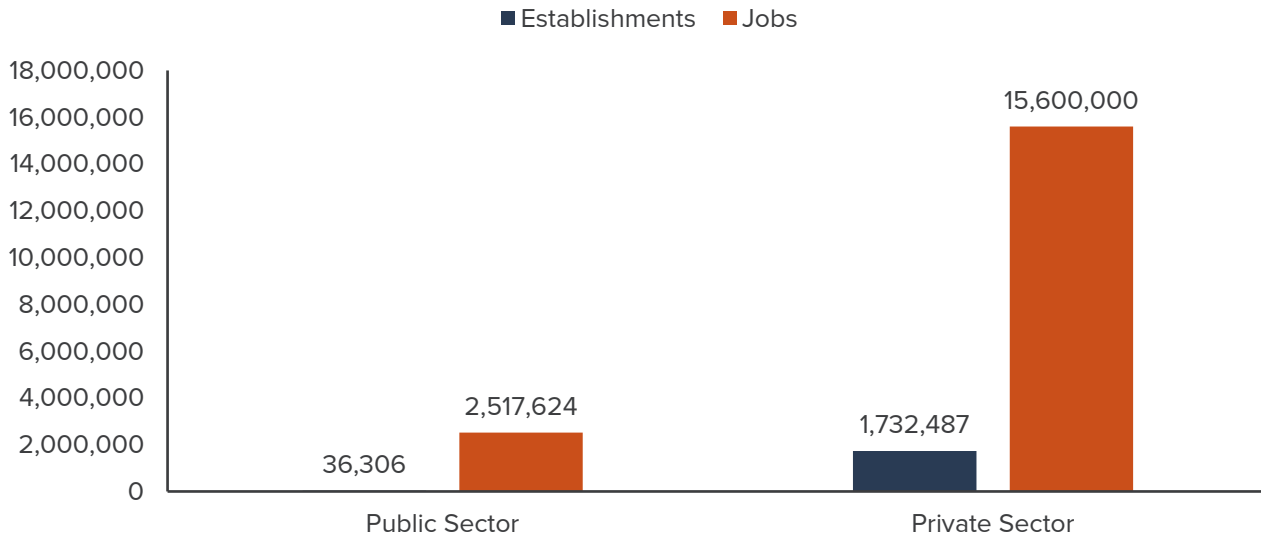
Region. We split counties in California into nine regions, and show the three largest counties (Los Angeles, Orange, and San Diego) individually.

1. The Northern Region contains 18 counties: Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Nevada, Plumas, Shasta, Sierra, Siskiyou, Tehama, Trinity, Yuba.
2. Sacramento area contains 4 counties: El Dorado, Placer, Sacramento, Yolo.
3. Bay Area contains 10 counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma.
4. San Joaquin Valley and Sierras contains 15 counties: Alpine, Amador, Calaveras, Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare, Tuolumne.
5. Central Coast region contains 4 counties: Monterey/San Benito, San Luis Obispo, Santa Barbara, Ventura.
6. Inland Empire region contains 3 counties: Imperial, Riverside, San Bernardino.

Additional Tables and Figures

FIGURE B1

About 36,000 public sector employers are responsible for just over 2.5 million jobs



SOURCE: QCEW, Q4 2022.

TABLE B1

California non-employer businesses

Major Industry Sectors	Number of non-employers	Non-employer sales, revenues
All establishments	3,458,667	\$192,591,063
Legal form of organization		
C-corporations other corporate entities	62,406	\$9,782,665
S-corporations	139,781	\$21,074,334
Individual proprietorships	3,053,798	\$122,409,955
Partnerships	202,682	\$39,324,109

SOURCE: US Census Bureau, Non-employer Business Statistics, 2019.

TABLE B2

California private sector business establishment counts by major industry sector

Major Industry Sectors	Establishments (2022) Counts	Share	% change (2006-2022)
Total, all industries	1,674,437	100.0%	35.7
Health care and social assistance	673,831	40.2%	
Professional, scientific, technical services	175,163	10.5%	47.7
Retail trade	106,982	6.4%	2.5
Other services	99,675	6.0%	-76.0
Construction	90,692	5.4%	15.4
Accommodation and food services	90,551	5.4%	35.5
Real estate, rental, and leasing	64,929	3.9%	39.2
Wholesale trade	64,040	3.8%	1.6
Administrative and waste management services	58,171	3.5%	30.5
Finance and insurance	54,209	3.2%	7.8
Manufacturing	45,403	2.7%	-2.2
Transportation and warehousing	37,535	2.2%	96.3
Arts, entertainment, and recreation	32,788	2.0%	74.5
Information	31,253	1.9%	55.8
Educational services	18,259	1.1%	79.5
Agriculture, forestry, fishing and hunting	16,755	1.0%	-10.8
Unclassified	7,180	0.4%	-62.4
Management of companies and enterprises	4,717	0.3%	12.0
Utilities	1,666	0.1%	40.9
Mining	800	0.0%	0.9

SOURCE: Bureau of Labor Statistics, QCEW Annual, 2006–2022.

NOTE: Annual counts of establishments reflect quarterly averages for the year.

TABLE B3

California private sector job counts by major industry sector

Major Industry Sectors	Jobs (2022) Counts	Jobs (2022) Share	% change (2006-2022)
Total, all industries	15,400,000	100%	17.6
Health care and social assistance	2,525,841	16.4%	90.2
Accommodation and food services	1,621,370	10.5%	27.6
Retail trade	1,616,028	10.5%	-3.7
Professional, scientific, and technical services	1,430,764	9.3%	40.4
Manufacturing	1,339,532	8.7%	-10.4
Administrative and waste management	1,181,943	7.7%	19.3
Construction	911,750	5.9%	-2.0
Transportation and warehousing	775,366	5.0%	84.5
Wholesale trade	668,518	4.3%	-4.5
Information	606,029	3.9%	28.9
Other services (except public administration)	538,147	3.5%	-23.2
Finance and insurance	535,890	3.5%	-16.8
Agriculture, forestry, fishing and hunting	419,582	2.7%	10.7
Educational services	338,881	2.2%	36.7
Arts, entertainment, and recreation	307,399	2.0%	26.0
Real estate and rental and leasing	305,110	2.0%	5.2
Management of companies and enterprises	245,879	1.6%	15.7
Utilities	61,830	0.4%	9.6
Mining	17,169	0.1%	-28.3
Unclassified	6,209	0.0%	-75.2

SOURCE: Bureau of Labor Statistics, QCEW Annual, 2006–2022.

NOTE: Annual job counts reflect monthly averages for the year.

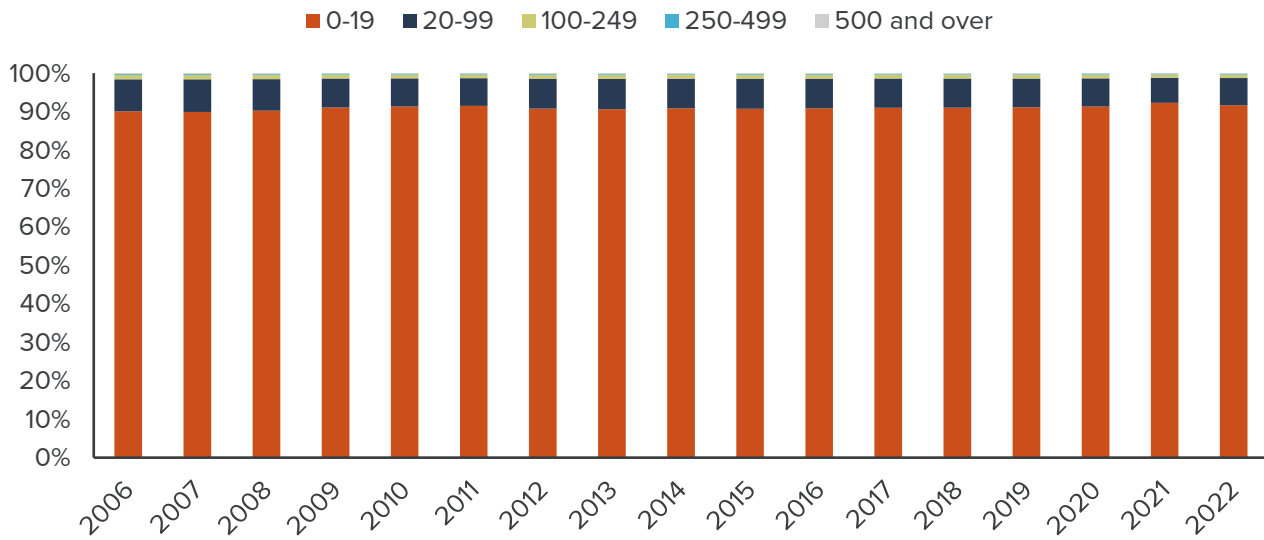
TABLE B5

California private sector businesses and jobs by region and major industry sector

	North	Sacramento	Bay Area	Central Valley and Sierra	Central Coast	Inland Empire	Los Angeles	Orange	San Diego
Total population	1,229,327	2,416,702	7,780,611	4,549,009	2,058,892	4,846,271	9,721,138	3,151,184	3,276,208
Share of state total	3.1%	6.2%	19.9%	11.7%	5.3%	12.4%	24.9%	8.1%	8.4%
Total establishments	42,847	88,015	330,720	132,914	71,235	150,639	531,570	136,966	122,322
Share of state total	2.7%	5.5%	20.6%	8.3%	4.4%	9.4%	33.1%	8.5%	7.6%
Total jobs	300,687	802,598	3,604,083	1,346,730	747,094	1,436,067	3,924,220	1,485,691	1,276,575
Share of state total	2.0%	5.4%	24.1%	9.0%	5.0%	9.6%	26.3%	10.0%	8.6%
Establishments by Industry (%)									
Agriculture	5.4%	0.8%	0.6%	5.3%	3.0%	0.6%	0.1%	0.1%	0.5%
Mining	0.1%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%
Utilities	0.2%	0.1%	0.1%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%
Construction	7.8%	7.0%	6.0%	5.9%	8.8%	6.7%	3.4%	5.9%	6.9%
Manufacturing	2.4%	1.8%	2.8%	2.3%	3.4%	2.6%	2.3%	3.9%	3.0%
Wholesale Trade	2.0%	2.3%	2.8%	2.4%	3.2%	3.5%	3.9%	5.2%	3.5%
Retail Trade	8.4%	6.7%	6.0%	7.8%	8.7%	7.4%	5.5%	7.1%	7.3%
Transportation and Warehousing	2.4%	2.5%	1.5%	4.2%	1.9%	3.9%	2.2%	1.4%	1.7%
Information	0.7%	0.7%	1.9%	0.4%	1.3%	0.6%	2.6%	1.2%	1.2%
Finance and insurance	2.6%	3.3%	3.5%	2.6%	3.7%	2.4%	2.5%	5.1%	4.1%
Real Estate and Rental/Leasing	3.2%	4.1%	4.0%	2.8%	4.4%	3.2%	3.6%	5.4%	5.8%
Professional, Services	5.2%	8.6%	12.1%	4.6%	9.6%	5.5%	8.8%	14.1%	14.2%
Management of Companies	0.2%	0.3%	0.3%	0.2%	0.3%	0.2%	0.2%	0.4%	0.3%
Administrative and Waste Services	3.1%	3.8%	3.5%	3.1%	4.4%	3.6%	2.6%	4.0%	4.1%
Educational Services	0.7%	1.0%	1.4%	0.5%	1.0%	0.7%	0.8%	1.4%	1.4%
Health Care and Social Assistance	43.4%	43.9%	38.3%	46.1%	30.3%	47.3%	47.5%	31.0%	30.5%
Arts, Entertainment, & Recreation	1.1%	1.0%	1.2%	0.7%	1.7%	0.8%	3.6%	1.3%	1.4%
Accommodation & Food Services	6.0%	5.8%	6.3%	5.9%	7.1%	5.7%	4.4%	6.2%	6.4%
Other Services	4.9%	6.0%	7.5%	4.7%	6.7%	4.9%	5.5%	5.9%	7.0%

FIGURE B2

Trends in private sector jobs by business establishment size



SOURCE: QCEW, Annual estimates 2006 – 2022.

NOTE: Size categories are based on establishment, not the firm.

TABLE B5

Trends in annual net job creation by firm age

Firm age	0 years	1-5years	11-15 years	16-20 years	21-25 years	26+ years	Left Censored
2006	404,781	26,521	-15753	25,555	-5518	8,255	57,753
2007	341,961	-148916	-25478	-32286	-19802	-32901	-59055
2008	319,679	-143923	-63065	-25139	-28537	-12004	-68082
2009	289,919	-216005	-142584	-106543	-108137	-88325	-373272
2010	260,100	-111958	-69479	-74300	-57529	-33815	-191192
2011	263,779	-39046	-9913	1,771	20,485	-2349	-21536
2012	289,885	3,492	3,342	6,144	-2063	-13093	-8583
2013	292,733	5,036	3,058	1,320	17,556	19,663	74,538
2014	309,600	144	5,165	11,214	11,247	25,239	-19873
2015	318,882	13,163	4,991	16,620	-21757	24,869	86,254
2016	323,584	32,980	9,958	2,096	-58810	28,656	-12809
2017	324,441	34,811	3,623	-10010	16,900	27,883	-11036
2018	336,434	-5171	-15064	-17624	-2970	-6612	12,769
2019	342,965	-24276	370	12,998	-8919	8,655	-38719
2020	355,325	-44540	-14925	-35789	2,266	-97934	6,311

SOURCE: US Census Bureau, Business Dynamics Statistics.

NOTE: Includes California businesses. Table shows number of net jobs created by firm age. Net job creation is based on firm births, deaths, expansions, and contractions.

TABLE B6

Firm ownership by sex and industry, 2021

	Female	Male	Equally male/female
Total, all industries	23%	61%	16%
Agriculture, forestry, fishing and hunting	20%	61%	19%
Construction	0%	84%	16%
Manufacturing	18%	66%	16%
Wholesale trade	23%	62%	15%
Retail trade	22%	59%	20%
Transportation and warehousing	15%	70%	16%
Information	17%	71%	12%
Finance and insurance	0%	100%	0%
Real estate and rental and leasing	27%	51%	22%
Professional, scientific, and technical services	24%	63%	12%
Management of companies and enterprises	0%	100%	0%
Administrative and waste services	23%	60%	17%
Educational services	47%	39%	14%
Health care and social assistance	35%	53%	11%
Arts, entertainment, and recreation	31%	57%	12%
Accommodation and food services	24%	52%	24%
Other services (except public administration)	28%	53%	19%

SOURCE: Annual Business Survey, 2022 (reports 2021 data).

NOTE: Ownership means 51 percent.

TABLE B7

Firm ownership by sex and firm size, 2021

	Female	Male	Equally male/female
Number of firms reporting ownership characteristics			
Less than 20 employees	165,524	412,938	108,637
20 - 99 employees	10,182	34,266	8,516
100 - 249 employees	976	4,737	*
250 - 499 employees	*	1,463	115
500+ employees	292	1,783	151

SOURCE: Annual Business Survey, 2022 (reports 2021 data).

NOTE: Ownership means 51 percent.

TABLE B8

Firm ownership by race/ethnicity and industry, 2021

	Latino	White	Asian	Black
Total, all industries	14%	61%	23%	2%
Agriculture, forestry, fishing and hunting	36%	62%	2%	0%
Construction	22%	72%	5%	1%
Manufacturing	15%	68%	15%	1%
Wholesale trade	9%	54%	38%	0%
Retail trade	12%	61%	27%	1%
Transportation and warehousing	27%	43%	30%	0%
Information	7%	76%	15%	2%
Finance and insurance	15%	70%	15%	0%
Real estate and rental and leasing	10%	71%	17%	2%
Professional, scientific, and technical services	9%	71%	17%	2%
Management of companies and enterprises	8%	91%	0%	1%
Administrative and waste management	25%	62%	11%	2%
Educational services	8%	65%	28%	0%
Health care and social assistance	9%	55%	32%	3%
Arts, entertainment, and recreation	8%	79%	6%	8%
Accommodation and food services	18%	37%	45%	1%
Other services (except public administration)	16%	51%	33%	0%

SOURCE: Annual Business Survey, 2022 (reports 2021 data)

NOTE: Ownership means 51 percent.

TABLE B9

California private GDP by major industry sector

Major Industry Sectors	Real GDP (in millions)	% change (2006-2022)
All industry	\$2,885,627	44%
Private Industries	\$2,591,224	49%
Information	\$400,543	231%
Manufacturing	\$365,226	60%
Real Estate and Rental and Leasing	\$356,077	39%
Professional, Scientific and Technical Services	\$323,718	107%
Health Care and Social Assistance	\$195,079	74%
Wholesale Trade	\$151,696	23%
Retail Trade	\$135,291	-6%
Finance and Insurance	\$121,108	14%
Administrative and Waste Services	\$97,945	68%
Construction	\$79,615	-26%
Transportation and Warehousing	\$73,620	38%
Accommodation and Food Services	\$63,973	6%
Management of Companies and Enterprises	\$59,636	92%
Other Services (Except Public Administration)	\$46,503	-13%
Arts, Entertainment, and recreation	\$43,062	43%
Agriculture, Forestry, Fishing, and Hunting	\$35,828	-3%
Utilities	\$33,992	31%
Educational Services	\$28,534	43%
Mining	\$14,063	-20%

SOURCE: U.S. Bureau of Economic Analysis

NOTE: Dollar amounts are in chained 2012 real dollars.

REFERENCES

- Autor, D., David Cho, Leland D. Crane, Mita Goldar, Byron Lutz, Joshua Montes, William B. Peterman, David Ratner, Daniel Villar, and Ahu Yildirmaz. 2022. "An evaluation of the Paycheck Protection Program using administrative payroll microdata." *Journal of Public Economics* 211.
- California Department of Finance. 2022. *Governor's Proposed Budget Summary, 2022-2023: Revenue Estimates*.
- Fort, Teresa C., John Haltiwanger, Ron S. Jarmin, and Javier Miranda. 2013. "How Firms Respond to Business Cycles: The Role of Firm Age and Firm Size." *IMF Economic Review* 61 (3): 520–559. <https://doi.org/10.1057/imfer.2013.15>
- Haltiwanger, John, Henry Hyatt, and James Spletzer. 2022. "Industries, Mega Firms, and Increasing Inequality." NBER Working Paper No. 29920.
- Haltiwanger, John, Ron S. Jarmin, and Javier Miranda. 2013. "Who Creates Jobs? Small Versus Large Versus Young." *The Review of Economics and Statistics* 95 (2): 347–361.
- Hubbard, R. Glenn, and Michael Strain. 2020. *Has the Paycheck Protection Program Succeeded?* NBER Working Paper No. 28032.
- Karlinsky, S. 2007. "How Does the U.S. Income Tax Law Define a Small Business? Let Me Count the Ways." In *Taxing Small Business. Developing Good Tax Policies*, ed. Ed Neil Warren.
- Legislative Analyst's Office 2024. *State Assistance to Businesses in Response to COVID 19*.
- Micheli, C. 2022. "What Is a Small Business Under California Law?" California Globe.
- Neumark, David, and Emma Wohl. 2023. *Policies for Creating and Keeping Jobs in California*. Public Policy Institute of California.

ABOUT THE AUTHORS

Shannon McConville is a research fellow at the Public Policy Institute of California and a member of the PPIC Economic Policy Center. Her research interests include health care access, utilization, and outcomes among vulnerable populations and the impact of vocational training programs on economic mobility. Her current work focuses on examining safety net programs, assessing the effects of Medicaid coverage expansions on individuals involved with the criminal justice system, and analyzing the employment outcomes and economic returns of career technical education. Before joining PPIC, she was a research training fellow in the Health Services and Policy Analysis doctoral program at the University of California, Berkeley; a senior research associate at the Department of Health Research and Policy at Stanford University; and a project manager at the Lewis Center for Regional Policy Studies at the University of California, Los Angeles. She holds a master's in public policy from the University of California, Los Angeles.

Jane Sawerengera is a graduate student at the University of New Mexico. Formerly she was a research associate at the Public Policy Institute of California, where she studied the economy, labor market and employment policies, and barriers to economic opportunity. Prior to that, she worked as a research associate for the Malawi Confederation of Chambers of Commerce and Industry, where she studied the effects of the macroeconomic and policy framework on the business operating environment. She holds an MA in economics from Binghamton University, an MA in applied economics from Wichita State University, and a BA in social sciences from the University of Malawi.

Sarah Bohn is vice president and director of the PPIC Economic Policy Center and senior fellow at the Public Policy Institute of California, where she holds the John and Louise Bryson chair in policy research. As the founding director of the Economic Policy Center, she leads research and engagement to inform California policymaking to support greater opportunity and upward mobility for workers, families, and businesses statewide. Her research has been published in major academic journals, including the *American Economic Review*, *Demography*, *American Economic Journal: Economic Policy*, and *The Review of Economics and Statistics*. She holds a PhD in economics from the University of Maryland, College Park.

ACKNOWLEDGMENTS

This research benefitted from comments and guidance from Chansonette Buck, Abby Cook, Julien Lafortune, Mary Severance, and Lynette Ubois. All errors are our own. The authors gratefully acknowledge the support of the James Irvine Foundation and Blue Shield of California Foundation whose grants to the PPIC Economic Policy Center supported this research.

PUBLIC POLICY
INSTITUTE OF
CALIFORNIA

Board of Directors

Chet Hewitt, Chair

President and CEO
Sierra Health Foundation

Ophelia Basgal

Affiliate
Terner Center for Housing Innovation
University of California, Berkeley

Louise Henry Bryson

Chair Emerita, Board of Trustees
J. Paul Getty Trust

Tani Cantil-Sakauye

President and CEO
Public Policy Institute of California
(*Chief Justice of California, retired*)

Sandra Celedon

President and CEO
Fresno Building Healthy Communities

John Chiang

Board Member
Apollo Medical Holdings
(*Former California State Controller and Treasurer*)

Marisa Chun

Judge
Superior Court of California,
County of San Francisco

Steven A. Merksamer

Of Counsel
Nielsen Merksamer Parrinello
Gross & Leoni LLP

Steven J. Olson

Partner
O'Melveny & Myers LLP

Leon E. Panetta

Chairman
The Panetta Institute for Public Policy

Gerald L. Parsky

Chairman
Aurora Capital Group

Kim Polese

Chairman
CrowdSmart

Dave Puglia

President and CEO
Western Growers

Cassandra Walker Pye

President
Lucas Public Affairs

Helen Iris Torres

CEO
Hispanas Organized for Political Equality

Gaddi H. Vasquez

*Retired Senior Vice President,
Government Affairs*
Edison International
Southern California Edison



PPIC

PUBLIC POLICY
INSTITUTE OF CALIFORNIA

The Public Policy Institute of California is dedicated to informing and improving public policy in California through independent, objective, nonpartisan research.

Public Policy Institute of California
500 Washington Street, Suite 600
San Francisco, CA 94111
T: 415.291.4400
F: 415.291.4401
PPIC.ORG

PPIC Sacramento Center
Senator Office Building
1121 L Street, Suite 801
Sacramento, CA 95814
T: 916.440.1120
F: 916.440.1121