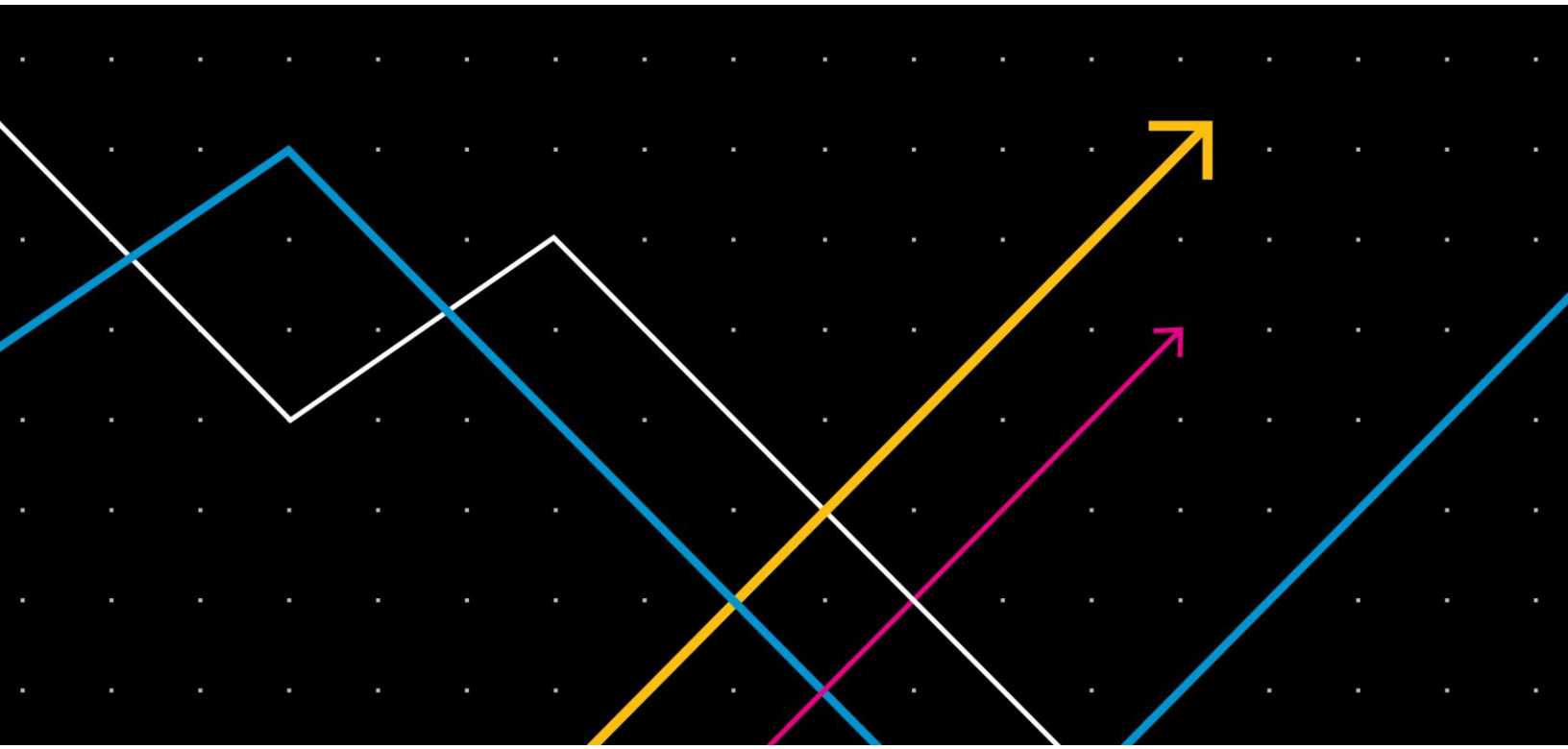

RESEARCH REPORT

Understanding Needs and Opportunities in California's Central San Joaquin Valley

Baseline Assessment for the Sierra San Joaquin Jobs Initiative

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Contents

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[1] A full list of Sierra San Joaquin Jobs Initiative partners can be found at https://www.s2j2initiative.org/about.

Executive Summary

In 2022, the California governor's Office of Planning and Research, Office of Business and Economic Development, and California Labor Workforce Development Agency launched the $600 million Community Economic Resilience Fund (CERF) (box 1). The program aims to support the development of new plans and strategies to advance competitive and resilient economies that center equity and climate action in each of the state's 13 regions. To achieve the program's desired outcomes for long-term economic resilience in the transition to a carbon-neutral economy across California, the state is funding regional backbone organizations to convene and engage diverse stakeholders in a highly participatory planning process. The Central Valley Community Foundation is leading efforts around the Valley CERF (now known as the Sierra San Joaquin Jobs Initiative), in partnership with three local conveners—the Office of Community and Economic Development at Fresno State, United Way Fresno and Madera Counties, and the Workforce Investment Board of Tulare County—and a coalition of more than 100 organizations in the region's four counties of Fresno, Kings, Madera, and Tulare.

BOX ES.1

Evolution of the Community Economic Resilience Fund

This report was originally developed in August 2023 for submission to the state to meet part of the baseline requirements for the initiative. To ensure fidelity, we use the original language of the state program and local initiative. However, the name of the program has changed as of this report's publication.

In 2024, the CERF program rebranded as the Regional Investment Initiative within the California Jobs First portfolio. At the local level, Valley CERF is now known as the Sierra San Joaquin Jobs Initiative, or S2J2.

Effective strategic planning efforts must be grounded in evidence, including data about current conditions in the region and the major forces shaping those circumstances. The Central Valley Community Foundation contracted the Urban Institute to support Valley CERF with some of the evidence it needs to consider to achieve CERF's desired outcomes. As part of this initial baseline

assessment, Urban gathered information on the sociodemographic profile of the region; key aspects of the region's business community, workforce, and industries; and the public health profile of the region, A summary of our findings is outlined below in three main categories: Demographics and Profile of Disinvested Communities; Economy, Industries, and Workforce; and Public Health. Each is explored in more detail in our full report.

Our report is intended to be used in combination with the Climate and Environmental Analysis completed by the Sierra Resource Conservation District and Yosemite Sequoia Resource Conservation and Development Council, as well as with a strengths, weaknesses, opportunities, and threats (SWOT) analysis completed by the local partners.[1] All findings are intended to inform the Valley CERF coalition's High Road Economy Transition Plan and Road Map, which will contain recommendations for strategic investments the region is prioritizing to advance climate-forward industries, diversify regional economies, and ensure equitable access to high-quality jobs. Our report may also be useful to the state's CERF program partners in evaluating the recommendations in Valley CERF's High Road Economy Transition Plan and Road Map for funding in the implementation phase.

Key Findings

Profile of Disinvested Communities in the Central San Joaquin Valley

- The Valley CERF region is diverse, but the majority of residents in the region are Latinx.[2] Compared with the rest of the state, the region has a younger population, fewer immigrants, and more adults with less formal education. Households in the Valley CERF region are also more likely to have children, be larger in size, have lower incomes and higher rates of poverty, use public insurance and other public assistance at higher rates, and have less access to the internet and broadband.
- Roughly two-thirds of the Valley CERF region is designated as "disinvested." Compared with the rest of the region, residents living in these disinvested areas tend to be even younger, are more likely to be Latinx or an immigrant, and have less formal education. Households in these disinvested areas are more likely to have children, be larger in size, have even lower incomes

[2] We have chosen to use the term "Latinx" throughout this report, even when it differs from the terminology used in the source materials. We acknowledge this language may not reflect how people describe themselves, and we remain committed to employing respectful and inclusive language.

and higher rates of poverty, use public insurance and other public assistance at higher rates, and have even less access to the internet and broadband. More than half of the people living in the region's disinvested areas speak a language other than English at home, but not all indicate they speak English well. People living on tribal lands, all of which are designated as disinvested areas, experience even more acute and unique challenges, such as less access to public assistance despite having higher rates of poverty.

- Generally, housing cost burdens are slightly lower in the Valley CERF region than in California, except in disinvested areas where housing cost burdens are comparable. Almost all residents in the Valley CERF region have access to a vehicle and commute in a car.

Economy, Workforce, and Industries in the Central San Joaquin Valley

- The amount of investment flowing into the Valley CERF region's largest counties lags the volume of investments flowing into other regions of the US.
- The region's labor force shows seasonal fluctuations but dipped below normal seasonal patterns during peak pandemic years; Kings County is the only county in the region whose labor force has not fully rebounded to prepandemic levels. Unemployment rates have remained consistently higher in the Valley CERF region than in the state of California over the last 10 years, with some variance by county.
- The region has seen a consistent rise in the number of businesses year over year, even during peak pandemic years. The majority of businesses in the Valley CERF region have fewer than 20 employees, are concentrated in Fresno and Tulare Counties, and are disproportionately owned by people who are white and male.
- The greatest number of jobs in the Valley CERF region are in government, agriculture, and the social sectors; management and service positions are most prominent.
- At a minimum, working people in the Valley CERF region need to make about $21 an hour to ensure the cost of renting or owning a two-bedroom home does not exceed 30 percent of their annual income. But people may need more income to thrive, especially if they are sole breadwinners or have children. Achieving wages high enough to afford a two-bedroom is difficult because these jobs make up less than half of all jobs in the Valley CERF region, are concentrated in management occupations, and often require a four-year degree. Many people in the Valley CERF region, especially those living in disinvested areas, do not have the formal education to meet these requirements.

- The largest share of currently forecasted new jobs in the Valley CERF region is expected to be in education, health care, and social services. Of the forecasted new jobs with the greatest number of opportunities, many have lower barriers to entry—such as only requiring a high school diploma or equivalent—but do not pay the current two-bedroom housing wage. Of the forecasted new jobs that will likely meet or exceed the current two-bedroom housing wage, many will have higher barriers to entry, such as requiring a bachelor's degree or higher.
- Roughly half of the job losses currently projected for the coming years will be in sales and office occupations.

Public Health in the Central San Joaquin Valley

- Intensive industrial agricultural practices and the petrochemical industry in the Central San Joaquin Valley are significant contributors to environmental degradation, such as air and water pollution and soil degradation, which have negative implications for public health equity and environmental justice.
- Localized impacts from climate change are causing additional public health and equity challenges in the region and can worsen preexisting conditions. For example, more frequent and extreme high-temperature days, water shortages, and exposure to wildfire smoke pose significant health threats to residents of the Valley CERF region.
- Compared with other California counties, Fresno, Kings, Madera, and Tulare Counties also have higher rates of chronic conditions, such as asthma, chronic kidney disease, chronic obstructive pulmonary disease, diabetes, high blood pressure, depression, and Valley fever. These diseases are correlated with and exacerbated by industry-caused environmental degradation and localized impacts from climate change.
- The health care landscape in the Valley CERF region has critical shortages, underscoring the urgent need for strategic interventions to enhance health care access. Two key indicators are the relatively high numbers of health professional shortage areas (HPSAs) and medically underserved areas (MUAs) compared with other counties in the state.
- Greater exposure to environmental risks and resulting health disparities are closely tied to low wages, poor working conditions, low educational attainment, limited access to health care, and low-quality housing. These data showcase the intersection of structural racism, economic disparities, and environmental and climate injustice.

- Limitations in data on climate-related health outcomes at the county and subcounty levels demonstrate the need for additional research. For example, analyses of existing resources that include race and ethnicity information as well as administrative claims data could help create a more comprehensive understanding of climate-related health challenges and disparities in the region. Additional data gaps could be addressed by collecting new data and developing tools that integrate climate and environmental data when tracking public health and social determinants of health.

Implications for Stakeholders in the Region

- The economic, equity, public health, and climate challenges facing the Central San Joaquin Valley are intersecting and interdependent and have many implications for the well-being of residents and vitality of the broader region, now and into the future.
- Climate change poses a threat to the economic stability and vitality of the Valley CERF region, but also presents an opportunity for regional economic development through high demand for clean energy, which the region is well-suited to deliver.
- The significant mismatch between available housing-wage jobs in the region and the profile of workers living in disinvested communities, as well as the impacts of "business as usual" industry growth, create the need and opportunity for intentional intervention.
- Investing in public health in the region not only can help meet the current and future health care needs of residents in the region's disinvested areas but also create new, quality jobs in those communities.
- Poverty and inequality are persistent, and families and communities in the region continue to lack basic needs necessary for them to thrive. Housing affordability, higher wages, and broadband for all are important areas of focus.

Understanding Needs and Opportunities in California's Central San Joaquin Valley

A cross-sector coalition in California's Central San Joaquin Valley secured a grant from the state to support the development of new plans and strategies to advance a competitive and resilient economy that centers equity and climate action. To achieve the program's desired outcomes for long-term economic resilience in the transition to a carbon-neutral economy across California, the state is funding regional backbone organizations to convene and engage diverse stakeholders in a highly participatory planning process. The Central Valley Community Foundation is leading efforts around the Valley Community Economic Resilience Fund (CERF), now known as Sierra San Joaquin Jobs Initiative, in partnership with three local conveners and a coalition of more than 100 organizations in the region's four counties of Fresno, Kings, Madera, and Tulare.

Effective strategic planning efforts must be grounded in evidence, including data about current conditions in the region and the major forces shaping those circumstances. The Central Valley Community Foundation contracted the Urban Institute to provide support with evidence-gathering and analysis to advance CERF's desired outcomes. As part of this initial baseline assessment, Urban gathered information on the sociodemographic profile of the region; key aspects of the region's business community, workforce, and industries; and the public health profile of the region. The findings are intended to inform the Valley CERF coalition's High Road Economy Transition Plan and Road Map, which will contain the coalition's recommendations for strategic investments the region is prioritizing to advance climate-forward industries, diversify regional economies, and ensure equitable access to high-quality jobs.

Profile of Disinvested Communities in the Central San Joaquin Valley

Located south of Sacramento, California, the Central San Joaquin Valley—also described in this report as the Valley CERF region—comprises four counties: Fresno, Kings, Madera, and Tulare. Across almost all measures, there are disparities between residents of the Valley CERF region and residents of other

areas of the state, as well as further disparities between people living in "disinvested" areas of the Valley CERF region and those living elsewhere in the region.

The following profile of the Central San Joaquin Valley summarizes existing data on people living in disinvested areas, including information on age, gender, race and ethnicity, immigration status, household composition, education, income and poverty, use of public assistance, language, housing, and connectivity (such as through transportation and internet access). The data used for this analysis are described in box 1.1.

BOX 1.1

Data and Methods for the Profile of Disinvested Communities in the Valley CERF Region

This section relies on data from two major sources.

- **American Community Survey:** Produced by the US Census Bureau, the American Community Survey (ACS) is a nationally representative household survey that releases new data every year. Its primary domains are demographic, social, economic, and housing characteristics of the US population. This analysis uses 2017–2021 five-year estimates. Each year, the Census Bureau contacts a random sample of 3.5 million households across the country to participate in the ACS. Responding to the survey is voluntary, meaning ACS data are estimates rather than exact numbers. ACS data are especially limited for small geographies and populations and likely undercount immigrant populations.
- **CalEnviroScreen:** CalEnviroScreen is a tool used to help identify communities disproportionately burdened by multiple sources of pollution and with population characteristics that make them more sensitive to environmental burdens.[a]

"Disinvested" is the term the state of California uses for the CERF, which is why we use this term throughout the report. CERF's definition of "disinvested communities" includes (1) census tracts[b] identified as "disadvantaged" by the California Environmental Protection Agency (CalEPA); (2) census tracts with median household incomes at or below 80 percent of the statewide median income; (3) "high-poverty areas" and "high-unemployment areas," as designated by the California Competes tax credit program; and (4) California Native American tribes, as defined by the Native American Heritage Commission tribal consultation policy.

For S.B. 535, CalEPA identifies disadvantaged census tracts based on several criteria, including census tracts representing the highest-scoring tracts (top 25 percent) in CalEnviroScreen 4.0; census tracts previously identified in the top 25 percent in CalEnviroScreen 3.0; census tracts with high amounts of pollution and low populations; and federally recognized tribal areas, as identified by the census in the 2021 American Indian Areas Related National Geodatabase.

To apply the state of California's criteria of "disinvested" to the Valley CERF region, we used the following methodology. First, we transformed the 2010 census tracts included in CalEnviroScreen to the 2020 tracts to allow us to review the most current ACS data (2017–2021 five-year estimates). The transformed 2020 tracts classified as disadvantaged under CalEnviroScreen overlapped with census tracts with median household incomes at or below 80 percent of the statewide median income. As a result, this criterium did not add any areas to the disinvested tracts. Applying the third criterium for "disinvested," under the Office of Business and Economic Development's California Competes tax credit program, three of the four counties in the Valley CERF region are designated as high-poverty areas or high-unemployment areas. We excluded this criterium from our analysis because identifying and prioritizing disinvested communities within the four-county region and within individual counties was a priority for Valley CERF. We also did not identify any non–federally recognized tribes in the Valley CERF region. All federally recognized tribal areas are designated as disadvantaged. We independently looked at trends on tribal lands, some of which are located outside of disadvantaged tracts.

Thus, we used the census tracts identified as disadvantaged by CalEPA to determine disinvested areas for this analysis.

The analysis that follows allows comparisons between California as a whole, the Central San Joaquin Valley as a region, and each of the four Valley CERF counties, as well as between people living in disinvested tracts and those living in other areas of the region.

Sources:

[a] More information on CalEnviroScreen 4.0, including a detailed description of indicators and methodology, is available at https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40.

[b] A census tract is a statistical subdivision of a county uniquely numbered with a numeric code. On average, census tracts are home to around 4,000 people. The minimum population is 1,200 people and the maximum is 8,000. See https://www.census.gov/programs-surveys/geography/about/glossary.html#par_textimage_13.

Roughly Two-Thirds of the Areas within the Central San Joaquin Valley Are Designated as "Disinvested"

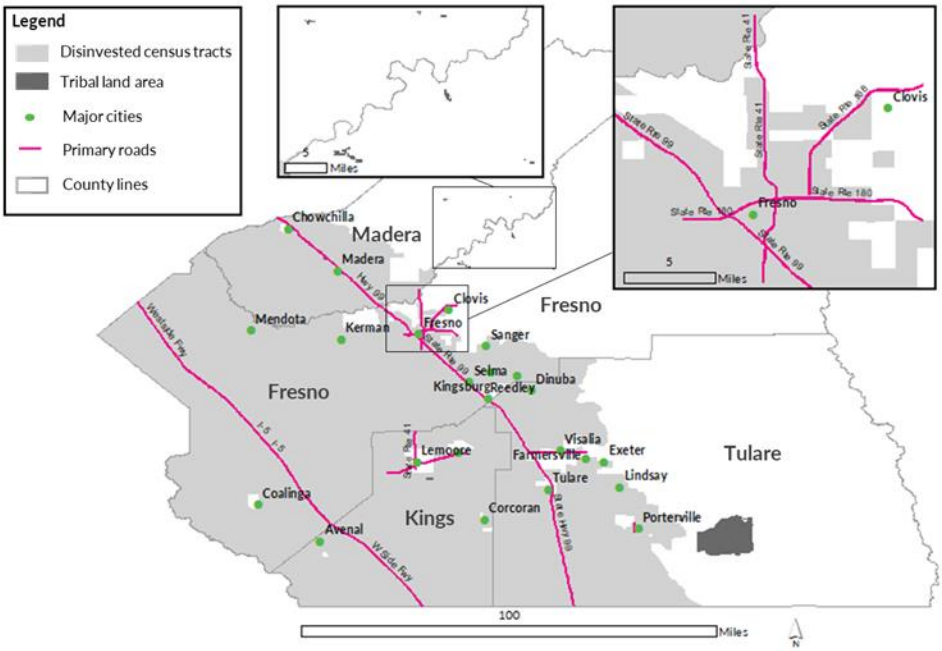
The Central San Joaquin Valley has a total population of about 1.78 million. By population, Fresno County is the largest county in the Valley CERF region (home to 56 percent of the population), followed by Tulare County (26 percent), Madera County (9 percent), and Kings County (9 percent). Nearly two in every three residents (1.1 million people) in the region live in a disinvested area. Disinvestment is much more widespread in the Valley CERF region than in California as a whole.

Nearly two-thirds (62 percent) of the Valley CERF region is designated as disinvested, compared with 29 percent of tracts in California. Within the region, Madera County has the highest rate of disinvested tracts (71 percent) and Kings County the lowest (52 percent); both are significantly above

the state average. In Fresno and Tulare Counties, 62 and 64 percent of tracts are designated as disinvested, respectively (figure 1.1).

FIGURE 1.1

Disinvested Areas in the Valley CERF Region Span All Four Counties and Include Tribal Areas



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Sources: California Environmental Protection Agency; S.B. 535 Disadvantaged Communities;; Nation, US, American Indian/Alaska Native/Native Hawaiian (AIANNH) tribal subdivisions via Data.gov.

Notes: Census tracts were transformed from 2010 to 2020 tracts. We chose to conduct a binary (yes/no) analysis focusing on disinvested versus non-disinvested areas. To see the degree of "disadvantage" by which CalEPA ranked census tracts, visit the CalEnviroScreen 4.0 Maps at https://oehha.ca.gov/calenviroscreen/maps-data.

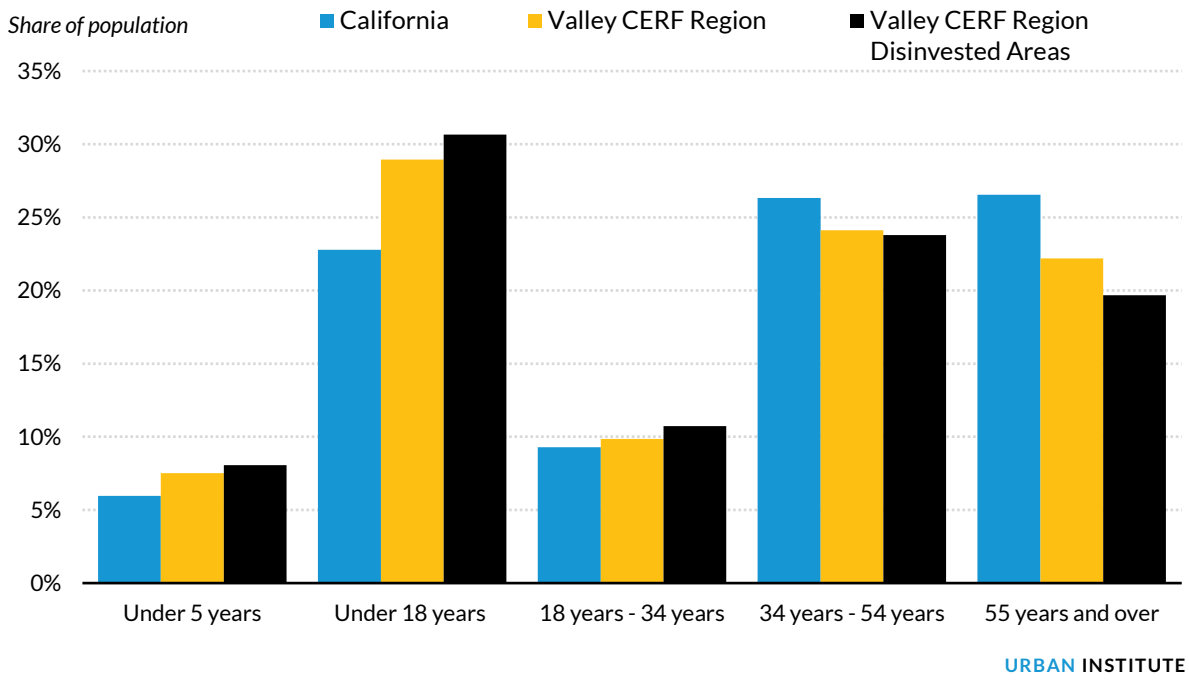
Residents of the Central San Joaquin Valley, Particularly Those Living in Disinvested Areas, Tend to Be Younger than Other California Residents

The Valley CERF region has a much younger population than California as a whole. Less than a quarter (23 percent) of California residents are under the age of 18; by comparison, 29 percent of the Valley CERF region's residents, and 31 percent of those living in the region's disinvested areas, are minors (figure 1.2). Children under the age of 5 also make up a slightly larger share of the population in the Valley CERF region than in the state. Tulare County is the youngest of the Central San Joaquin Valley counties, with 31 percent of the population under the age of 18 and 8 percent under the age of 5.

In contrast, adults over the age of 55 account for a more significant share of the population in California than in the Central San Joaquin Valley. In California, more than a quarter of residents (27 percent) are 55 or older; by comparison, only about 22 percent of those living in the region, and 20 percent of the population in its disinvested areas, are 55 or older.

FIGURE 1.2

Central San Joaquin Valley Residents, Particularly Those in Disinvested Areas, Tend to Be Younger than Other California Residents



Source: American Community Survey five-year estimates data from 2017–2021.
Notes: All ages ranges are shares of the total population.

There Is a Gender Imbalance in Kings County, Especially in Disinvested Areas

Unlike in other counties in the Central San Joaquin Valley and in California as a whole, where the populations of men and women are roughly equal, men outnumber women 55 to 45 percent in Kings County. The margin is even greater in Kings County's disinvested areas, where 58 percent of residents are men and only 42 percent are women. A possible contributor to this difference may be the eight jails located in Kings County.

The Central San Joaquin Valley Is Diverse, but Latinx People Make Up the Largest Share of the Population and Are Highly Concentrated in Disinvested Areas

Latinx residents make up the largest share of residents in the Valley CERF region (58 percent), a share much larger than in California as whole (40 percent) (figure 1.3). Kings County has the largest Latinx population (67 percent) within the Valley CERF region. The region is home to other racial groups as well, though at lower rates than the rest of California. The white, non-Hispanic population in the region (28 percent) is smaller than that of the state (36 percent), as is the Asian or Pacific Islander population (8 percent compared with 15 percent) and the Black population (4 percent compared with 6 percent). However, the "all other" races category accounts for 33 percent of the population in the region, which is higher than in California (27 percent).

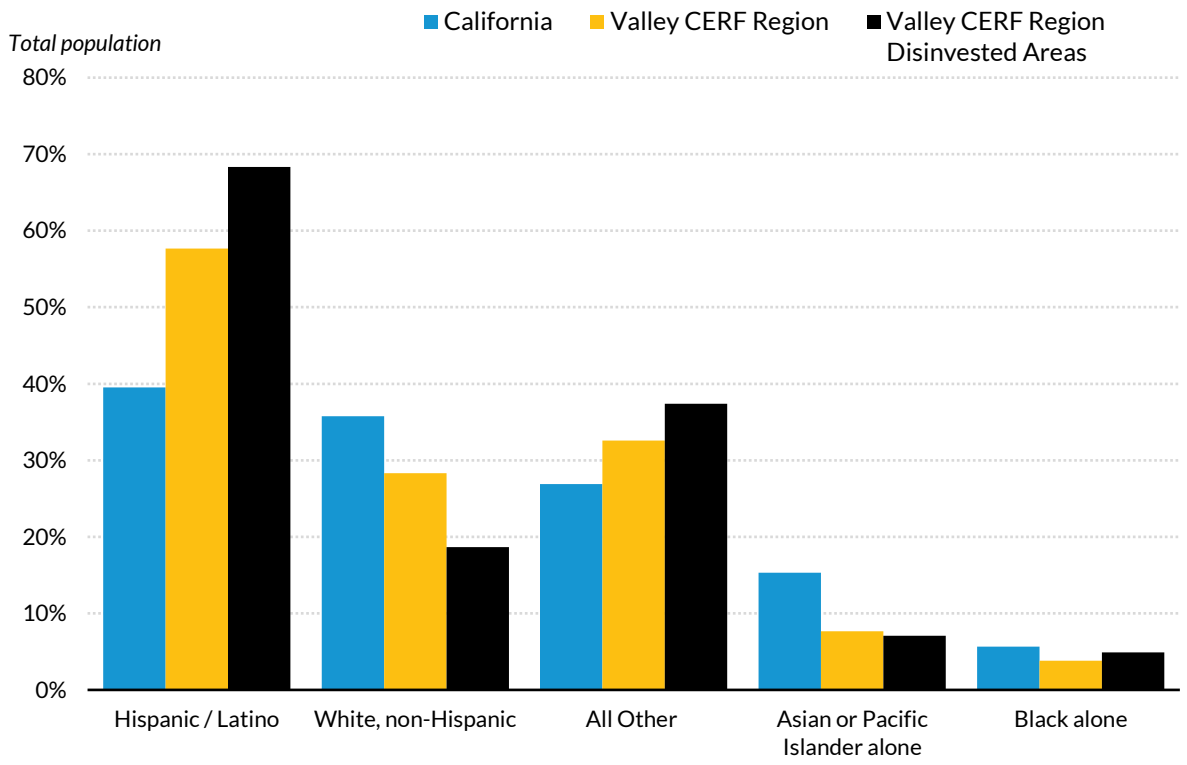
The white, non-Hispanic population share is largest in Madera County (32 percent). The Asian or Pacific Islander population share is largest in Fresno County (11 percent) and smallest in Madera County (2 percent). The largest Black population share is in Kings County (7 percent), and the smallest is in Tulare County (2 percent). Madera County has the largest share of people in the "all other" races category (40 percent).

Disinvested areas in the Valley CERF region have disproportionately higher shares of Latinx people (68 percent) compared with the rest of the region or state. This is most pronounced in Madera County, where more than 70 percent of residents in disinvested areas are Latinx compared with about a quarter of residents in the rest of the county.

Meanwhile, the white, non-Hispanic population makes up a disproportionately low share of the population in the region's disinvested areas (19 percent) compared with the rest of the Valley CERF region (45 percent). This inequity is again most pronounced in Madera County, where 21 percent of residents in disadvantaged areas are white, non-Hispanic compared with 65 percent of the population in the rest of the county.

FIGURE 1.3

Latinx People Make Up the Largest Share of the Population in the Valley CERF Region



Source: Five-year American Community Survey data from 2017–2021.

Notes: Hispanic/Latino is the terminology used in ACS data. Although some of the data sources use the term "Hispanic or Latino" to refer to people of Latin American origin, Urban uses the term "Latinx" throughout this report to be more gender inclusive. ACS survey questions ask about race and ethnicity separately. Data related to both race and ethnicity are represented in this figure. The racial/ethnic groups that add to 100 percent in ACS data are white alone, Black or African American alone, American Indian and Alaska Native alone, Asian alone, Native Hawaiian and Other Pacific Islander alone, some other race alone, and two or more races. "Alone" means only one race (as opposed to two or more); it does not indicate whether someone is or is not ethnically Latinx. The "American Indian and Alaskan Native" and "two or more races" populations are included in "all other," and the "Asian alone" and "Native Hawaiian and Other Pacific Island alone" populations are combined in this graph. We do not include the "white alone" population in this chart, so the race categories do not add to 100 percent. We chose to display the white, non-Hispanic population instead of "white alone," which is the only race for which ACS provides combined race/ethnicity counts. In addition to racial/ethnic groups, the figure shows the ethnic Hispanic/Latino population. Individuals included in race categories other than "white, non-Hispanic" may or may not also be ethnically Hispanic/Latino.

The Central San Joaquin Valley Is Home to a Smaller Share of Immigrants than in California as a Whole, and Most Are from Latin America

Immigrants make up a smaller share of the residents in the Central San Joaquin Valley (20 percent) than in California overall (27 percent). Most immigrants in the region (75 percent) are from Latin America,

which is far more than in California as a whole (50 percent). The remaining foreign-born population in the Valley CERF region comes from Asia (20 percent) and other continents (5 percent).

Like the region's Latinx residents, the region's immigrant population is also more likely to live in disinvested areas of the Valley CERF region. Overall, immigrants represent about a quarter of the population in the region's disinvested areas, and about 14 percent of those living in non-disinvested areas.

The region has a significant number of undocumented immigrants with unique needs and experiences. County-level estimates from the Migration Policy Institute estimate that there are approximately 77,000 unauthorized immigrants in Fresno County, 39,000 in Tulare County, 15,000 in Madera County, and 12,000 in Kings County as of 2019.[2] These estimates total to 143,000 people in the region, or 8 percent of the region's population of 1.78 million.

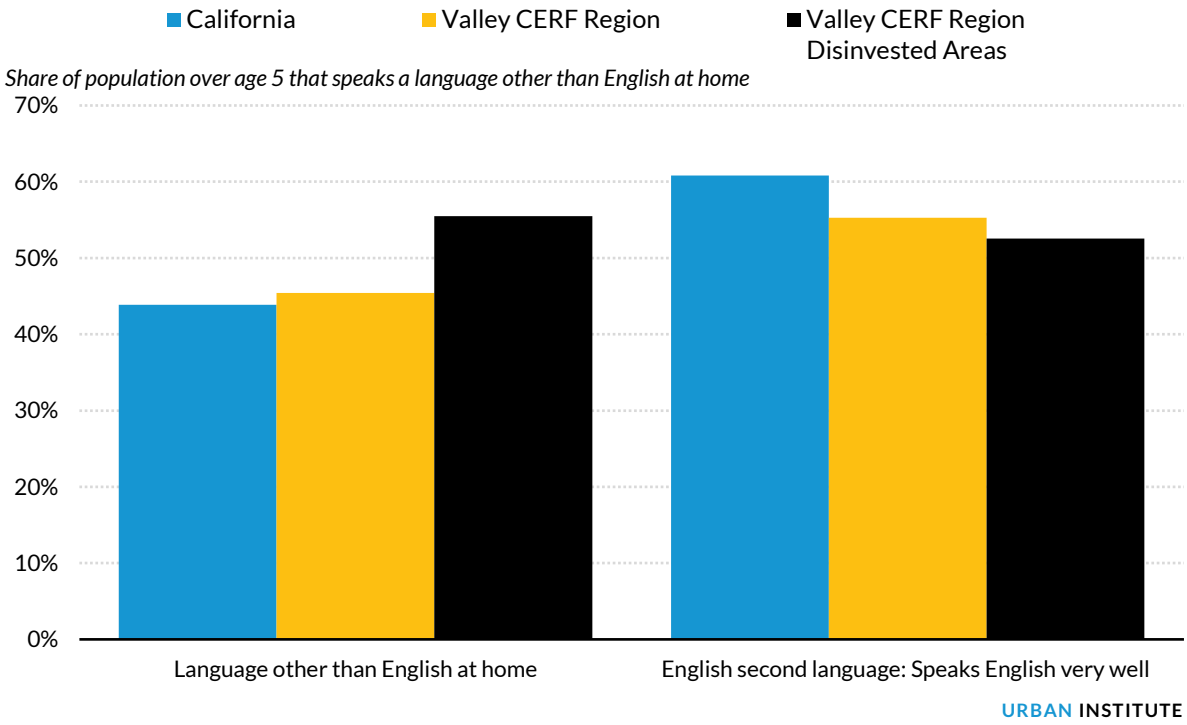
More than Half of Central San Joaquin Valley Residents Living in a Disinvested Area Speak a Language Other than English at Home

Although residents in the Valley CERF region are only slightly more likely (45 percent) to speak a language other than English at home than other California residents (44 percent), speakers of other languages disproportionately live in disinvested areas (figure 1.4). More than half (56 percent) of people living in the region's disinvested areas speak a language other than English at home, compared with 29 percent of people living in other areas of the region.

The Valley CERF region also has a lower rate of people who speak English as a second language with advanced English proficiency. About 55 percent of people who speak a language other than English at home indicate they speak English "very well," compared with about 61 percent statewide. The rate of advanced English proficiency is even lower among residents of disinvested areas in the region who speak a language other than English at home (53 percent).

FIGURE 1.4

A Large Share of the Population in the Central San Joaquin Valley Speaks a Language Other than English at Home, but Not All Speak English Very Well



Source: Five-year American Community Survey data from 2017–2021.
Notes: "Language other than English at home" is a share of the population ages 5 and older. "English second language: Speaks English very well" is a share of "Language other than English at home."

More of the population speaks Spanish at home in the Central San Joaquin Valley compared with the state population overall (38 percent and 28 percent, respectively), but a smaller share speaks a non-English language other than Spanish (7 percent versus 16 percent). Other languages spoken by residents in the Valley CERF region include Tagalog (0.8 percent), Arabic (0.5 percent), Cantonese or Mandarin (0.4 percent), Vietnamese (0.2 percent), and Korean, French, German, or Russian (less than 0.2 percent each). About 3 percent of the population speaks a different Asian language (data not shown).

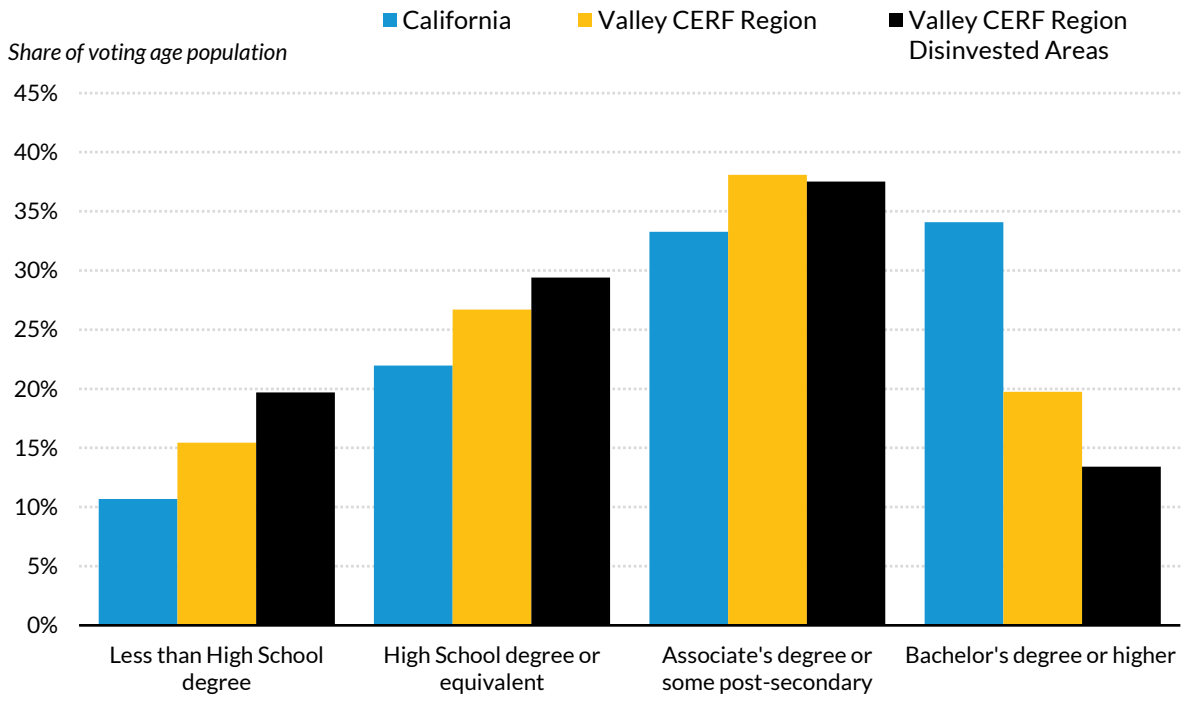
Adults in Disinvested Areas Tend to Have Less Formal Education than Adults in Other Parts of the Region and State

Twenty percent of adults living in the Valley CERF region's disinvested areas have less than a high school diploma, compared with 15 percent of adults in the region overall and 11 percent of all adults in

California (figure 1.5). Following a similar pattern, California as a whole has a higher share of college graduates (34 percent) than the Valley CERF region (20 percent), which is substantially higher than the region's disinvested areas (13 percent). Fresno County has the highest disparity between the percentage of people who do and do not have at least a bachelor's degree.

FIGURE 1.5

Adults in the Central San Joaquin Valley and Its Disinvested Areas Tend to Have Less Formal Education than Adults in the Rest of California



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Source: Five-year American Community Survey data from 2017–2021.
Notes: All figures are out of the voting age population. ACS does not ask about vocational training.

Households in the Central San Joaquin Valley, Particularly Those in Disinvested Areas, Are More Likely to Have Children and Be Larger than Other California Households

The Central San Joaquin Valley is home to a larger share (29 percent) of households with children under 18 than in California as a whole (23 percent). Households in the Valley CERF region also tend to be slightly bigger—with an average household size of 3.3 people—compared with households statewide (average household size of 3.0 people). Households in the region's disinvested areas are slightly larger

as well. This is most evident in Madera County, where the average household size is about 3.7 people in its disinvested areas, compared with 2.8 in its other areas.

Central San Joaquin Valley Residents Have Lower Household Incomes and Higher Rates of Poverty Compared with Other California Residents

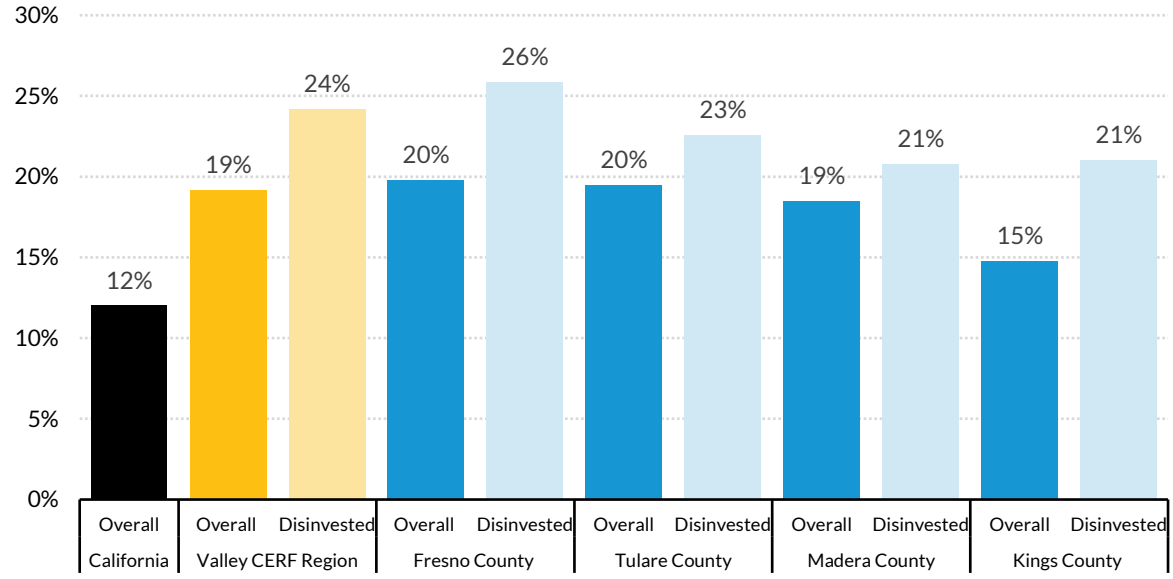
Average household income tends to be lower in the region than in California. In the Central San Joaquin Valley, the average household income of $63,200 is more than 30 percent lower than California's average of $91,300 and 44 percent lower in disinvested areas ($51,300). There is a prominent earnings gap between men and women across California, though it is slightly smaller in the Valley CERF region. Women make 71 percent of men's earnings in California but 75 percent in the Valley CERF region and 76 percent in the region's disinvested areas.

As previously discussed, about two-thirds of the Valley CERF region has been designated as disinvested because of several factors, including rates of poverty. Nearly one in five (19 percent) residents live below the poverty line in the region, compared with about one in eight (12 percent) statewide. The poverty rate in the region's disinvested areas is double that of California overall, with nearly one in four people (24 percent) living in poverty (figure 1.6). In 2021, the federal poverty line was $12,880 for a household of one and $26,500 for a household of four.[3]

FIGURE 1.6

Poverty Rates Are Highest in the Valley CERF Region's Disinvested Areas

Share of households with income below poverty level



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Source: Five-year American Community Survey data from 2017–2021.
Notes: The Central San Joaquin Valley has higher poverty rates than the rest of California. Rates are highest in the disinvested areas of each of the regions' four counties and are most pronounced in Fresno County, where more than a quarter of households have incomes below the poverty line. Within the region, Kings County has the lowest overall rate of poverty (15 percent), while the other three counties are in the 19 to 20 percent range.

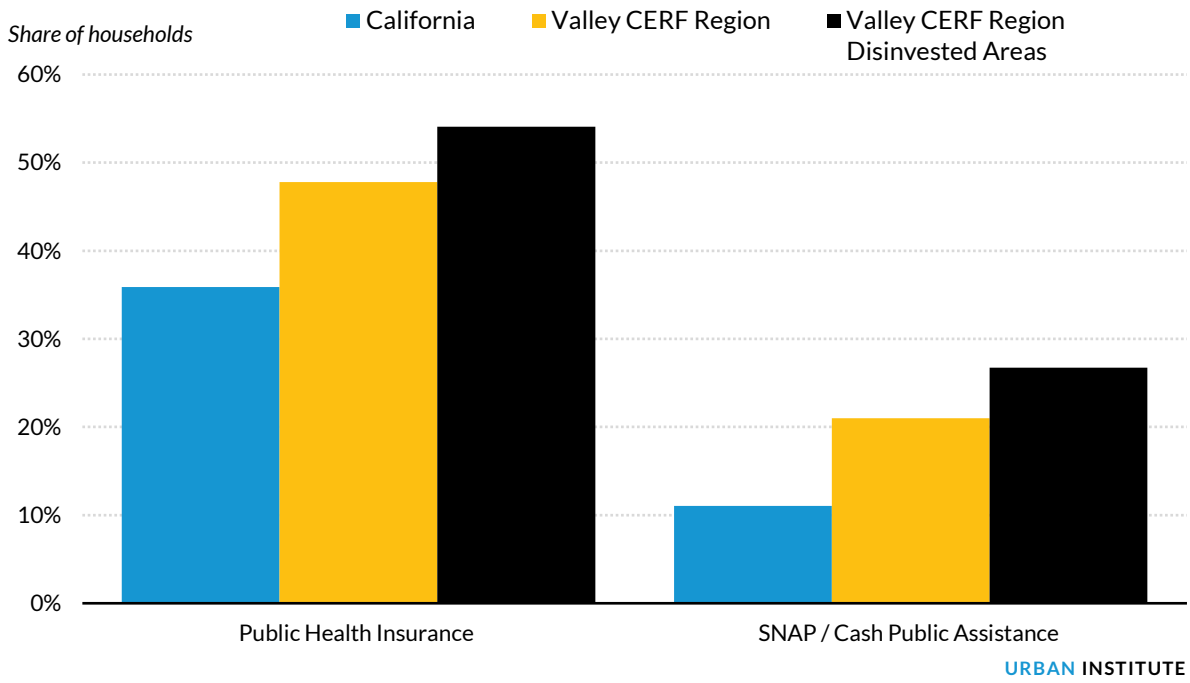
Public Programs Provide Important Support to Families in the Central San Joaquin Valley

Correlated with its high rates of poverty, residents of the Central San Joaquin Valley receive most forms of public assistance at higher rates than other California residents. In the region, the share of households receiving public assistance in the form of cash assistance or food stamps (21 percent) is nearly twice as high as for California as a whole (11 percent); in the region's disinvested areas, the share of households receiving public assistance is nearly 2.5 times higher (27 percent) than it is statewide (figure 1.7).

People living in the Central San Joaquin Valley also use public health insurance programs more frequently (48 percent) than people in the state as a whole (36 percent); in the region's disinvested areas, the rate is even higher (54 percent). Within the Valley CERF region, Tulare County has the highest rate of people subscribed to public health insurance (53 percent).

FIGURE 1.7

Disinvested Areas in the Central San Joaquin Valley Access Public Health Insurance and Public Assistance at Higher Rates than the Rest of the Region and State



Source: Five-year American Community Survey data from 2017–2021.
Notes: Public health insurance is a share of people. SNAP/public assistance is a share of households. SNAP refers to food stamps/Supplemental Nutrition Assistance Program benefits. Cash public assistance refers to general assistance and Temporary Assistance to Needy Families (TANF). Separate payments received for hospital or other medical care (vendor payments) are excluded.

Generally, Housing Cost Burdens Are Slightly Lower in the Central San Joaquin Valley than in California, Except in Disinvested Areas Where It Is Comparable

The share of renters in the Central San Joaquin Valley is similar to that of California (both just over 44 percent), though this share is higher in disinvested areas (52 percent). Within the region, Fresno County and Kings County have the highest share of renters (46 percent), while Madera County has a lower share of renters (34 percent) than the state average (figure 1.8).

A key indicator of whether someone is financially burdened by their housing is whether they spend 30 percent or more of their incomes on housing costs. In the Valley CERF region, the overall share of the population that is cost burdened (49 percent) is lower than in California (52 percent). In the region's disinvested areas—where household incomes tend to be lower than in the Central San Joaquin Valley as

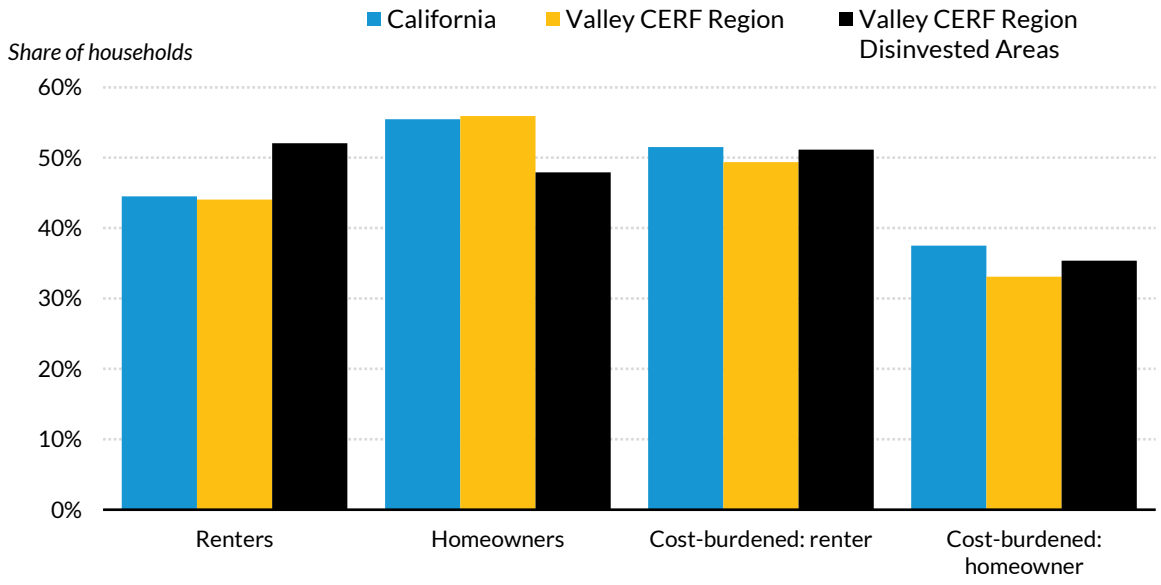
a whole and households tend to be larger—the share of residents who are cost burdened (51 percent) is comparable to that of the state overall.

Within the region, Fresno County has the highest share of renters who are cost burdened (51 percent). Fresno County also has the greatest difference in the share of cost-burdened households between disinvested areas (53 percent) and the county's other areas (46 percent). Kings County has the lowest rate of cost-burdened renters in the region (44 percent). In Madera County, there is no difference between renter cost burden rates in disinvested areas and other areas (both 47 percent).

Homeowners with mortgages also experience housing cost burdens, but not at the same rate as renters. In California, 38 percent of homeowners with mortgages are paying installments that exceed 30 percent of their incomes. The rate is lower in the Central San Joaquin Valley (33 percent) and almost as high in disinvested areas (35 percent). Within the region, Madera County has the highest overall share of mortgage-holders who are cost burdened (38 percent). However, Madera's disinvested areas have a smaller share of homeowners with housing cost burdens (34 percent) compared with its other areas (46 percent). Within the region, Kings County has the lowest share of homeowners with mortgages who experience housing cost burdens (30 percent).

FIGURE 1.8

Housing Cost Burden Is Lower in the Central San Joaquin Valley than in California, Except in the Region's Disinvested Areas



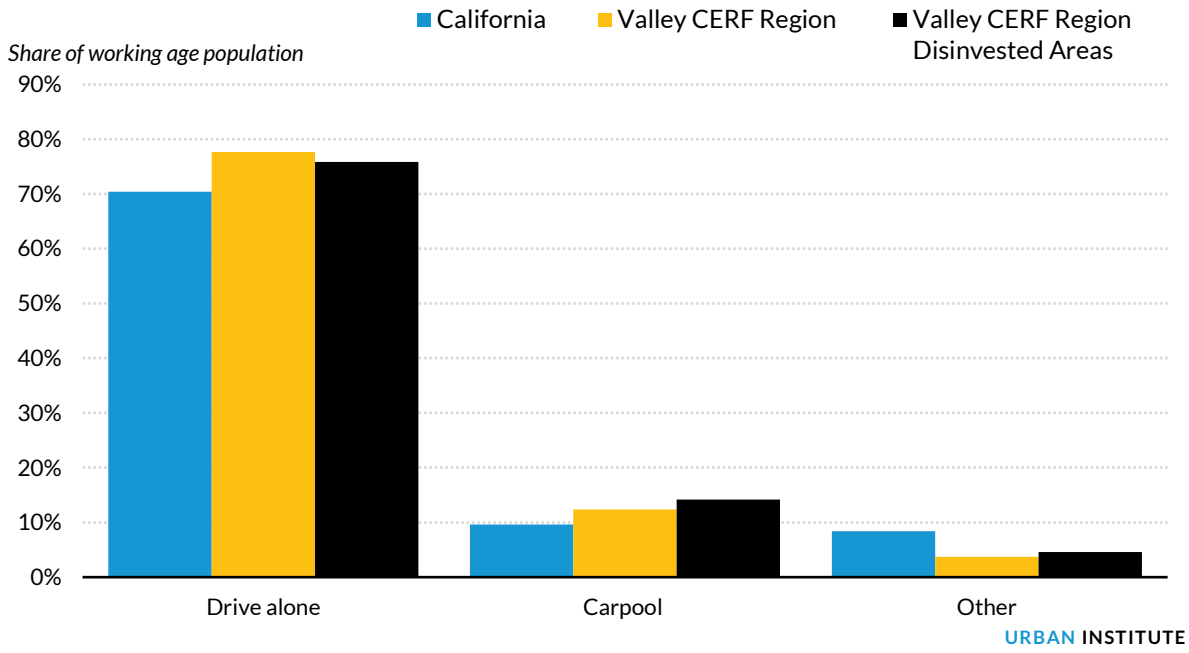
Source: Five-year American Community Survey data from 2017–2021.
Notes: "Cost burdened" refers to paying a mortgage or rent that is more than 30 percent of a household's income.

Almost All Residents in the Central San Joaquin Valley Have Access to a Vehicle and Commute in a Car

A very small share of people in the Valley CERF region (2 percent) do not have a vehicle available to them, which is lower than the percentage for California residents overall (3 percent). In all counties, the share of the population without access to vehicles is marginally higher in disinvested areas. For example, in Kings County, 4 percent of those living in disinvested areas do not have access to a vehicle, compared with 2 percent in the county's other areas.

FIGURE 1.9

Most Workers in the Valley CERF Region Drive Alone to Work, but More Carpool than in California



Source: Five-year American Community Survey data from 2017–2021.
Notes: "Drive alone" include motorcycles. "Other" includes public transport, walk, bike, and other means. This figure does not include people who work from home.

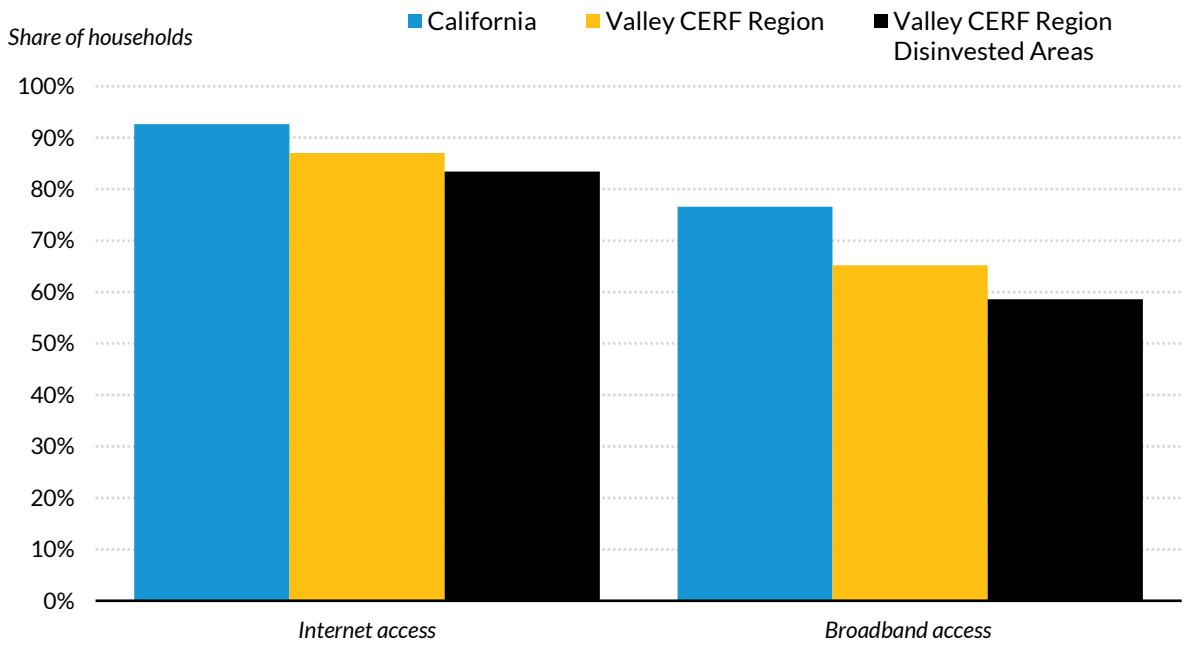
Most people in the region drive to work alone (78 percent), slightly more than in California overall (70 percent, figure 1.9). More people in the Valley CERF region carpool (12 percent) compared with the rest of the state (10 percent). Across the region, rates of carpooling are higher in disinvested areas (14 percent) than in other areas (10 percent) of the Valley CERF region. Other modes of transportation are lower in the region than in California overall, including public transportation (less than 1 percent in the Central San Joaquin Valley and 4 percent in California) and walking or biking (2 percent and 3 percent, respectively).

Residents of the Central San Joaquin Valley Have More Limited Access to the Internet and Broadband than the Rest of California

Some residents in the Valley CERF region may experience barriers to information access because of lower rates of internet access. Although 7 percent of California households do not have internet access, the rate is nearly double (13 percent) in the Valley CERF region and more than double (16 percent) in the region's disinvested areas. Broadband access is also lower in the Central San Joaquin Valley. In California, 77 percent of residents have broadband, compared with 65 percent in the Valley CERF region and 59 percent in the region's disinvested areas (figure 1.10). Within the region, Kings County has the highest rate of households with broadband (72 percent). Broadband figures from ACS data may be overstating access. For example, in Fresno County, the ACS estimates that 33 percent of households do not have broadband, but local studies show that nearly 50 percent of households in the Fresno Unified School District are underserved in terms of internet speed needed to conduct activities (Hayes et al. 2023).

FIGURE 1.10

Most Residents in the Valley CERF Region Have Internet Access, but a Lower Share Has Broadband Access



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Source: Five-year American Community Survey data from 2017–2021.
Notes: Internet access may be via smartphone, tablet, desktop, or other means.

Tribal Areas in the Central San Joaquin Valley Experience Connectivity Challenges, Have Lower Rates of Educational Attainment, and Have Fewer Residents Receiving Public Assistance, Despite Higher Rates of Poverty

There are seven tribal land areas in the region: Table Mountain Rancheria, Big Sandy Rancheria, and Cold Spring Rancheria (within Fresno County bounds); Santa Rosa Rancheria (within Kings County bounds); North Fork Rancheria and Picayune Rancheria (within Madera County bounds); and Tule River Reservation (within Tulare County bounds). The total population of tribal community members in the Central San Joaquin Valley is just under 2,100, with most living on the Tule River Reservation, an off-reservation trust land in Tulare County, or the Santa Rosa Rancheria in Kings County. This figure and those that follow represent the population living on tribal land in the Valley CERF region and do not capture Native American populations living elsewhere in the region. All tribal land is designated as disinvested under the CERF program, which recognizes the needs of California's 109 federally recognized tribes and 55 non–federally recognized tribes in accordance with the Native American Heritage Commission.

People living on tribal land in the Central San Joaquin Valley are much less connected in terms of telecommunications than those living in the region's other disinvested areas. Forty percent of the population living on tribal land do not have internet access compared with 17 percent in other disinvested areas of the Valley CERF region, and only 28 percent have broadband compared with 59 percent in the region's other disinvested areas. In addition, 15 percent of people living on tribal land do not have a phone, compared with 1 percent of people across the region. The proportion of people who do not speak English at home is lower among those living on tribal land (15 percent) compared with those living in other disinvested areas of the region (44 percent).

The tribal population also has lower educational attainment rates than those living in the region's other disinvested areas. For example, 32 percent of the tribal population did not attain a high school degree or equivalent compared with 20 percent in the Central San Joaquin Valley's disinvested tracts. And while 13 percent of the population in the Central San Joaquin Valley's disinvested tracts attained a bachelor's degree or higher, only 4 percent of the population living on tribal land did the same. However, these figures are not directly comparable because data were not available for the tribal population ages 18–24 (only for the population ages 25 and older), whereas the census tract–based figures are for the voting age population.

The share of the population living below the poverty line is slightly higher on tribal land (28 percent) than in other disinvested parts of the Central San Joaquin Valley (24 percent). However, a smaller share

of the population (17 percent) receives public assistance compared with the region's other disinvested areas (27 percent). Most notably, the uninsurance rate is much higher among people living on tribal land (35 percent) compared with those living in other disinvested areas in the Valley CERF region (9 percent), the region overall (7 percent), and the state as a whole (7 percent).

Economy and Economic Development

The Central San Joaquin Valley faces several challenges, including receiving less overall investment than many other regions of the US; a highly seasonal labor force; and gaps between the number of people who are housing cost burdened, the number of current and forecasted jobs available that pay a wage sufficient for people to afford housing, and the accessibility of those jobs. The Central San Joaquin Valley has a high rate of small businesses; this number has grown year after year, even during peak pandemic years. However, disparities by race, ethnicity, and gender in business ownership persist.

The section that follows describes these trends in the region's capital flows, labor force, and business creation. Then, we describe current industries, occupations, and businesses; forecast job growth; and evaluate the cost of living and the extent to which current and forecasted jobs meet the needs of residents.

Trends in Capital Flows, Labor Force, and Business Creation

This section analyzes trends in capital flows, the labor force, and business creation over the last several years. First, we describe the flow of capital investment in neighborhoods, which can indicate the amount of relative investment in various areas and how equitably resources are distributed. Then, we show trends in labor force participation and unemployment, comparing the Central San Joaquin Valley with California as a whole. Finally, we provide an overview of the rate of business growth. Each of these trends is a metric for the overall economy in the Valley CERF region and how it compares with the state of California as a whole. The data used for this analysis are described in box 2.1.

BOX 2.1

Data and Methodology for Trends in Capital Flows, Labor Force, and Businesses

- **Capital flows and disparities across cities, counties, and states:** Researchers at the Urban Institute tracked the amount of investment in single-family properties, multifamily properties, nonresidential real estate, small businesses, and investments from mission-driven organizations and federal funding between 2005 and 2019. Data on capital flows are aggregated from various sources at the census tract level and combined into categories of investments. These data are consolidated into percentile rankings for the 250 largest counties in the US.

  Within the Valley CERF region, data on capital investments are only available for Fresno and Tulare. These counties were ranked and compared on three metrics: volume of investment, distribution by race, and distribution by income demographics. Higher percentiles mean more investment or more equitable investment distributions.

  Single-family flows of investment include purchase loans for owner-occupied single-family properties (one to four units). Multifamily includes purchase loans for properties with five or more units. Nonresidential includes loans for nonresidential real estate (including commercial, industrial, and agriculture properties). Small business includes loans for businesses with revenues of less than $1 million. Mission lending is reported by any kind of community development financial institution (CDFI) transactions and other social mission-based lenders. Federal flows include all federal community development funding.

- **California Labor Market Information Division labor force data:** Labor force and unemployment rate data are prepared by the California Employment Development Department (EDD) through a partnership with the US Bureau of Labor Statistics. The labor force is the total number of individuals who are employed and unemployed. Unemployment is defined as individuals who do not have a job but are available and looking for work. Unemployment and labor force data are produced by three different methodologies depending on geography. Data sources for the estimates include time series models, monthly unemployment insurance claims data, the Current Population Survey (CPS), and the Current Employment Statistics (CES) survey. Estimates are not seasonally adjusted. Data presented in this section on unemployment and labor force were downloaded from the county profiles.[a] The most recent data are from March 2023. Data are monthly, but we present data from 2012–2023 in three-month averages, or quarters (with Q1 starting in January).

- **California Size of Business report:** Data on the number of businesses are also developed by the California EDD using information submitted on tax returns by employers that have unemployment insurance and multiple worksite reports.[b] The most recent year of data is 2022, and we examined the trends from 10 years prior. Data are from the size-of-business data by county (2012–2022).[c] EDD data count all businesses filing taxes in the region, including businesses with as few as zero employees.

[a] Labor market and unemployment data were downloaded for each county from "Local Area Profile," Employment Development Department, State of California, https://labormarketinfo.edd.ca.gov/cgi/databrowsing/localAreaProQSSelection.asp?menuChoice=localAreaPro.

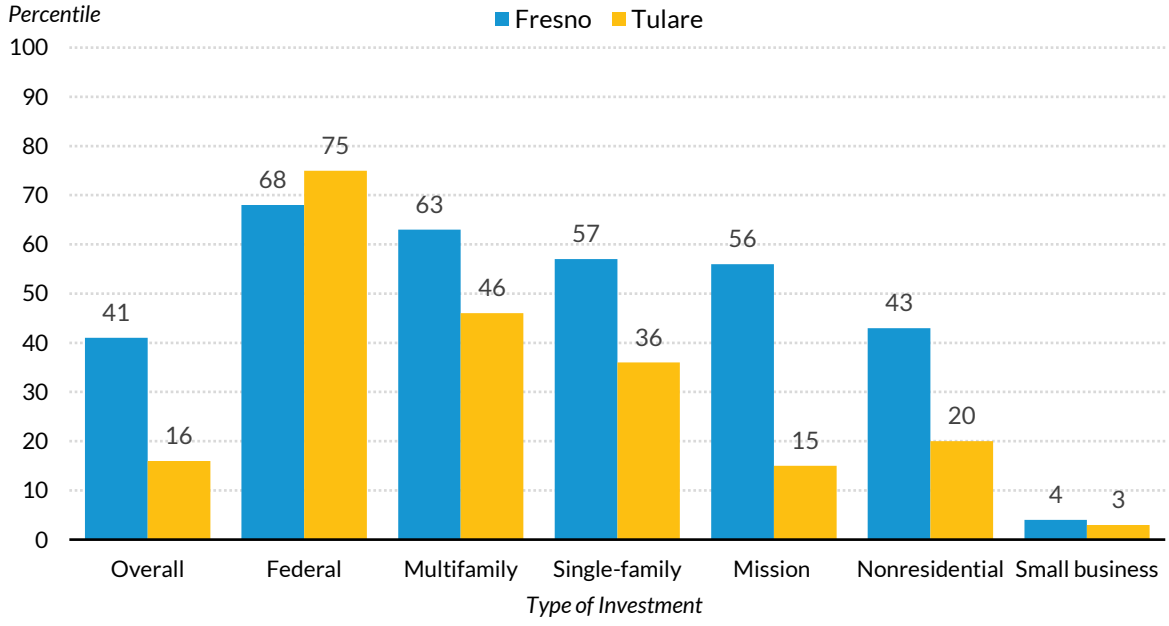
[b] For more about the business data, see "Terms and Source Notes for Size of Business Report," Employment Development Department, State of California, https://labormarketinfo.edd.ca.gov/LMID/Size_of_Business_Report_Terms.html.
[c] Business data are sourced from "Third Quarter Payroll and Number of Businesses by Size Category – Classified by County (Table 3A)," Employment Development Department, State of California, https://labormarketinfo.edd.ca.gov/LMID/Size_of_Business_Data.html.

Overall Investment in the Central San Joaquin Valley's Largest Counties Has Lagged Investment in Other Regions of the Country

Between 2005 and 2019, Fresno and Tulare Counties received a smaller overall volume (total dollars received per household, housing unit, or employee) of capital investments compared with their peer counties in other parts of the US. However, both Fresno and Tulare received more federal funding relative to peer counties. Overall, Tulare receives less capital investment than Fresno, except when it comes to federal investments. Both Tulare and Fresno receive very little investment in small businesses. Fresno receives much more mission-based investment than Tulare (figure 2.1).

FIGURE 2.1

By Percentile, Fresno and Tulare Rank Below Most Large US Counties in Terms of Overall Investment, but Higher than Most When It Comes to Federal Dollars



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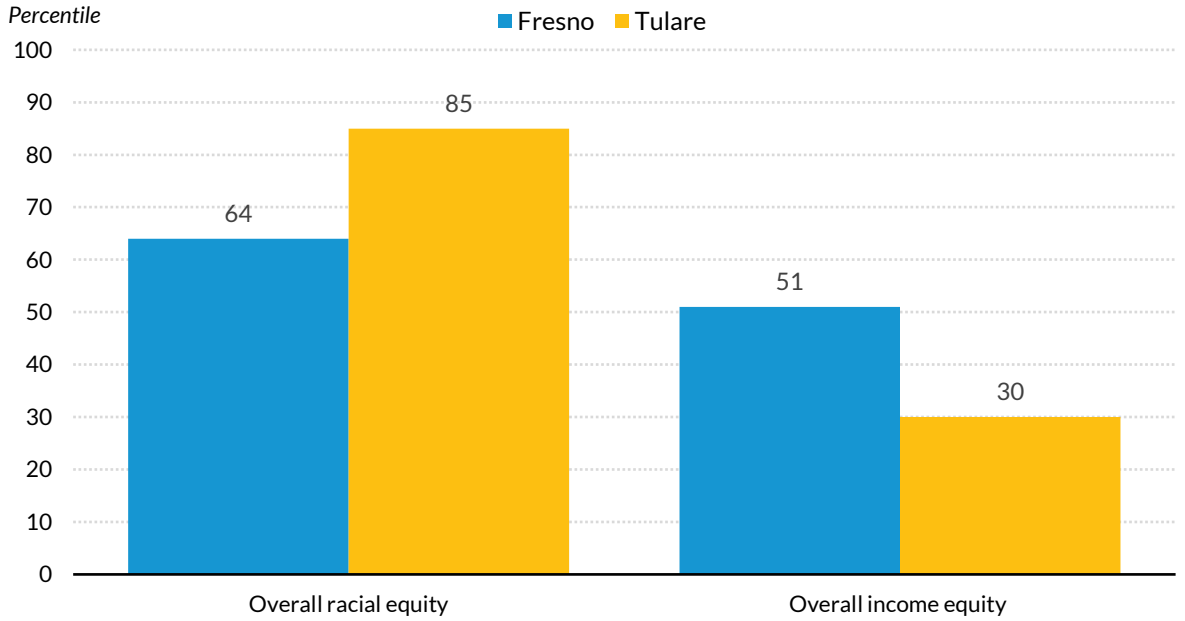
Source: Data on capital flows and disparities for cities, counties, and states from 2005–2019, from the Urban Institute, https://apps.urban.org/features/capital-investment-flows/.
Notes: This chart shows the percentile rank among the 250 largest US counties. For example, Fresno is in the 41st percentile for overall investment, and Tulare is in the 16th percentile of overall investment relative to other counties.

Investments in Tulare County were more equitably distributed across race than in Fresno County overall, while Fresno's investments were more equitably distributed across income (figure 2.2). Tulare ranked highly on racial equity compared with peer counties, particularly for mission-based, nonresidential, and single-family investments. In contrast, Tulare ranked low on income equity of investments for the multifamily, mission-based, and single-family investment categories. Federal investments stood out as an area where Tulare ranked particularly high for income equity. Fresno was around the middle percentile in most categories but had slightly lower racial equity for federal investments than its peer counties.

FIGURE 2.2

Investments in Tulare and Fresno Counties Are More Equitably Distributed by Race but Less Equitably by Income



URBAN INSTITUTE

Source: Data on capital flows and disparities for cities, counties, and states from 2005–2019, from the Urban Institute, https://apps.urban.org/features/capital-investment-flows/.
Notes: Shows percentile rank among the 250 largest US counties.

The Size of the Labor Force Fluctuates with the Seasons, Dipping Below Normal Levels during the Pandemic but Rebounding in Most Cases

Most of the labor force in the Central San Joaquin Valley is concentrated in Fresno County (58 percent) and Tulare County (26 percent); combined, Kings and Madera Counties account for the remainder (15 percent) of the region's workforce. The share of population in the labor force in California is 64 percent,

which is higher than for the Valley CERF region (60 percent). There is little variation between disinvested (59.8 percent) and non-disinvested areas (60.3 percent).

Generally, the share of the population participating in the region's labor force has either returned to or surpassed prepandemic levels, whereas California's labor force is still short of its 10-year peak, which occurred in the first quarter of 2020. Fresno, Tulare, and Madera Counties had the highest labor force participation numbers in the first quarter of 2023 than at any point in the past 10 years. As of Q1 in 2023, labor force participation in the Valley CERF region was at its height (800,100) within the last 10 years; the prior peak in the Valley CERF region (791,800) occurred in the first quarter of 2020. Kings County's labor force participation declined somewhat over the last 10 years; total labor force participation has increased since a 10-year low in Q1 of 2021, though not quite to its previous peaks in 2012 or Q1 of 2020.

Over the last 10 years, labor force participation in the Central San Joaquin Valley typically peaked in Q2 and Q3; 2020 was an exception due to the onset of the pandemic. The region's labor force has much more seasonality—peaking each summer—compared with California's labor force as a whole.

The lowest point for California's labor force participation in the last 10 years was in Q2 of 2020, which is likely a direct result of the pandemic. Comparatively, the labor force participation in the Valley CERF region was at its lowest point in the fourth quarter of 2020 and the first quarter of 2021, likely a combination of the pandemic-related economic downturn and the regular trends of seasonal unemployment in the region. The low point of people in the labor force in the Valley CERF region during the pandemic (749,400) was in Q4 of 2020; comparatively, the lowest in the 10-year period (741,700) was in Q4 of 2013.

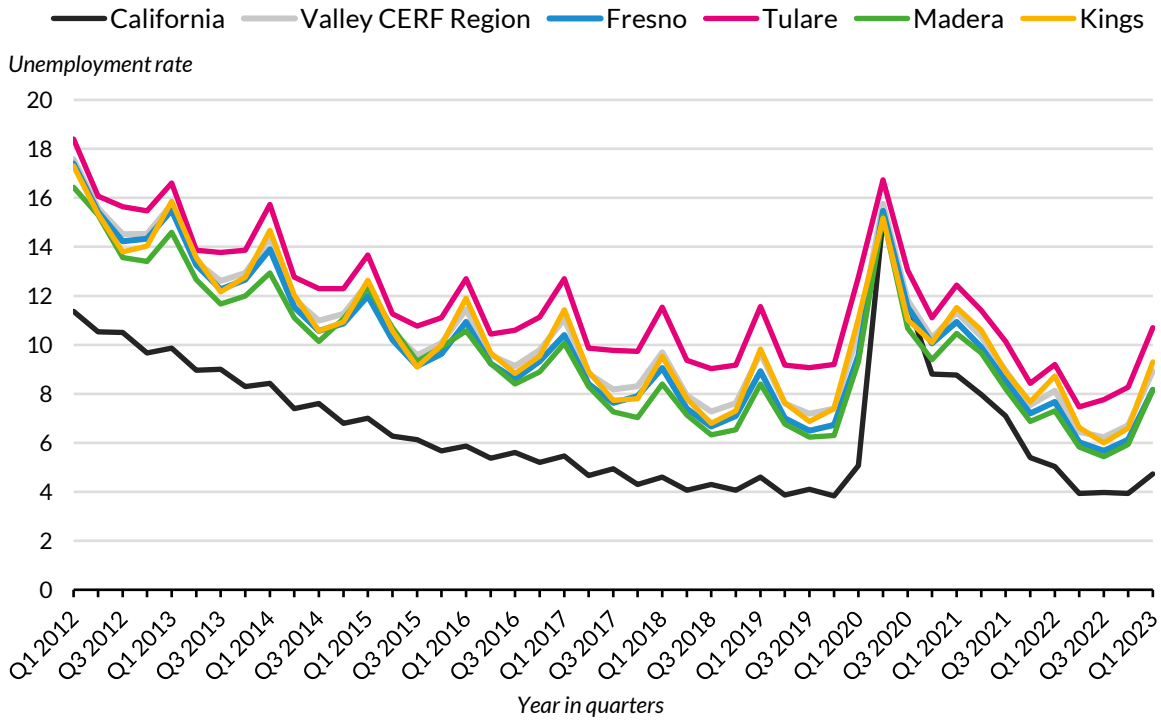
Unemployment Rates Have Remained Consistently Higher in the Central San Joaquin Valley than in California Over the Past 10 Years

In each of the four counties in the Valley CERF region, unemployment rates are consistently higher than in California overall and show stronger fluctuation from quarter to quarter, which is likely a result of seasonal unemployment. Over the last 10 years, the average unemployment rate in California was 6.7 percent, compared with 10.5 percent in the Valley CERF region. Within the Central San Joaquin Valley, Tulare County consistently has the highest rates of unemployment (an average of 11.7 percent over the last 10 years), and Madera consistently has the lowest (an average of 9.7 percent over the last 10 years). As referenced in the Profile of Disinvested Communities section above, unemployment rates throughout the Valley CERF region are higher in disinvested areas.

Before the pandemic, between 2012 and the beginning of 2020, unemployment had been steadily decreasing in California and in each of the four counties in the Valley CERF region (figure 2.3). Unemployment spiked in California and in each of the four counties during the second quarter of 2020, coinciding with the timing of pandemic-related lockdowns. Lockdowns resulted in significant economic strain throughout the US and had disproportionately negative impacts on people with low incomes and people of color. As noted previously, the Central San Joaquin Valley has high populations of both groups. The pandemic-related spike in unemployment narrowed the unemployment gap between the Valley CERF region and the rest of California; however, the gap has since returned, albeit smaller now than before the pandemic.

FIGURE 2.3

Unemployment Rates Are Consistently Higher in the Central San Joaquin Valley than in California and Spiked During the Pandemic



URBAN INSTITUTE

Source: California Employment Development Department, county profile, https://labormarketinfo.edd.ca.gov/geography/lmi-by-geography.html.

Note: Rates are not seasonally adjusted; monthly data are averaged for each quarter.

The Number of Business Establishments Has Risen Consistently Year Over Year, Despite the Pandemic

Between 2012 and 2020, the total number of business establishments in the Central San Joaquin Valley increased every year, as did the number of business establishments in California. In 2012, the Valley CERF region had about 43,900 businesses; by 2022, the total number of businesses in the Valley CERF had grown to about 63,900. Over the same time frame, the total number of businesses in Fresno County grew from 28,400 to 41,000; from 3,200 to 4,800 in Kings County; 3,600 to 5,000 in Madera County; and 8,700 to 13,000 in Tulare County. In most cases, one establishment represents one business entity; multiestablishment businesses (businesses with multiple physical locations) are counted toward the primary or largest establishment.

The rate of growth in the total number of business establishments was larger in some years than others. In California, the rate of increase slowed between 2016 and 2020 but has increased since 2020. In the Central San Joaquin Valley, the rate of growth was relatively consistent from 2015 to 2019, slowed during the pandemic between 2019 and 2021, and picked back up again from 2021 to 2022.

Current Industries, Occupations, and Businesses in the Central San Joaquin Valley

This section describes the region's dominant industries, occupations, and businesses; the most common and least common industries in disinvested areas; where businesses are located; and the demographics of business owners.

BOX 2.2

Data and Methodology for Industries, Occupations, and Businesses

- **Current Employment Statistics:** These data on employment by industry are from the California Employment Development Department's industry employment official estimates, which are based on the Current Employment Statistics (CES) survey. The CES collects information on employment, hours, and earnings from employers. Data presented are monthly data on employment by industry, averaged across all available months in 2022 for all the counties in the Valley CERF region, as well as for the state as a whole.[a]
- **Occupational Employment Survey:** Data on employment by detailed occupational categories and wages are from the Occupational Employment and Wage Statistics (OEWS). The OEWS

provides estimates for the four metropolitan statistical areas (MSAs) in the Valley CERF region, which are equivalent to each of the four counties.[b]

- **US Census Bureau's Business Dynamics Statistics:** Business Dynamics Statistics (BDS) are used to describe business entry and exit rates. The BDS provides public output from a confidential dataset.[c] These data track establishment openings and closings. The most recent BDS data are from 2020 and are only available at the MSA level. Entry rates are the number of new establishments divided by the average number of establishments in the current and previous year. Exit rates are calculated the same way, using the number of establishments closing.[d] Businesses in this dataset have at least one employee.
- **US Census Bureau's Annual Business Survey:** The Annual Business Survey provides demographic information on businesses and business owners.[e] 2020 is the most recent year for these data, which are only available at the MSA level. The data are available for the Fresno MSA, Madera MSA, Visalia MSA (Tulare), and Hanford-Corcoran MSA (Kings), but because of the overlap between the MSA and county geographies, the data are referenced by county in this report. Business demographic data include information for all businesses, including firms with no employees.
- **America's Labor Market Information System (ALMIS) Employer Database**: These data, made available through the California Economic Development Department document the largest employers in each of the counties of the region. We use data from the 2023 2nd edition.

For the Business Dynamics Statistics and the Annual Business Survey, there are several data gaps because of the relatively small numbers of businesses in each county; the numbers get smaller when grouping by business size or demographic characteristics of business owners. Data are shared for the MSAs where enough data are available.

For the purposes of this report, the term "industry" reflects the type of entity where economic activity takes place (i.e., government) as well as the type of good, service, or activity in which private businesses engage (i.e., agriculture or manufacturing), The term "occupation" refers to the type of role a worker is in (i.e., sales or labor). People working in the same occupation can work in very different industries. For example, service jobs can fall under both the health care industry and food service industry. The term "jobs" refers to the number of paid positions.

[a] For more about the industry employment data, see "Methodology for Generating Industry Employment Data," Employment Development Department, State of California, https://labormarketinfo.edd.ca.gov/LMID/Methodology_for_Industry_Employment.html.

[b] "Occupational Employment and Wage Statistics," US Bureau of Labor Statistics, https://www.bls.gov/oes/.

[c] The Business Dynamics Statistics is output from the restricted-use Longitudinal Business Database housed in the Federal Statistical Research Data Center.

[d] Business entry and exit rate calculations are explained in more detail at https://www.census.gov/programs-surveys/abs/about/faq.html.

[e] "About the Annual Business Survey (ABS)," US Census Bureau, updated June 5, 2024, https://www.census.gov/programs-surveys/abs/about.html.

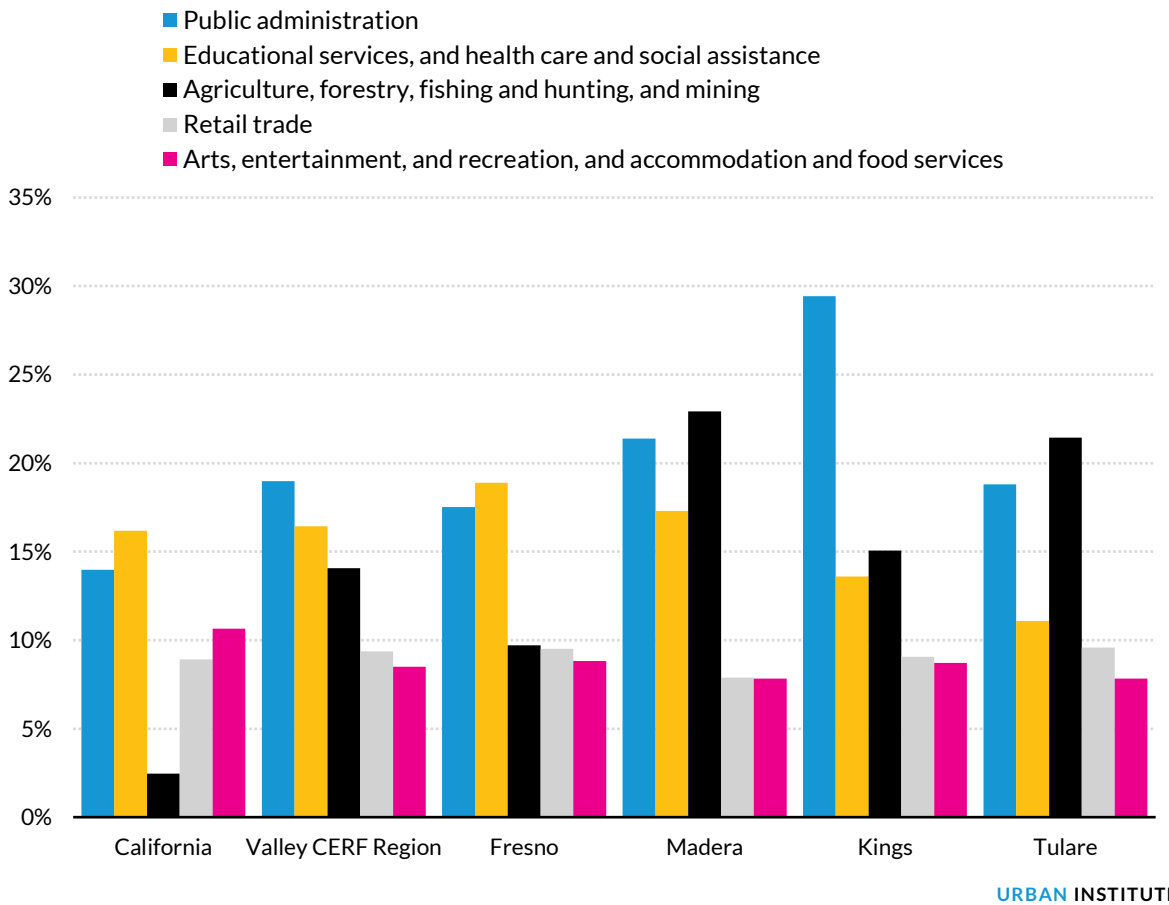
Government, Social Sectors, and Agriculture Are the Most Prominent Industries in the Central San Joaquin Valley

Together, jobs with government entities (public administration) and jobs in education, health care, and social assistance account for more than a third (35 percent) of the jobs in the Valley CERF region (figure 2.4). Government jobs play a more prominent role in the region (19 percent) than in California as a whole (14 percent), as does agriculture (14 percent in the region compared with 2 percent across the state). In Madera and Tulare Counties, more than one in five jobs (23 percent in Madera and 21 percent in Tulare) are in the agriculture industry.

FIGURE 2.4

Public Administration Is the Largest Industry in the Central San Joaquin Valley, Particularly in Kings County

Percentage of jobs in the largest five industries



URBAN INSTITUTE

Source: Analysis of 2022 Current Employment Statistics, downloaded through the California Economic Development Department, calculating average monthly employment over the year.

Considering the substantial role of government jobs in the region and the large proportion of disinvested areas in the region, workers living in disinvested tracts are acutely underrepresented in the public administration industry. Workers in disinvested areas hold roughly 5 percent of jobs in the public sector (data not shown), despite these jobs representing 19 percent of local opportunities. Workers in disinvested areas tend to be overrepresented in most private industries. This trend holds across all four counties.

Manufacturing is the seventh-largest industry and accounts for about 7 percent of jobs in the Valley CERF region. The manufacturing industry plays the most pronounced role in Kings County, where it is the fourth-largest industry and accounts for about 10 percent of all jobs. Data on jobs specifically in food manufacturing are limited to the region's two largest counties: Fresno and Tulare. Food manufacturing accounts for a critical share of employment within this industry, representing 48 percent of manufacturing jobs in Fresno County and 53 percent in Tulare County. However, overall, food manufacturing jobs only make up about 3 percent and 4 percent of the economy, respectively, in each of these counties.

It is difficult to isolate the size of the oil and gas extraction industry in the region because of the limited data available. The closest estimate is from the mining and logging industry category, which is only available in the Current Employment Survey for Fresno County; these data show 227 jobs, which represents less than 1 percent of all jobs in the county.

Jobs in Management and Service Occupations (Prominent in Government and in Social Sectors) Make Up the Largest Group of Occupations in the Region

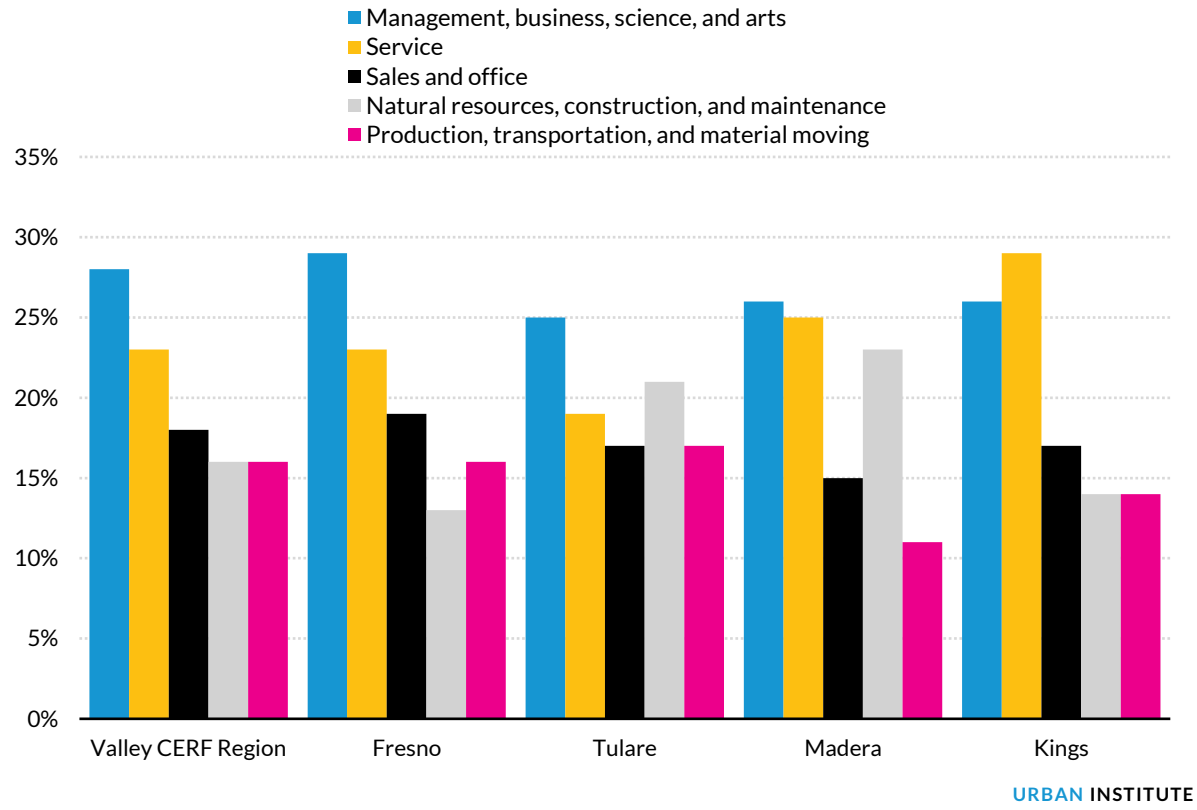
Looking at the number and share of jobs in different industries tells us about where people in the Central San Joaquin Valley work, but it is also important to look at what types of roles they have. Examining jobs by occupation helps create an understanding of the kind of work people do, as well as what they are likely to earn.

Management, business, science, and arts occupations make up the largest share of jobs in the Valley CERF region, and this is also true in Fresno, Madera, and Tulare (figure 2.5). In Kings County, service jobs make up the largest share. Jobs in natural resources, construction, and maintenance are more prominent in some counties than others, likely because of the prevalence of these occupations in the agriculture industry. In the Central San Joaquin Valley, these jobs account for about 16 percent of all jobs, compared with 23 percent in Madera County and 21 percent in Tulare County.

FIGURE 2.5

Jobs in Management, Business, Science, and Arts Occupations Are Most Common in All but Kings County

Percentage of current jobs in each major occupational category



Source: Analysis of 2022 Occupational Employment Survey data.
Note: Occupational groupings correspond to preexisting categories in the American Community Survey.

Generally, workers living in disinvested areas in the Central San Joaquin Valley are underrepresented in the management, business, science, and arts occupations and overrepresented in jobs in natural resources, construction, and maintenance (data not shown).

Most Businesses in the Central San Joaquin Valley Are Small, Concentrated in Fresno and Tulare Counties, and Disproportionately Owned by White Residents

Most business establishments are concentrated in Fresno (64 percent) and Tulare (21 percent) Counties. Combined, Kings and Madera Counties are home to the remaining 15 percent of the region's business establishments. This distribution is consistent with trends in overall employment in these areas. Approximately 90 percent of businesses in both the Valley CERF region and California are small

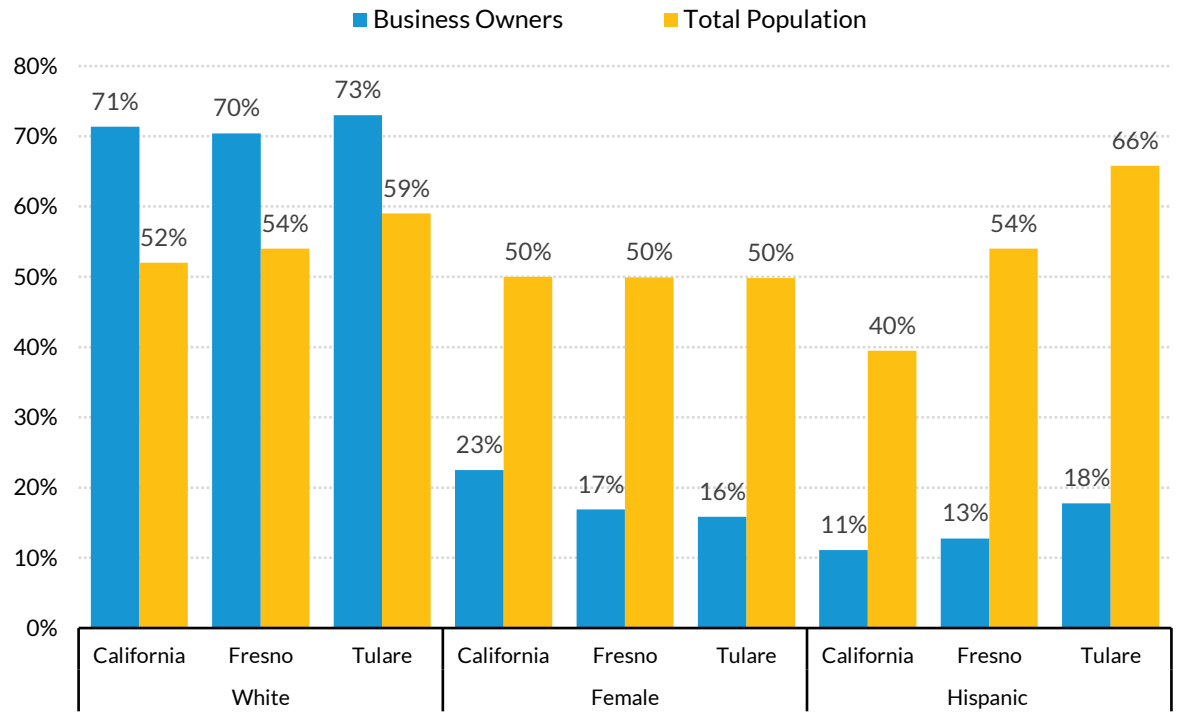
businesses (0–19 employees); less than 1 percent of businesses in California and the Valley CERF region have 500 or more employees.[4]

The entry and exit rates of business establishments in the Central San Joaquin Valley are consistently lower than those of the state, meaning that relatively fewer businesses open and close every year. These trends have remained consistent over time, and overall, there are higher levels of entries than exits. Entry and exit rates are highest for establishments with 1 to 19 employees, meaning that there are higher rates of small-business establishments opening and closing compared with medium or large business establishments.[5] Businesses without employees were not included.

Comparing business owner demographics with the overall population in California and in the Central San Joaquin Valley, white business owners are significantly overrepresented given their share of the total population (figure 2.6). In Fresno and Tulare Counties, Latinx and female business owners are significantly underrepresented.[6] There are also disparities in business ownership among Black and Asian people, with Black people underrepresented in business ownership and Asian people having higher rates of business ownership.[7] Rates of Latinx business ownership are slightly higher in Fresno and Tulare Counties than in California overall, although disparities between the total Latinx population and the percentage of Latinx business owners are larger; female business ownership is lower.[8]

FIGURE 2.6

Women and Latinx Residents Are Underrepresented among Business Owners in the Valley CERF Region and in California



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Sources: Business data are from the US Census 2020 Annual Business Survey. Comparison to total population is from five-year American Community Survey data from 2017–2021.
Notes: Business data only reflect the Fresno and Visalia metropolitan statistical areas, which were the only regions in the study area for which sufficient data were available to report on all categories of white, Hispanic, and female business owners. Demographics here include everyone identified as white (Hispanic and non-Hispanic), though gaps are still evident looking at the Hispanic category.

Most Large Employers in the Region Are in Fresno County and Are Concentrated in Public Administration, Education, Health Care, and Social Assistance Industries

A total of 29 employers in the region have more than 1,000 employees: 26 of those employers have between 1,000 and 4,999 employees, and the remaining 3 have between 5,000 and 9,999 employees (table 2.1). These large employers are concentrated in Fresno County: 20 are located in Fresno, 6 in Kings, 2 in Tulare, and 1 in Madera.

These large employers are also concentrated in the same industries that drive employment in the region. Nine of the biggest employers are in education, health care, and social assistance, and another

eight are in public administration. All three employers with more than 5,000 employees are also in those sectors: the Community Regional Medical Center in Fresno, State Center Community College in Fresno, and Naval Air Station Lemoore.

Five of the largest employers have some role in the food economy, including two in agriculture (Foster Farms and Pitman Family Farms), two in food manufacturing (Lion Dehydrators and Del Monte Foods), and one in retail (Stamoules Produce Company) (table 2.1).

TABLE 2.1

The Top 29 Employers in the Valley CERF Region Are Concentrated in Public Administration, Education, Health Care, and Social Assistance Industries

Number of employees	Employer (NAICS)	County	Industry
1,000–4,999	Air National Guard (813410)	Fresno	Other Services
	California State Univ Fresno (611310)	Fresno	Educational Services Sector
	Foster Farms (112340)	Fresno	Agriculture, Forestry, Fishing & Hunting
	Fresno County Sheriff's Office (922120)	Fresno	Public Administration and Government
	Fresno Police Dept (922120)	Fresno	Public Administration and Government
	Fresno Police Dept-Central (922120)	Fresno	Public Administration and Government
	Fresno VA Hospital Medical Ctr (622310)	Fresno	Health Care and Social Assistance
	Kaiser Permanente Fresno Med (622110)	Fresno	Health Care and Social Assistance
	Lion Dehydrators (311423)	Fresno	Manufacturing Sector
	Phebe Conley Art Gallery (459920)	Fresno	Retail Trade
	Pitman Family Farms (111998)	Fresno	Agriculture, Forestry, Fishing & Hunting
	Pleasant Valley State Prison (921120)	Fresno	Public Administration and Government
	St Agnes Medical Ctr (Medical Centers) (622110)	Fresno	Health Care and Social Assistance
	St Agnes Medical Ctr (Hospitals) (622110)	Fresno	Health Care and Social Assistance
	Stamoules Produce Co (445230)	Fresno	Retail Trade
	Taylor Communications (323111)	Fresno	Manufacturing Sector
	Teaching Fellows (561311)	Fresno	Administrative and Support Services
	Via West Insurance (524210)	Fresno	Finance and Insurance
	California State Prison (Govt Offices-State) (921120)	Kings	Public Administration and Government
	California State Prison (922140)	Kings	Public Administration and Government
	Del Monte Foods Inc (311999)	Kings	Manufacturing Sector
	Hanford Community Medical Ctr (621999)	Kings	Health Care and Social Assistance
	Kings County Admin (921120)	Kings	Public Administration and Government
	Valley State Prison for Women (921120)	Madera	Public Administration and Government
	Tulare County Office of Edu Sicon (611110)	Tulare	Educational Services Sector
	Walmart Distribution Ctr (423990)	Tulare	Wholesale Trade
5,000–9,999	Community Regional Medical Ctr (622110)	Fresno	Health Care and Social Assistance
	State Center Community College (611210)	Fresno	Educational Services Sector
	Naval Air Station Lemoore (928110)	Kings	Public Administration and Government

Source: This list of major employers was extracted from the America's Labor Market Information System (ALMIS) Employer Database, 2023 2nd edition.
Note: The North American Industry Classification System (**NAICS**) is used by Federal statistical agencies to classify business establishments.

Cost of Living and Current Local Jobs

In this section, we describe the minimum wage currently needed to live in the Central San Joaquin Valley, how well local jobs currently meet this threshold, which occupations have the greatest concentration of jobs, and how much education is typically required to access them. Data used for this analysis are described in box 2.3.

BOX 2.3

Data and Methodology for Cost-of-Living Analysis

Wage benchmarks discussed in this chapter come from two different sources.

- **Two-bedroom housing wage:** The National Low Income Housing Coalition looks at the cost of renting homes of different sizes across the country and publishes estimates of how much a person working full time would have to earn per hour to spend no more than 30 percent of their income on rent. As previously noted, the 30 percent benchmark is a common metric for assessing housing affordability. Because the average household in the Central San Joaquin Valley has three to four people, we focus on the two-bedroom housing wage.
- **Living wage:** The Massachusetts Institute of Technology (MIT) publishes a much more nuanced set of wage benchmarks for local counties, which take into account estimates of eight typical expenses—food, child care, health care, housing, transportation, civic engagement, broadband, and other necessities—as well as the cost of income and payroll taxes. There are different estimates depending on household size and composition (for instance, number of children and number of working adults).

Average wages for detailed occupations from the 2022 Occupational Employment Survey described in the previous section are compared with the two-bedroom housing wages for the four counties and the Central San Joaquin Valley as a whole, followed by a summary of the share of jobs that meets this threshold (overall and in each major occupational category).

We examined the typical education required for these two-bedroom housing wage jobs by bringing in data from the Employment Projections program at the Bureau of Labor Statistics. This helps us understand how accessible these jobs are to workers living in disinvested tracts in the Valley CERF region. Experts disagree about how to define what it means to have a "good job," which is a concept that can include a wide array of different elements, such as wages, benefits, working conditions, professional development, and advancement. However, the most common way to evaluate job quality is looking narrowly at wages and benchmarking them to local costs of living.

The Two-Bedroom Housing Wage in the Region Is at Least $21 an Hour, but People May Need to Earn More if They Are Sole Income Providers and Have Children

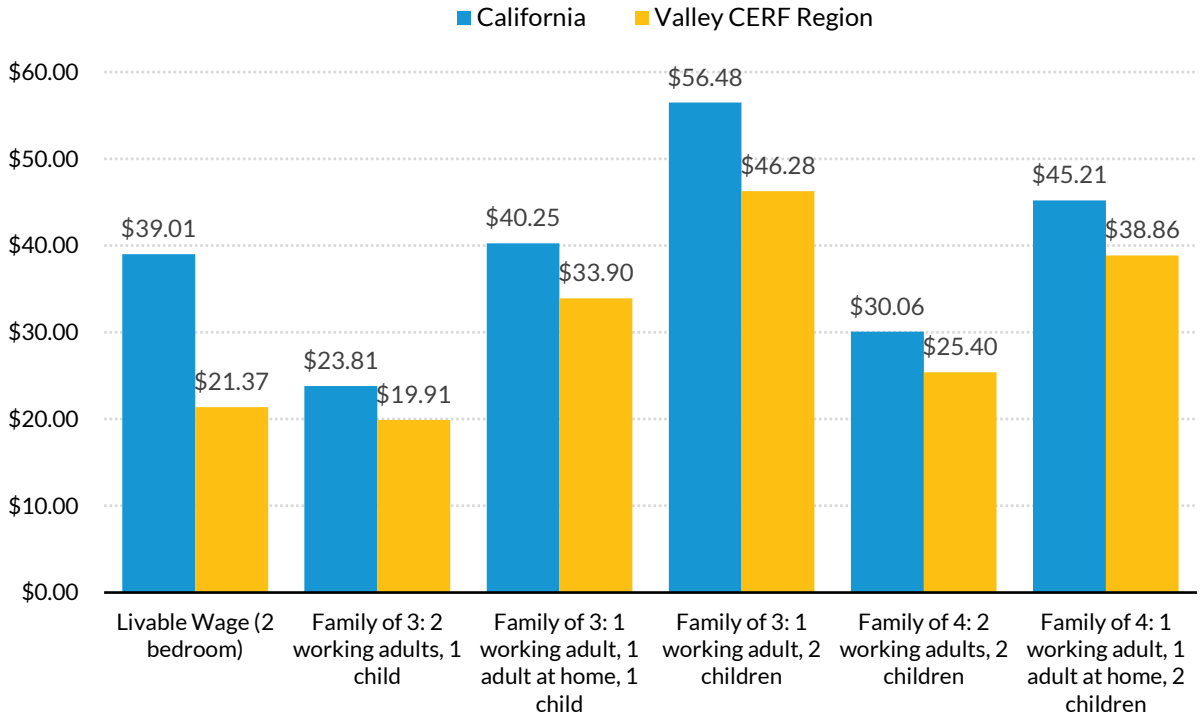
Because housing is relatively more affordable in the Central San Joaquin Valley than in the state as a whole, the two-bedroom housing wage for the region is significantly lower than the California average (figure 2.7). Working people in the region need to earn at least $21 an hour, compared with at least $39 in the state, though there is slight variation across counties. Within the region, Madera County has the highest housing wage at about $23 an hour and Tulare County the lowest at around $19.

As noted in the previous section on disinvested communities in the Central San Joaquin Valley, lower housing costs do not necessarily translate to greater stability and well-being for people living in disinvested areas in the Valley CERF region because of their lower incomes. Roughly half of all renter households in these areas (51 percent) are rent burdened, meaning they spend more than 30 percent of their household incomes on rent. This is on par with the average for the state of California (52 percent) with its much higher housing costs. In the Valley CERF region, renters in Fresno County are most likely to be rent burdened (53 percent), while a slightly lower share of renters experience this challenge in Kings and Madera Counties (46 and 47 percent, respectively).

FIGURE 2.7

At Minimum, Workers in the Central San Joaquin Valley Need to Make $21 an Hour to Afford a Two-Bedroom Home but May Need Much More to Thrive

Dollar thresholds for the average housing wage and living wages in the Central San Joaquin Valley



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Source: Weighted averages across the four counties of 2022 National Low Income Housing Coalition two-bedroom housing wages; 2023 living wage calculations published by MIT.

Moreover, it may take a much higher wage than the two-bedroom housing wage for an individual or family unit to be financially stable in the region. As described in box 2.3, living wage estimates that take into account eight typical expenses—food, child care, health care, housing, transportation, civic engagement, broadband, and other necessities, as well as the cost of income and payroll taxes—can be much higher depending on family size and the number adults working in the household. For example, while the living wage for a family of three with two working adults and one child is comparable to the two-bedroom housing wage of $21.37, the living wage for a family of three with only one working adult and two children is more than double at $46.28.

Jobs that Pay at Least the Two-Bedroom Housing Wage Make Up Less than Half of the Jobs in the Central San Joaquin Valley

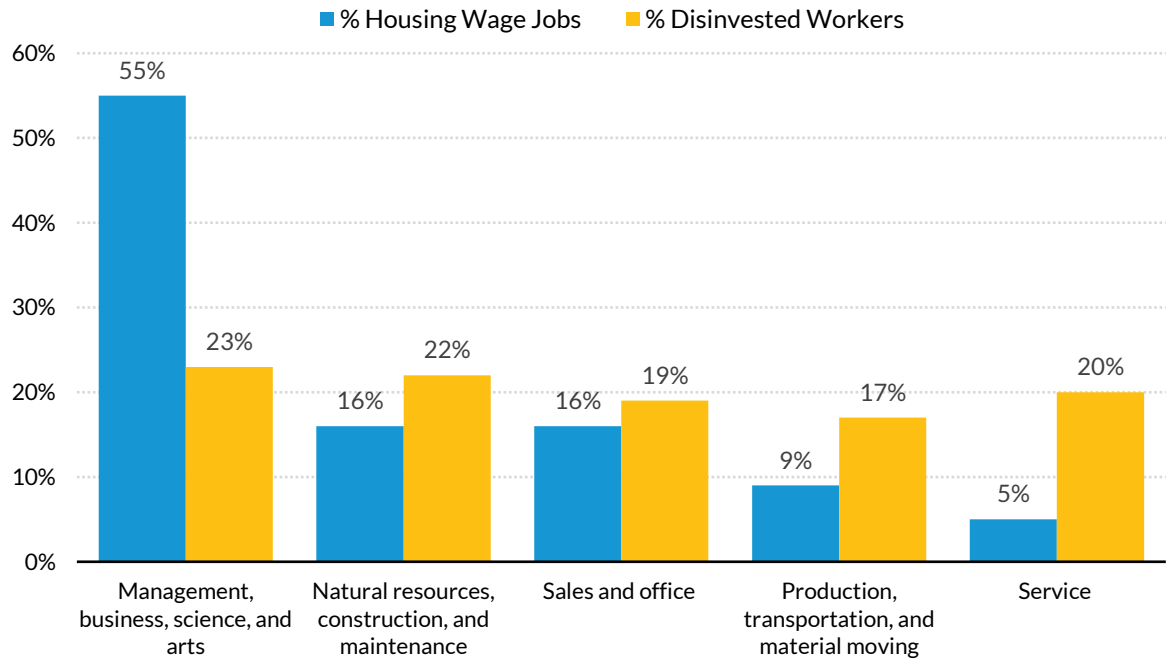
About 43 percent of jobs in the Central San Joaquin Valley have wages that meet or exceed the two-bedroom housing wage, with variation across counties. Forty-four percent of jobs in Fresno and Tulare Counties have wages that meet or exceed the two-bedroom housing wage; 42 percent of jobs in Kings County and 30 percent in Madera County meet or exceed this threshold.

Housing-wage jobs are not evenly distributed across all occupations; more than half are concentrated in management, business, science, and arts occupations (figure 2.8). As previously discussed, workers living in disinvested communities are underrepresented in these occupations; instead, workers living in disinvested communities are employed in a much wider set of occupations, many of which have very low concentrations of housing-wage jobs. These patterns hold across all four counties.

FIGURE 2.8

Workers Living in Disinvested Areas in the Central San Joaquin Valley Work in Occupations that Have Relatively Low Concentrations of Jobs that Meet or Exceed the Two-Bedroom Housing Wage

Percentages of two-bedroom housing wage jobs and disinvested workers by occupational category



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Source: Analysis of 2022 Occupational Employment Survey data, pooled across the four counties, along with analysis of the 2017–2021 American Community Survey estimates for occupations in disinvested tracts.

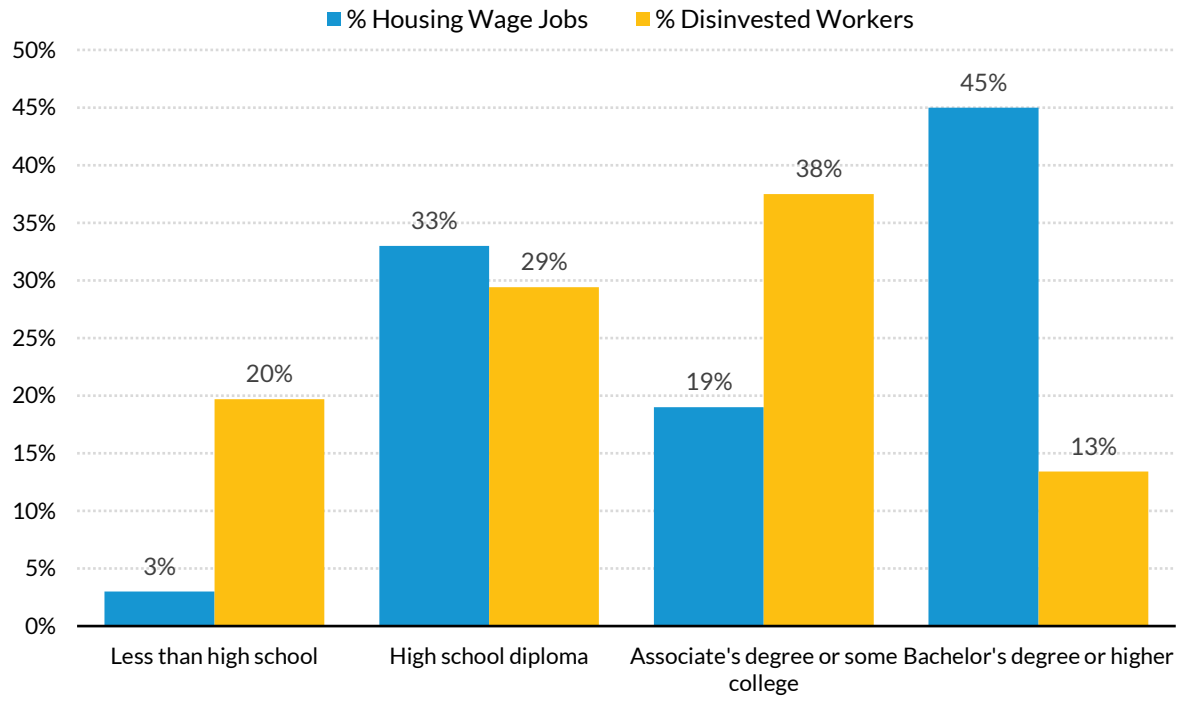
Note: Median wages were benchmarked using a weighted average of the two-bedroom housing wage for the study area.

There is also a clear divide between the level of education currently required for housing-wage jobs and the educational attainment of adults living in disinvested areas. Nearly half of two-bedroom housing wage jobs require at least a bachelor's degree but, as noted in the profile of disinvested communities section of this report, most workers living in disinvested communities have an associate degree or less (figure 2.9). This trend holds across all four counties.

FIGURE 2.9

Nearly Half of Housing-Wage Jobs in the Valley CERF Region Require at Least a Four-Year Degree, but Most People Living in Disinvested Neighborhoods Have Less Education

Percentages of housing wage jobs and disinvested workers by level of education



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Source: Analysis of 2022 Occupational Employment Survey data, pooled across the four counties.
Notes: Median wages were benchmarked with a weighted average of the two-bedroom housing wage for the study area. These data were joined with education required at entry from the Employment Projections program at the Bureau of Labor Statistics. Data on educational attainment of disinvested workers come from 2017–2022 American Community Survey five-year estimates.

Forward-Looking Labor Market Analysis

This section explores how industries, jobs, and occupations in the Central San Joaquin Valley are currently expected to evolve and change in the coming years, assuming no intervention.

BOX 2.4

Data and Methodology for Forward-Looking Labor Market Analysis

This section relies on two principal data sources, both available through the California Economic Development Department (EDD).

- **Long-term occupational employment projections:** The latest data available are projections for each of the four counties in the Valley CERF region from 2020–2030 and include the employment in the reference year and the projected year, as well as the difference between the two for detailed occupations, education typically required at entry, and wages that are used to analyze how well future jobs meet the current two-bedroom housing wage.
- **Long-term industry employment projections:** Data on projected employment are also available for the 2020–2030 window for each of the four counties by industry.

The starting point for these data comes from the Bureau of Labor Statistics Employment Projections program, which generates estimates of 10-year windows for the US and individual states. These estimates account for long-term structural trends of the economy resulting from factors such as changes in consumer preferences that affect demand for goods and services or new technology that affects production practices. The EDD adjusts these data using local knowledge and generates county-level projections to guide regional and local planning processes, such as the CERF. EDD does not explicitly state whether it accounts for anticipated federal investments in these estimates, such as those expected from the Infrastructure Investment and Jobs Act and the Inflation Reduction Act. These federal investments will have an impact on local and regional economies, with the Valley CERF region being no exception. Possible impacts are explored in the implications section of this report.

See the prior section for definitions of "industry," "occupation," and "jobs." The term "new jobs" refers to the net positive difference between forecasted employment in 2030 and actual employment in 2020 within a given industry or occupation.

The Largest Share of Currently Forecasted New Jobs in the Central San Joaquin Valley Will Be in Educational, Health Care, and Social Services

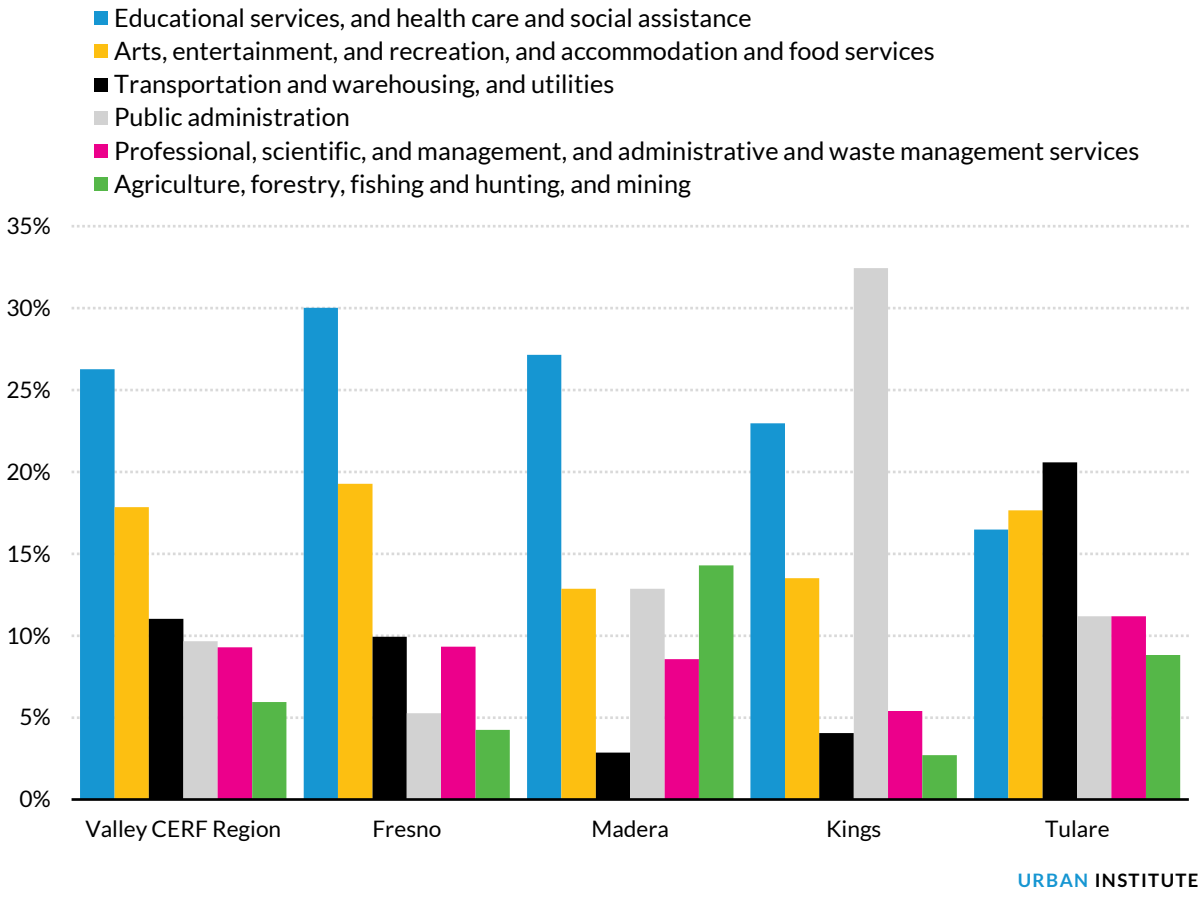
As currently forecasted, the Central San Joaquin Valley can expect the most job growth in the educational, health care, and social services industry in coming years. Overall, we expect that 80,000 new jobs will be created in the Central San Joaquin Valley between 2020 and 2030 (figure 2.10). Nearly two-thirds (61 percent) of those jobs will be in Fresno County, about a fifth (21 percent) in Tulare County, and about 9 percent in Madera and Kings Counties, respectively. This mirrors larger trends in the economy: the educational, health care, and social services industries are expected to add more jobs than any other industries nationwide.[9] However, in Kings County, government jobs (public

administration) are forecasted to make up a larger share (32 percent) of new jobs than those in education, health care, and social services (23 percent). In Tulare County, transportation and warehousing are currently expected to be the largest growth sector (20 percent).

FIGURE 2.10

Most of the Currently Forecasted Job Growth in the Central San Joaquin Valley Is in Educational Services, Health Care, and Social Assistance, with Important Differences across Counties

Percentage of forecasted new jobs by industry



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Source: California Economic Development Department local calculations of long-term occupational employment projections, 2020–2030.

Manufacturing jobs are expected to account for 2 percent of forecasted new jobs in the Valley CERF region, although this number is expected to be higher in Kings County. In Kings County, manufacturing jobs are expected to account for about 8 percent of new jobs, making it the fourth-most important industry for growth in that county, which reflects the more prominent role manufacturing currently plays in Kings County than in other counties in the region. As previously noted, data on food manufacturing jobs are limited to only the largest two counties: Fresno and Tulare. In Fresno County,

about 300 new jobs are expected in food manufacturing between 2020 and 2030, amounting to about 38 percent of new manufacturing jobs and 1 percent of new jobs overall in the county. In contrast, there are no new jobs expected in this specific part of the manufacturing industry in Tulare County.

Data on projected new jobs in the oil and gas industry are best captured as part of mining and logging (a subcategory under the larger industry umbrella of agriculture, forestry, hunting, and mining), and are similarly only available for Fresno and Tulare Counties. No new mining jobs are expected in Fresno County from 2020 to 2030, but an estimated 600 new jobs in this sector are expected in Tulare County, which represents job growth of about 4 percent in that county.

Despite these projections, and assuming no intervention, the current top five industries in the Central San Joaquin Valley will continue to be the top five in 2030: public administration (19 percent); followed by education, health care, and social services (17 percent); agriculture (14 percent); retail trade (9 percent); and arts, entertainment, and recreation and accommodation and food services (8 percent).[10]

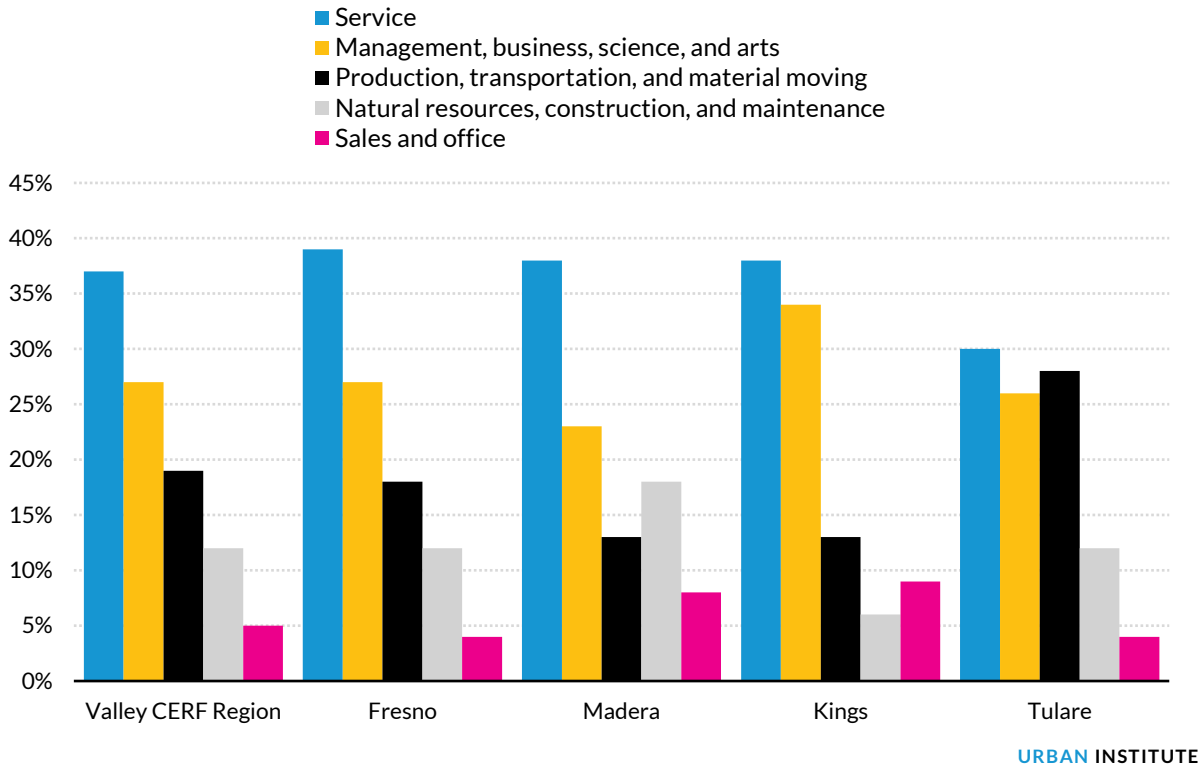
Service Occupations Account for the Largest Shares of Expected Job Growth

More than a third (37 percent) of new jobs forecasted to emerge between 2020 and 2030 are expected to fall under the category of service occupations, which include many health care support occupations (figure 2.11). Forecasted growth in production, transportation, and material-moving occupations are relatively more prominent (28 percent) in Tulare County than in the Central San Joaquin Valley as a whole (19 percent), while forecasted jobs in natural resources, construction, and maintenance play a much bigger role in Madera County's job growth (18 percent) than for the region (12 percent). Only about 5 percent of all new jobs in the region will be in sales and office occupations.

FIGURE 2.11

Service Occupations Account for the Largest Share of Projected Job Growth across the Central San Joaquin Valley

Percentage of new jobs by occupational category



Source: California Economic Development Department local calculations of long-term occupational employment projections, 2020–2030.

In 2030, the overall picture of jobs is forecasted to be similar to what it looks like today, with some small differences. Jobs in management, business, science, and arts occupations are forecasted to remain the most numerous (28 percent), followed by service jobs (23 percent). Jobs in natural resources, construction, and maintenance (18 percent) are expected to see a slight increase in their share of employment (by 2 percentage points); sales and office jobs and production, transportation, and material-moving jobs are expected to decrease slightly (by 1 percentage point).

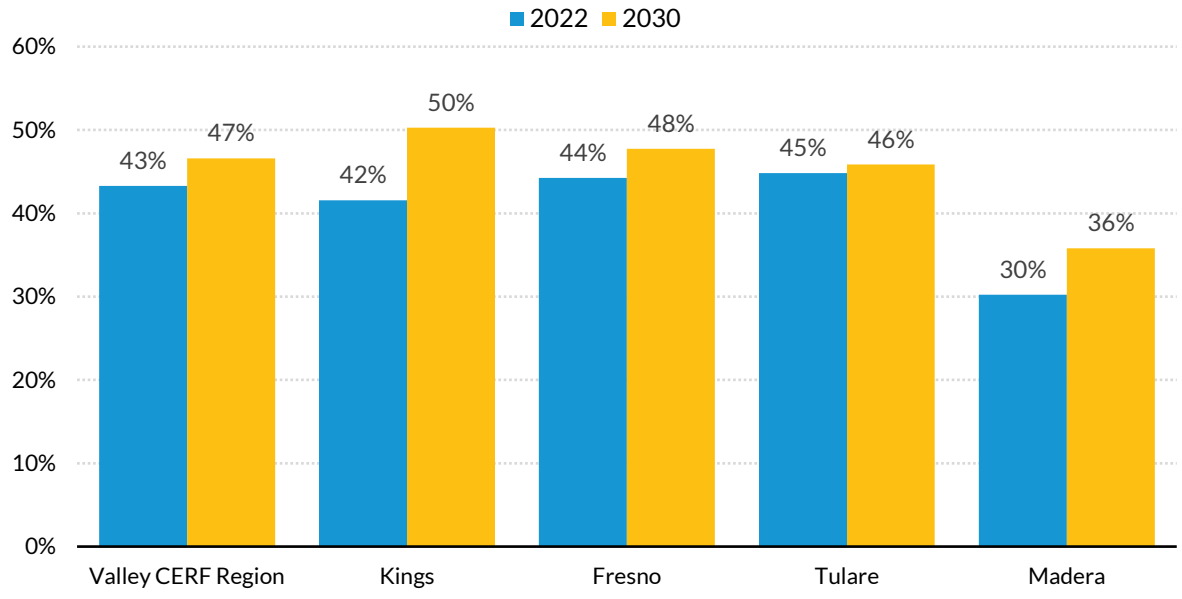
A Little Less than Half of Forecasted New Jobs Will Pay at Least the Current Two-Bedroom Housing Wage, yet May Improve the Overall Landscape of Housing-Wage Jobs by 2030

In the Central San Joaquin Valley, about 43 percent of forecasted new jobs are ones that meet or exceed the current two-bedroom housing-wage threshold. However, the overall trend masks some interesting differences. In Kings County, where significant growth will occur in government jobs, and in Tulare County, where growth is projected to occur in transportation, warehousing, and utilities jobs, at least half of new jobs are expected to pay a wage that meets or exceeds the current housing wage. In contrast, a much smaller share of jobs is expected to meet or exceed the current two-bedroom housing wage threshold in Fresno (42 percent) and Madera (31 percent).

Overall, the new jobs added may improve the overall employment landscape in terms of wages, if we assume that wages and housing costs will change similarly in coming years. The overall share of jobs meeting the two-bedroom housing-wage threshold is expected to increase from 43 percent in 2022 to 47 percent in 2030. The biggest changes occur in Kings and Madera Counties, where the share of housing-wage jobs is expected to increase by 8 and 6 percentage points, respectively (figure 2.12).

FIGURE 2.12

The Share of Jobs Meeting the Two-Bedroom Housing Wage May Increase Slightly by 2030 if Housing Costs and Wages Change Similarly over Time, with Biggest Gains in Kings and Madera Counties



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Sources: Analysis of data from the 2022 Occupational Employment Survey (OES) and the California EDD local calculations of long-term occupational employment projections (2020–2030) in comparison to current two-bedroom housing wages from the National Low Income Housing Coalition.

New Two-Bedroom Housing-Wage Jobs Tend to Be in the Same Types of Occupations as Current Housing-Wage Jobs and Require Similar Levels of Education

As with the current distribution of housing-wage jobs, new housing-wage jobs are disproportionately distributed (58 percent) in management, business, science, and arts occupations. As previously noted in the analysis of the current jobs landscape, workers living in disinvested areas are underrepresented in these types of occupations. About 47 percent of new housing-wage jobs require at least a bachelor's degree, while only about 13 percent of workers living in disinvested areas have this level of education.

Many Projected New Jobs Have Lower Barriers to Entry but Do Not Pay the Two-Bedroom Housing Wage

Within the top 10 occupations forecasted for new job growth (data not shown), the greatest number of opportunities is in home health care, with more than 10,000 aide positions expected in a 10-year span. This is more than the number of opportunities in the next three forecasted growth occupations

combined: fast food workers, heavy tractor-trailer drivers, and laborers and freight, stock, and material movers. Eight of the top 10 occupations typically require no more than a high school education, but none of these eight occupations pay wages that meet the current two-bedroom housing wage for the region.

Other forecasted jobs are in occuptions that promise to provide current two-bedroom housing wages. Of the 16 occupations with at least 500 new jobs forecasted between 2020 and 2030 that pay the current two-bedroom housing wage (table 2.2), about a quarter have relately low barriers to entry: motor vehicle operators and construction laborers (no formal education required) and maintenance and repair workers, as well as sales representatives in wholesale and manufacturing (high school diploma required). Only two fall into a middle category, requiring a short-term credential or certification (heavy and tractor-trailer truck drivers and teaching assistants). The remaining 10 occupations are all in management, business, science, and arts occupations, which require at least a four-year degree.

TABLE 2.2

Two-Bedroom Housing-Wage Occupations with 500 or More New Jobs Projected from 2020–2030 in the Central San Joaquin Valley

Number of new jobs	Occupation	Group	Typical education required at entry
3140	Heavy and tractor-trailer truck drivers	Production, transportation, and material moving	Postsecondary nondegree award
1850	Registered nurses	Management, business, science, and arts	Bachelor's degree
1240	General and operations managers	Management, business, science, and arts	Bachelor's degree
1110	Teaching assistants, except postsecondary	Management, business, science, and arts	Some college, no degree
1060	Elementary school teachers, except special education	Management, business, science, and arts	Bachelor's degree
780	Medical and health services managers	Management, business, science, and arts	Bachelor's degree
720	Motor vehicle operators, all other	Production, transportation, and material moving	No formal educational credential
710	Construction laborers	Natural resources, construction, and maintenance	No formal educational credential
670	Maintenance and repair workers, general	Natural resources, construction, and maintenance	High school diploma or equivalent
670	Project management specialists and business operations specialists, all other	Management, business, science, and arts	Bachelor's degree
580	Secondary school teachers, except Special and career/technical education	Management, business, science, and arts	Bachelor's degree
550	Industrial production managers	Management, business, science, and arts	Bachelor's degree
550	Social and community service managers	Management, business, science, and arts	Bachelor's degree
550	Food service managers	Management, business, science, and arts	Bachelor's degree
530	Sales representatives, wholesale and manufacturing	Sales and office	High school diploma or equivalent
500	Teachers and instructors, all other, except substitute teachers	Management, business, science, and arts	Bachelor's degree

Source: California EDD local calculations of long-term occupational employment projections, 2020–2030.

About Half of the Job Losses in Coming Years Will Be in Sales and Office Occupations

Although job growth is expected in all larger occupational categories, there are some more specific occupations that, without intervention, will see job losses in the coming years. Overall, there are 106 different occupations expected to see declines in employment by 2030, totaling about 3,550 jobs lost. More than half (52 percent) of these jobs are in 46 sales and office occupations, and nearly a third (29

percent) in 24 different management, business, science, and arts occupations. The other major occupational categories make up much smaller shares, ranging from 5 to 6 percent of total job losses.

These trends are also present in the 10 occupations with the largest projected job losses from 2020–2030 in the Central San Joaquin Valley (table 2.3). Seven are sales and office occupations, and the rest are management occupations. Generally, these positions have lower barriers to entry and will likely displace people with a high school diploma or less. The top two occupations with the most forecasted job losses pay wages that meet or exceed the two-bedroom housing wage yet do not require more than a high school diploma or equivalent.

TABLE 2.3

Top 10 Occupations Expected to See the Greatest Job Losses from 2020–2030 in the Central San Joaquin Valley

Rank	Job losses	Occupation	Occupational group	Typical education required at entry	Two-bedroom housing wage
1	-480	Farmers, ranchers, and other agricultural managers	Management, business, science, and arts	High school diploma or equivalent	Yes
2	-240	Secretaries and administrative assistants, except legal, medical, and exec	Sales and office	High school diploma or equivalent	Yes
3	-220	Tax examiners and collectors and revenue agents	Management, business, science, and arts	Bachelor's degree	Yes
4	-180	Executive secretaries and executive administrative assistants	Sales and office	High school diploma or equivalent	Yes
5	-170	Data entry keyers	Sales and office	High school diploma or equivalent	No
6	-170	Tellers	Sales and office	High school diploma or equivalent	No
7	-130	Switchboard operators, including answering service	Sales and office	High school diploma or equivalent	No
8	-90	Telemarketers	Sales and office	No formal educational credential	No
9	-70	Chief executives	Management, business, science, and arts	Bachelor's degree	yes
10	-70	File clerks	Sales and office	High school diploma or equivalent	No

Source: California EDD local calculations of long-term occupational employment projections, 2020–2030.

Public Health Analysis

The Central San Joaquin Valley faces significant threats to community health from climate change, environmental hazards, and economic inequities. Environmental degradation—including from agricultural practices, air pollution from wildfires, worker exploitation, and health care system shortages—is just one of the factors contributing to inequitable health outcomes for communities in the Central San Joaquin Valley. Deeply rooted systemic inequities by race, ethnicity, and other characteristics further compound health challenges among the region's most marginalized populations.

The public health analysis that follows describes how climate, environment, and economic activity intersect in the Central San Joaquin Valley to shape community health and provides an overview of major chronic conditions and diseases in the region as a baseline for understanding the current state of community health. The data used for this analysis are described in box 3.1.

BOX 3.1

Data, Methodology, and Limitations

In this section, we provide descriptive statistics on the prevalence of select chronic conditions and diseases in California overall and in Fresno, Kings, Madera, and Tulare Counties. To do so, we draw on the data sources described below.

- **2022 Centers for Disease Control and Prevention PLACES[a]:** The 2022 PLACES data release draws on data from the 2020 and 2019 Behavioral Risk Factor Surveillance Survey (BRFSS) to produce substate estimates of select health-related data. The BRFSS is a nationally representative survey of adults ages 18 and older covering health-related behaviors, chronic conditions, and preventive care use. Estimates using PLACES data in this public health analysis are all age-adjusted.
- **2021 Infectious Diseases Report from the California Department of Public Health[b]:** This report provides case counts and rates of key infectious diseases reported to public health departments in California, overall and by county and gender.
- **2019 Asthma Hospitalization Report from the California Department of Health Care Access and Information Patient Discharge Data[c]**: Data in this report include hospitalizations from all licensed hospitals in California and are available by county, age, and race and ethnicity. Estimates with low statistical reliability are suppressed.

- **2019–2021 California Health Interview Survey (CHIS) from AskCHIS**[d]: To obtain county-level disaggregated data for select chronic conditions, we use the University of California, Los Angeles (UCLA) online query system, AskCHIS. This query system draws from UCLA's California Health Interview Survey, which is representative of the state population. For this analysis, we rely on CHIS estimates for adults ages 18 and older. Estimates drawing on CHIS are not age-adjusted.

We conducted a literature scan and review of community health assessments for the four Central San Joaquin Valley counties, which also informed the overview of climate change and socioeconomic factors related to each chronic condition and disease and our understanding of the intersection of climate, economy, and health in the region. We also interviewed representatives from the public health departments in Madera, Tulare, and Kings Counties in late June and early July of 2023.

There are a few limitations to consider in relying on this analysis to assess the extent of health challenges related to climate-related outcomes in the Central San Joaquin Valley. First, the BRFSS data primarily come from self-reported information, which is subject to recall bias and may not always accurately reflect individuals' health conditions. Moreover, the BRFSS excludes certain populations, including individuals without landline or cell phone access, potentially leading to underrepresentation of specific demographic groups. This limitation in sampling may result in an incomplete understanding of health disparities across different communities. Additionally, the information available often lacks the granularity necessary to comprehensively assess the impact of climate-related health outcomes on specific populations.

[a] "PLACES: Local Data for Better Health," Centers for Disease Control and Prevention, updated April 12, 2023, https://www.cdc.gov/places/index.html.
[b] "Infectious Diseases by Disease, County, Year, Sex," California Health and Human Services Agency Open Data, updated August 29, 2024, https://data.chhs.ca.gov/dataset/infectious-disease.
[c] "Asthma Hospitalization Rates by County," California Health and Human Services Agency Open Data, updated August 28, 2024, https://data.chhs.ca.gov/dataset/asthma-hospitalization-rates-by-county.
[d] "AskCHIS," University of California, Los Angeles, accessed June 19, 2023, http://ask.chis.ucla.edu/.

Effects of Economic Activity and Industry on the Environment and Public Health

Agricultural and Other Industry Practices in the Central San Joaquin Valley Have Led to Environmental Degradation

The Central San Joaquin Valley is an example of the strong intersections between economic systems, industries, environmental health, public health, and inequity. The economic foundation of the region, being predominantly agricultural, affects both health and equity in several ways. Intensive industrial

farming practices in the region lead to water pollution, soil degradation, and chemical runoff due to the heavy reliance on irrigation, fertilizers, and pesticides (London et al. 2021; Tariqi and Naughton 2021; Fernandez-Bou et al. 2021c). A large body of research has documented the depletion and contamination of local resources by local economic activity and industry, particularly related to water scarcity, water contamination, and air pollution. These issues are especially acute in the west side of the Valley CERF region, which is dominated by large-scale corporate agribusiness (London et al. 2013). Lower-income, predominantly Latinx residents of the region face both water scarcity during droughts and contamination of the available water with arsenic, pesticides, and large volumes of animal waste and other pollutants.[11]

Residents in the Central San Joaquin Valley Are at Higher Risk of Respiratory Illness and Other Health Issues Exacerbated by Pollutants

There are many sources of air pollution related to agribusiness and petrochemical industries in the Central San Joaquin Valley, including nitrogen oxides from dairies; particulates and other pollution from vehicle emissions; ammonia from cattle; and pesticide drift, dust, and burning from agriculture (Ortiz-Partida et al. 2020; Fernandez-Bou et al. 2021c; Flores-Landeros et al. 2022). In 2019, average air pollution, measured by average daily density of fine particulate matter in micrograms per cubic meter (PM2.5), was up to 81.7 percent higher in the Central San Joaquin Valley (11.7 in Fresno County, 12.3 in Kings County, 10.0 in Madera County, and 12.9 in Tulare County) compared with the state as a whole (7.1) (University of Wisconsin Population Health Institute 2023).

Central San Joaquin Valley Residents Are at Higher Risk for Cancer, Birth Complications, and Other Adverse Health Conditions Due to Chronic Low-Level Pesticide Exposure and Water Contaminants

The Central San Joaquin Valley also faces greater health risks from chronic low-level pesticide exposure, water contaminants, and destructive land use in the agribusiness sector. Chronic low-level pesticide exposure has been linked to childhood cancers (Brender, Maantay, and Chakraborty 2011; Buser, Lake, and Ginier 2022). Other water contaminants present in the region are also associated with health hazards (Bangia et al. 2020; Tariqi and Naughton 2021; Balazs et al. 2011; Balazs et al. 2012). Runoff from chemical fertilizers used in farm fields and livestock facilities in the Valley CERF region contaminates drinking water and has been linked to cancer, birth complications, and other adverse health effects (Ortiz-Partida et al. 2020; Tariqi and Naughton 2021). Recent research shows that the

Valley CERF region has the highest concentrations of water pollutants in California (Pace et al. 2022; Bangia et al. 2020). Poor waste management practices also pose risks to human health and ecosystems due to improper disposal and release of hazardous substances into the environment (OEHHA 2022).

Central San Joaquin Valley Residents Are at Risk of Cardiovascular Disease and Other Adverse Health Conditions Related to Hazardous Noise from Oil Industry Machinery

Community-based research in the Central San Joaquin Valley has highlighted community members' concerns about exposure to hazardous noise and air pollution from "pump jacks," which are mechanical devices used in the oil industry to extract oil from underground wells and are known for producing excessive noise and emitting pollutants into the air during their operation (Flores-Landeros et al. 2022). Excessive or chronic noise, often overlooked, poses a significant health hazard and has been linked by the World Health Organization to adverse effects such as impaired cognitive performance; increased risk of cardiovascular disease, including hypertension, ischemic heart diseases, and stroke; and disrupted sleep patterns such as tachycardia, body movements, and awakenings.[12]

Labor Exploitation and Infrastructure Inequities in Disinvested Communities Increase Health Risks and Climate Vulnerability

Economic activity has driven housing sprawl and destructive land use (OEHHA 2022; London et al. 2013) as well as exploitative labor practices, which are often related to lack of citizenship rights (Fairbanks 2021; London et al. 2021; Minkoff-Zern 2014). Transportation and urban development in the Central San Joaquin Valley have also contributed to increased air pollution and greenhouse gas emissions, worsening respiratory issues and further exacerbating health inequities in the region (OEHHA 2022). Disinvested communities in the Central San Joaquin Valley, particularly those in rural areas, often lack essential infrastructure such as access to clean drinking water, sewage facilities, green spaces, grocery stores, public electrification, and health services. The absence of these basic services further amplifies their vulnerability to climate change impacts, making them among the most climate-vulnerable communities in the US (Fernandez-Bou et al. 2021c).

Intersection of Public Health with Climate Change, Environmental Inequities, and Economic Activity

The Central San Joaquin Valley Faces Significant Health Threats from Climate Change, Which Can Worsen Preexisting Public Health Issues

The Central San Joaquin Valley faces significant direct health threats from climate change, including heightened risks of heat-related illness and death, occupational heat-related illness, Valley fever (coccidioidomycosis), vector-borne diseases, and exposure to wildfire smoke, as well as indirect threats from reduced air and water quality resulting from climate change (OEHHA 2022). Moreover, the region's disinvested communities bear a disproportionate burden from the health consequences associated with climate-related hazards (Fernandez-Bou et al. 2021a, 2021b; Méndez-Barrientos et al. 2022; Tariqi and Naughton 2021).

Projected increases in average maximum temperatures, as noted in county-level climate reports from state government agencies, pose threats such as occupational heat-related illness, heat exhaustion, heat stroke, heat cramps, and other heat-related conditions, many of which have been increasing rapidly in recent years (OEHHA 2022). Poor air and water quality, which are both already serious public health issues in the Valley, are expected to worsen in coming years because of climate change (Ortiz-Partida et al. 2020; Fernandez-Bou et al. 2021c; Flores-Landeros et al. 2022). For example, the Central San Joaquin Valley's water issues, including excessive nitrate levels, are expected to be aggravated by the effects of climate change on water availability and quality (Fernandez-Bou et al. 2021c; OEHHA 2022). Increased wildfire frequency and intensity (Turco et al. 2023) have led to greater exposure to hazardous wildfire smoke, contributing to higher rates of respiratory illnesses and cancer (OEHHA 2023; Korsiak et al. 2022; Burke et al. 2021; Wen et al. 2023; Fernandez-Bou et al. 2021c).

Climate change also exacerbates other health threats, such as Valley fever and vector-borne diseases like the West Nile virus, because changes in temperature and rainfall patterns, combined with the existing burden of air pollution, create conditions conducive to the spread of coccidioidomycosis and the proliferation of disease-carrying vectors (OEHHA 2023; Fernandez-Bou et al. 2021c; OEHHA 2022). These health risks increase for outdoor workers,[13] such as agricultural workers, who are more likely to live in disinvested communities.

Deep-Rooted Economic and Racial Disparities in the Central San Joaquin Valley, Aggravated by the Climate Crisis, Lead to Disinvested Communities Shouldering a Disproportionate Share of Health Impacts from Climate-Related Hazards

In the Central San Joaquin Valley, the climate crisis intertwines with deep-rooted economic and racial or ethnic inequities. Disparities in access to necessary amenities, such as shade and air conditioning, can have life-threatening consequences in the face of escalating heatwaves (OEHHA 2023; Fernandez-Bou et al. 2021a, 2021b; OEHHA 2022). Disinvested communities in the region experience the state's highest pollution burden, emphasizing the connection between environmental justice and climate change. Deeply rooted historical inequities have left Latinx, lower-income, and other disinvested communities in the region disproportionately vulnerable to climate change impacts and environmental hazards, such as pollution (Fernandez-Bou et al. 2021a, 2021b). Addressing these systemic challenges requires significant investment in infrastructure and basic services, which are crucial for improving community resilience to climate change (Fernandez-Bou et al. 2021a, 2021b).

Climate and Environmental Risks Are Amplified by Systemic Racism and Economic Disparities

As described in our literature review, economic systems and disparities manifest in environmental and working conditions in the Central San Joaquin Valley that affect health. Workers earning low wages and marginalized populations are more likely to be exposed to unsafe environments and unsafe working conditions, while a lack of access to health care further marginalizes these populations. Climate and other environmental risks are further exacerbated by a legacy of structural racism and persistent economic disparities in the region (Madley 2017). Rural colonies that were once havens for Black farmworkers and are now predominantly Latinx, such as Lanare in Fresno County, Matheny Tract in Tulare County, and Fairmead in Madera County, have been among the first to face water shortages during droughts (Del Real 2019; Greene 2021; London et al. 2021). These communities often lack access to clean drinking water, a fundamental right and necessity for human health, with the available water often containing arsenic or other pollutants.

Food insecurity is another concern for the region. In California overall, 9 percent of people report food insecurity, compared with 14 percent in Fresno County, 13 percent in Kings County, 13 percent in Madera County, and 15 percent in Tulare County (University of Wisconsin Population Health Institute 2023). Furthermore, systemic issues such as low wages and racism contribute to financial instability, creating conditions that prevent many families from achieving financial resilience that can insulate their

families from these risky environments (Ortiz-Partida et al. 2020; Fernandez-Bou et al. 2021a, 2021b; Flores-Landeros et al. 2022). The intersecting social determinants of health—including low incomes, low-quality education, poor health care access, and low-quality housing—create a complex web of vulnerabilities that disproportionately affect socially disadvantaged communities in the Valley (Ortiz-Partida et al. 2020; Fernandez-Bou et al. 2021a, 2021b; Flores-Landeros et al. 2022).

Health System Limitations and Health Challenges

In the Central San Joaquin Valley, the Share of People with Private Health Insurance Coverage Is Lower and the Share of People with Public Health Insurance Coverage Is Higher Relative to the State Average, Particularly in Disinvested Areas

In the Central San Joaquin Valley, differences and disparities in health insurance and health care accessibility compared with statewide measures are well documented. The Central San Joaquin Valley population has lower rates of private insurance coverage (49.3 percent) and higher rates of public coverage (47.8 percent), with 7.3 percent of the population uninsured compared with the statewide rates of 62.3 percent with private insurance, 35.9 percent with public coverage, and 7.1 percent uninsured. This trend is more pronounced in the region's disinvested areas, where private insurance coverage is at just 41.0 percent, public coverage at 54.1 percent, and 8.5 percent of the population uninsured (ACS 2017–2021 estimates).

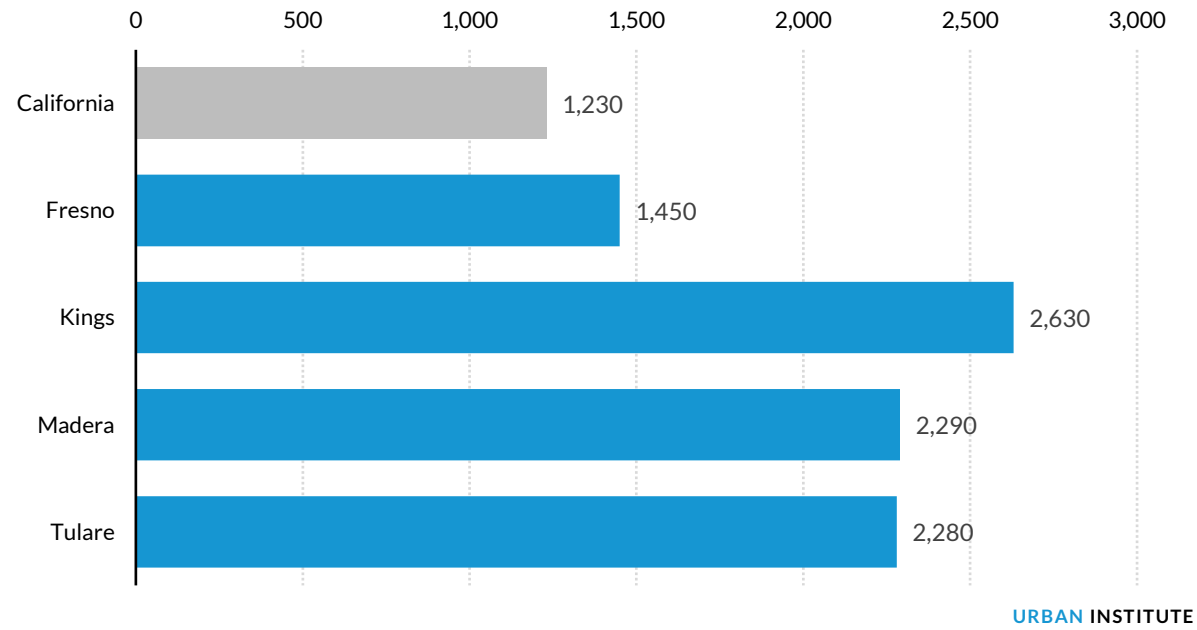
The Central San Joaquin Valley's Health Care Landscape Has Critical Shortages and Needs

The Valley CERF region faces significant challenges in health care access, characterized by higher population-to-physician ratios, limited availability of hospital beds, and variations in the accessibility of community health centers. The counties in the Central San Joaquin Valley have higher ratios of population to physicians than the rest of California, suggesting limited access to health care. Kings County, for example, has the highest ratio at 2,630 patients per primary care physician, more than double the state average of 1,230 (figure 3.1). The other Central San Joaquin Valley counties, Fresno (1,450:1), Madera (2,290:1), and Tulare (2,280:1), also have substantially worse access to primary care physicians, and these patterns hold for other providers as well, including for dental care and mental health care (University of Wisconsin Population Health Institute 2023). From 2015 to 2021, California had the sixth-lowest number of hospital beds per 1,000 residents in the country, with a rate of 1.87

beds per 1,000 people.[14] Notably, the counties of the Central San Joaquin Valley had lower rates than average, and some were among the lowest in the state on this measure: in 2018, Fresno had 1.56 beds per 1,000 people, Kings had 1.64, Madera had 0.67, and Tulare had 1.28.[15] This suggests that residents in these counties are likely to face challenges in accessing hospital care, potentially leading to difficulties in receiving adequate health care services when needed. Interviewees further noted that access to specialty care, such as behavioral health, is limited for residents in the region.

FIGURE 3.1

Number of People per Physician in California and the Counties of the Valley CERF Region



Source: "County Health Rankings and Roadmaps," University of Wisconsin Population Health Institute, https://www.countyhealthrankings.org/health-data.

The Central San Joaquin Valley ranked somewhat better on access to community health centers, including federally qualified health centers (FQHCs), FQHC look-alikes, migrant health centers, rural and frontier health centers, and free clinics, which provide primary health care services to all residents, including those who are uninsured. Across California, there are 2.74 FQHCs per 100,000 people, while Tulare County has a much higher rate at 6.78 FQHCs per 100,000 people; Fresno County has 2.58, Kings County has 6.54, and Madera County has 4.46 (Hospital Council of Northern and Central California 2019). Despite the relatively higher availability of FQHCs in the region compared with the state, interviewees noted that clinics can still face challenges with attracting and retaining providers to the region, especially considering the low Medi-Cal reimbursement rates. Unincorporated areas in the Central San Joaquin Valley can face even greater health access issues. Such communities might have

access to FQHCs but still face shortages of pharmacies and hospitals, requiring residents of those communities to travel long distances to access health care services.

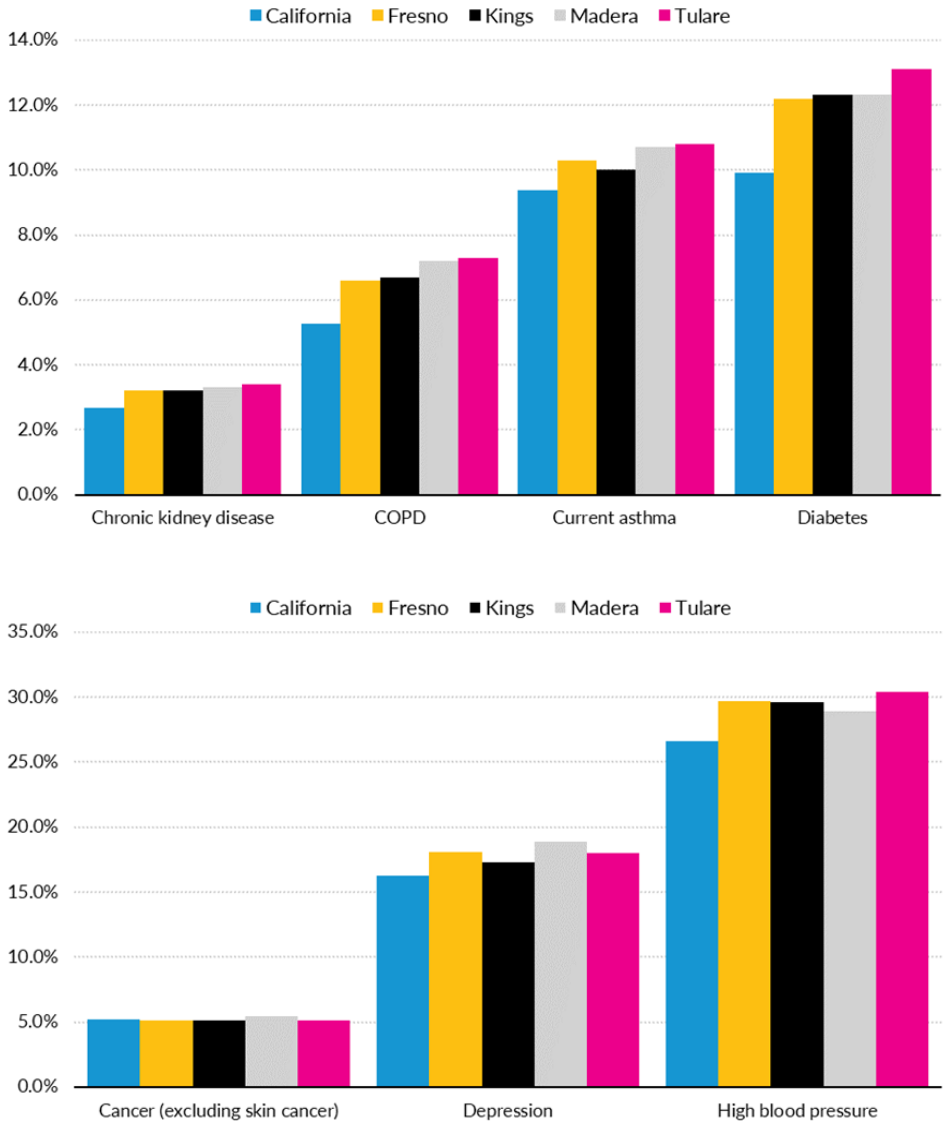
The availability of comprehensive data on the availability of culturally and linguistically effective health care providers is limited. However, community health assessments for the region show that residents in the Central San Joaquin Valley have voiced concerns about the lack of culturally sensitive health care services and providers who speak languages other than English, which has contributed to reduced access to care (Hospital Council of Northern and Central California 2019). For example, non–English speaking community members described relying on children as interpreters, which raises the risk of delivering inaccurate medical information among other concerns. Additionally, interviewees noted that some patients, such as LGBTQ+ individuals, often travel to cities in the region where more culturally sensitive services are available.

Chronic Conditions and Diseases

The climate, environmental, and economic inequities present in the Central San Joaquin Valley, along with significant health care access issues, increase the risk of poor health for residents in the area. To better understand how these intersecting challenges have and will continue to affect health outcomes, we provide a snapshot of the prevalence of major chronic conditions and diseases for the Central San Joaquin Valley population with disaggregation by race, ethnicity, gender, and age where data are available. As noted in box 3.1, estimates in this section draw from the BRFSS and other California data sources. Findings highlight the higher prevalence of a majority of chronic conditions and diseases in the Central San Joaquin Valley counties compared with California as a whole (figure 3.2)—nearly all the chronic conditions and diseases examined in this analysis, with the exception of cancer, were more prevalent in the Central San Joaquin Valley than in California overall.

FIGURE 3.2

Prevalence of Select Chronic Conditions in California and the Counties of the Valley CERF Region, 2019 and 2020



URBAN INSTITUTE

Source: 2022 Centers for Disease Control and Prevention PLACES data release, drawing on 2019 and 2020 Behavioral Risk Factor Surveillance System (BRFSS) data.

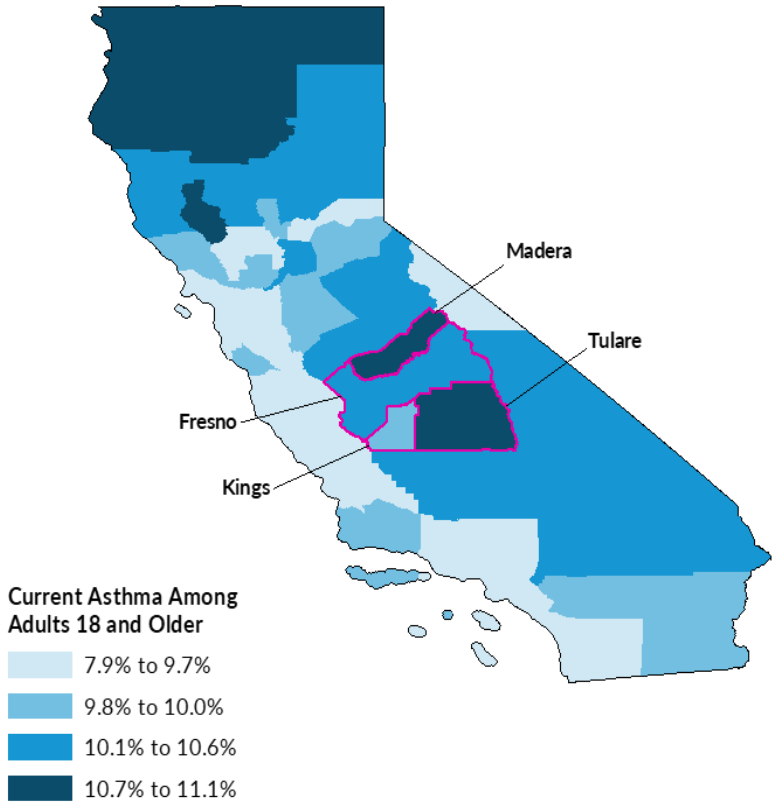
Notes: Estimates are age-adjusted. All estimates except those for high blood pressure draw from the 2020 BRFSS.

Rates of Asthma Are Higher in Madera and Tulare than in Other California Counties, but Fresno Residents Are Hospitalized for Asthma at the Highest Rates

Asthma is a common and costly condition in the US. It can lead to frequent emergency department visits and hospitalizations without proper management and poses a significant economic burden through reduced productivity at work and school and increased medical costs (Nurmagambetov et al. 2018). Differences in social determinants of health, such as housing, socioeconomic status, environmental exposure, and health care access, contribute to inequities in asthma burden (Grant et al. 2022). Climate change also affects air quality and can contribute to increased asthma rates. Factors that affect air quality include the burning of fossil fuels for transportation and industrial processes, smoke from longer and more intense fire seasons, windblown dust from increasingly arid climates, and longer pollen seasons due to warmer weather.[16] Exposure to air pollution increases the risk of worsened asthma symptoms and emergency room visits for patients with asthma.[17] About 9.4 percent of adults in California report having current asthma.[18] Tulare and Madera have among the highest rates of asthma in California (10.8 and 10.7 percent, respectively) (figure 3.3).

FIGURE 3.3

Share of Adults with Current Asthma in California, by County, 2020



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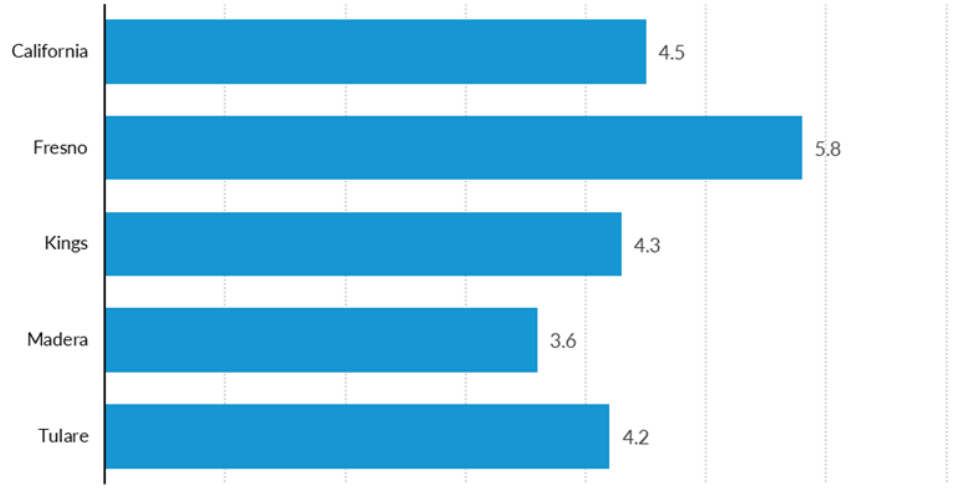
Source: 2022 Centers for Disease Control and Prevention PLACES data release, drawing on 2020 Behavioral Risk Factor Surveillance System (BRFSS) data.
Notes: Adults are ages 18 and older. Estimates are age-adjusted.

In 2019, there were about 4.5 hospitalizations for asthma per 100,000 people across the state (figure 3.4). Asthma hospitalizations in Fresno County were higher relative to both the state and Kings, Madera, and Tulare Counties.

FIGURE 3.4

Number of Hospitalizations for Asthma per 100,000 People in California and Counties of the Valley CERF Region, 2019



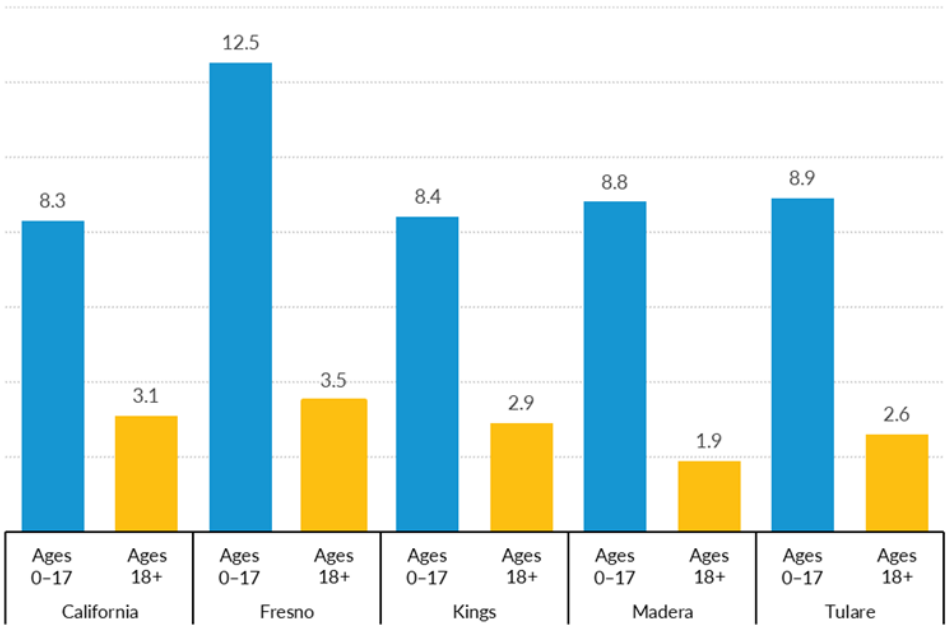
Source: California Department of Health Care Access and Information Patient Discharge Data on Asthma Hospitalization Rates by County, 2019.

Asthma hospitalizations do not vary much by race and ethnicity in the four Central San Joaquin Valley counties compared with the state overall, with the exception of asthma hospitalizations for Black residents of all ages in Fresno. Rates of asthma hospitalizations among Black residents in Fresno County are 25.8 per 100,000 people (data not shown), compared with 5.8 in Fresno overall and 4.5 in California overall.

In California and across all four counties, asthma hospitalizations per 100,000 people were higher among children ages 17 and younger compared with adults 18 and older. Asthma hospitalizations among children are highest in Fresno County (12.5 hospitalizations per 100,000 people; figure 3.5).

FIGURE 3.5

Number of Hospitalizations for Asthma per 100,000 People in California and Counties of the Valley CERF Region, by Age, 2019



Source: California Department of Health Care Access and Information Patient Discharge Data on Asthma Hospitalization Rates by County, 2019.

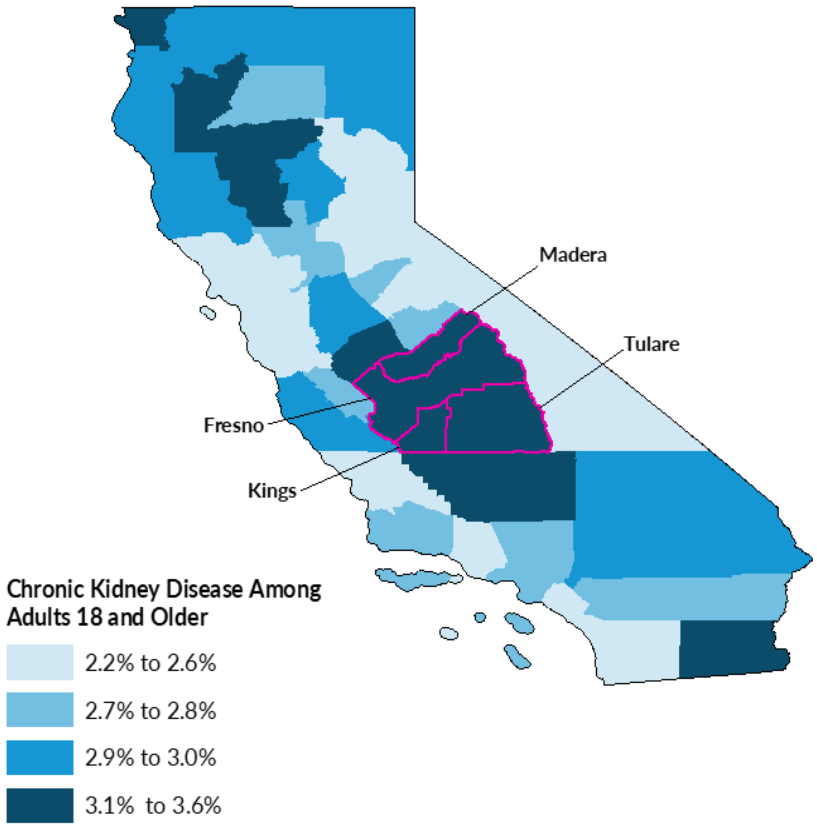
Chronic Kidney Disease Is More Prevalent in All Central San Joaquin Valley Counties Compared with Other Counties in California

Chronic kidney disease is a leading cause of death in the US. Untreated, it can progress to early cardiovascular disease or kidney failure. There is a strong association between socioeconomic factors and chronic kidney disease. Low socioeconomic status, such as low income and low education attainment, can limit access to health care, thereby increasing the risk of rapid progression to kidney failure (Nicholas et al. 2015; Grant et al. 2022). Additionally, chronic kidney disease patients experience food insecurity at higher rates than the US average, and food insecurity can worsen kidney disease due to inability to adhere to treatments based on dietary regimens (Grant et al. 2022). The presence of other chronic conditions such as diabetes and high blood pressure, which are themselves influenced by socioeconomic factors, also increase the likelihood of developing kidney disease (Nicholas et al. 2015). Workers exposed to extreme heat, such as agricultural workers, are at disproportionate risk of developing chronic kidney disease due to dehydration (Johnson et al. 2019; Moyce et al. 2018).

About 2.7 percent of adults in California report having chronic kidney disease.[19] The Central San Joaquin Valley has among the highest rates of chronic kidney disease in California (figure 3.6). Among the four counties, chronic kidney disease is highest in Tulare (3.4 percent), followed by Madera (3.3 percent), Fresno (3.2 percent), and Kings (3.2 percent).

FIGURE 3.6

Share of Adults with Chronic Kidney Disease in California, by County, 2020



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Source: 2022 Centers for Disease Control and Prevention PLACES data release, drawing on 2020 Behavioral Risk Factor Surveillance System (BRFSS) data.
Notes: Adults are ages 18 and older. Estimates are age-adjusted.

Rates of Chronic Obstructive Pulmonary Disease (COPD) Are Higher in Madera and Tulare Compared with Other Counties in California

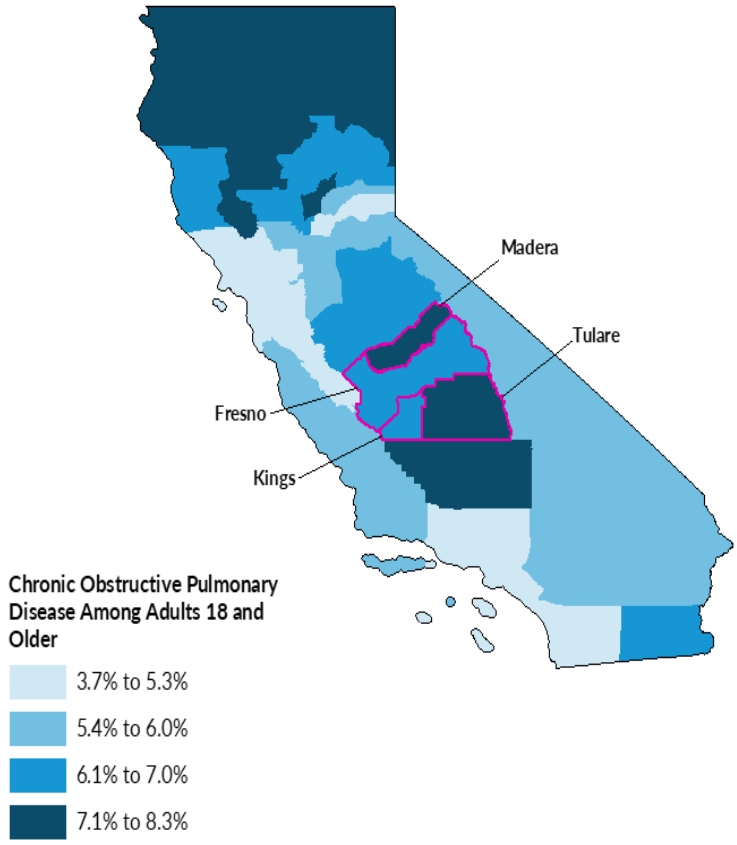
Chronic obstructive pulmonary disease (COPD) is the fourth leading cause of death and a major source of disability in the US, affecting 15 million people. COPD is a progressive lung disease that causes

difficulty breathing and generally consists of both emphysema and chronic bronchitis (NIH 2022). COPD disproportionately affects people of lower socioeconomic status. Though smoking is the main risk factor for COPD in the US, employment in occupations that expose workers to air pollution and dust, such as agricultural work, can also increase risk of developing COPD (Pleasants et al. 2016). Air pollution, especially from wildfire smoke, has been linked to loss of lung function, increased emergency department visits, and morbidity among people with COPD (Keswani et al. 2022; Hansel et al. 2016). Extreme heat has also been associated with increased morbidity for people with COPD (Hansel et al. 2016).

About 5.3 percent of adults in California report having COPD.[20] Tulare and Madera have among the highest rates of COPD in California (7.3 and 7.2 percent, respectively; figure 3.7). Rates of adult COPD are also higher in Fresno County (6.6 percent) and Kings County (6.7 percent) relative to other counties in California.

FIGURE 3.7

Share of Adults with Chronic Obstructive Pulmonary Disease in California, by County, 2020



URBAN INSTITUTE

Sources: 2022 Centers for Disease Control and Prevention PLACES data release, drawing on 2020 Behavioral Risk Factor Surveillance System (BRFSS) data.
Notes: Adults are ages 18 and older. Estimates are age-adjusted.

Fresno, Kings, Madera, and Tulare Counties Have Among the Highest Rates of Diabetes in California

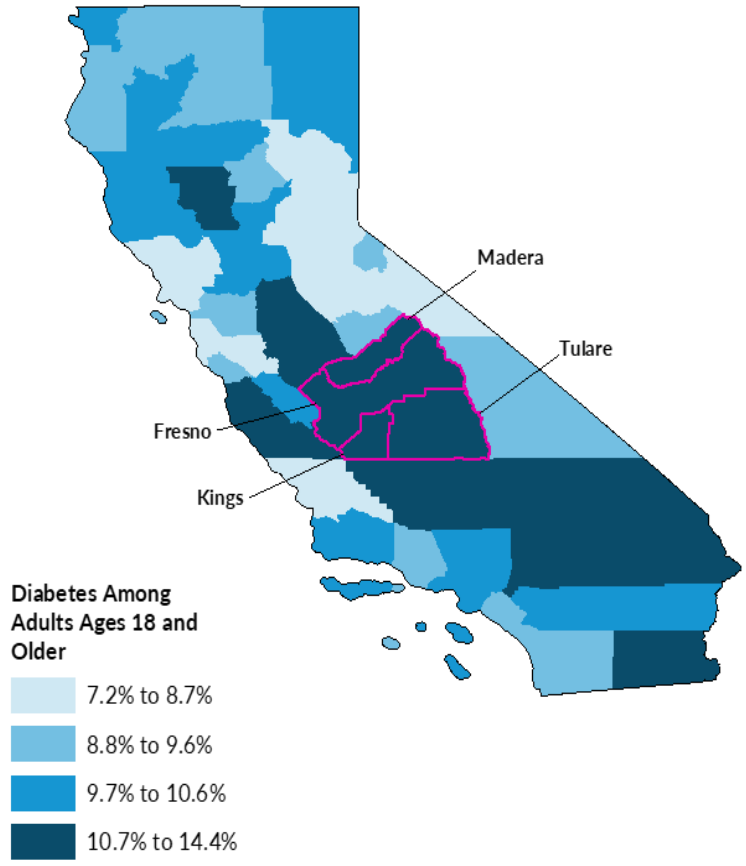
Diabetes is a serious and costly condition that can lead to blindness, stroke, loss of kidney function, lower limb amputation, and death. Studies show that having less than a high school education and a family income below the poverty line significantly increases the risk of diabetes mortality (Saydah and Lochner 2010). Food insecurity can also be a contributing factor (Hill-Briggs et al. 2021). Climate change can also worsen complications from diabetes, as patients with diabetes are particularly vulnerable to heat waves due to impaired thermoregulation and rapid deterioration of kidney function,

with studies showing increased emergency department visits, morbidity, and mortality for patients with diabetes during heat waves (Vallianou et al. 2021; Green et al. 2010). Air pollution can also increase the risk of cardiovascular diseases among patients with diabetes (Vallianou et al. 2021; Hill-Briggs et al. 2021).

About 9.9 percent of adults in California report having diabetes,[21] but the Central San Joaquin Valley has among the highest rates of diabetes in the state (figure 3.8). Among the four counties, diabetes is highest in Tulare County (13.1 percent), followed by Madera County (12.3 percent), Kings County (12.3 percent), and Fresno County (12.2 percent).

FIGURE 3.8

Share of Adults with Diabetes in California, by County, 2020



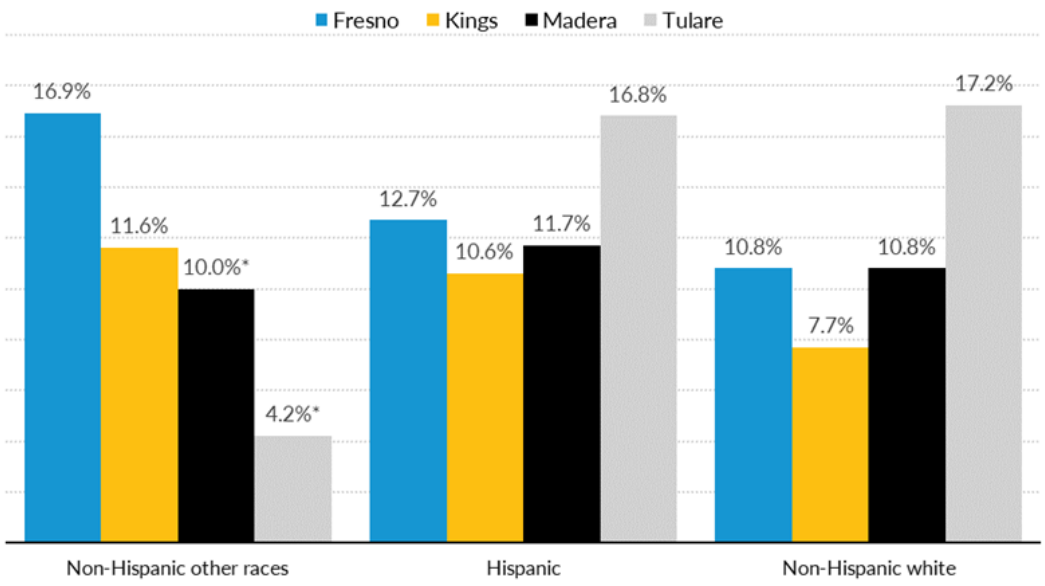
URBAN INSTITUTE

Sources: 2022 Centers for Disease Control and Prevention PLACES data release, drawing on 2020 Behavioral Risk Factor Surveillance System (BRFSS) data.
Notes: Adults are ages 18 and older. Estimates are age-adjusted.

According to data from the 2019–2021 California Health Interview Survey, rates of diabetes are highest among non-Hispanic other races in Fresno County (16.9 percent),[22] Latinx adults in Tulare County (16.8 percent), and non-Hispanic white adults in Tulare County (17.2 percent; figure 3.9). Diabetes rates are about the same among men and women in all counties except Kings County, where men are more likely than women to report diabetes (12.4 percent versus 6.3 percent; data not shown).

FIGURE 3.9

Share of Adults Reporting They Were Ever Diagnosed with Diabetes in Counties of the Valley CERF Region, by Race and Ethnicity, 2019–2021



URBAN INSTITUTE

Source: 2019-2021 California Health Interview Survey AskCHIS.
Notes: Adults are ages 18 and older. Estimates with an asterisk (*) have wide confidence intervals and should be interpreted with caution. "Other races" includes non-Hispanic Black, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, and people who are two or more races.

The Central San Joaquin Valley Has Lower Rates of Cancer Relative to Other Counties in California

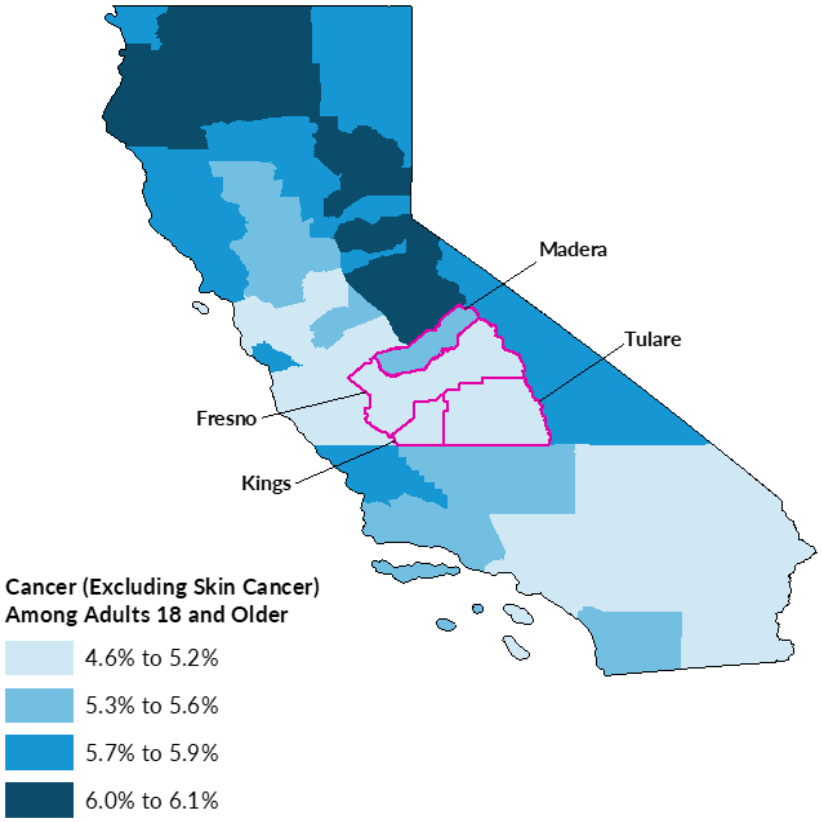
There are significant socioeconomic disparities in cancer mortality, attributed to differences in exposure to risk factors, access to preventive care, cancer screening, and quality treatment (Islami 2021). Climate change increases cancer risk in a variety of ways: air pollution has been linked to lung cancer (Keswani et al. 2022; Gewin et al. 2022), and extreme weather events can also increase exposure

to carcinogens by flooding areas surrounding manufacturing facilities or landfills, which contain hazardous waste and other pollutants.

Among the four counties of the Central San Joaquin Valley, rates of cancer are highest in Madera County, while cancer rates are similar across Fresno, Kings, and Tulare Counties.[23] Lower access to preventive care and screenings or diagnosis in older adulthood could be part of the reason for the lower rates of cancer in the Central San Joaquin Valley relative to California. Prior studies have found that Hispanic populations are more likely to be diagnosed with cancer later in life (Siegel et al. 2015). Additionally, BRFSS data only capture adults ages 18 to 64, and so excludes adults diagnosed with cancer later in life. And, as noted above, the Valley CERF region is generally younger, has a large Hispanic population, and faces significant health care shortage issues. Further, we were not able to present data on skin cancer for this analysis because of the lack of publicly available data at the county level for this measure. However, given climate forecasts of hotter weather in the Valley CERF region (Fernandez-Bou et al. 2021c), it will be important to monitor rates of skin cancer, especially for people who work in direct sunlight.

FIGURE 3.10

Share of Adults with Cancer (Excluding Skin Cancer) in California, by County, 2020



URBAN INSTITUTE

Source: 2022 Centers for Disease Control and Prevention PLACES data release, drawing on 2020 Behavioral Risk Factor Surveillance System (BRFSS) data.
Notes: Adults are ages 18 and older. Estimates are age-adjusted.

Fresno, Kings, and Tulare Counties Have Among the Highest Rates of High Blood Pressure in California

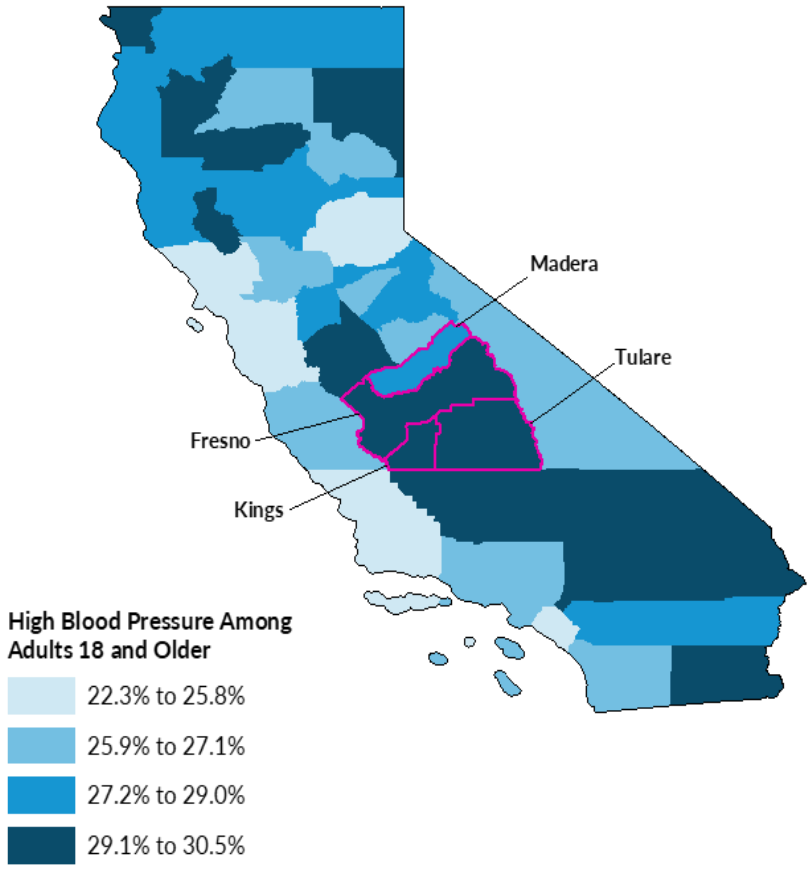
Hypertension, or high blood pressure, is a common chronic condition that increases risk for a variety of poor cardiovascular outcomes, such as stroke, heart attack, coronary heart disease, and heart failure. Cardiovascular disease is the leading cause of death in the United States.[24] High blood pressure is more common for Black and Latinx adults than white and Asian adults.[25] Socioeconomic status, segregation, racism, and job strain are linked to increased incidence of all kinds of cardiovascular disease (Graham et al. 2015; Powell-Wiley et al. 2022; Havranek et al. 2015). Air pollution has also been linked to increased

cardiovascular events and mortality (Keswani et al. 2022), especially for people with lower incomes (Liu et al. 2022).

About 26.6 percent of adults in California report having high blood pressure.[26] Rates of high blood pressure in Tulare, Fresno, and Kings Counties are among the highest in the state (30.4 percent, 29.7 percent, and 29.6 percent, respectively; figure 3.11). The share of adults with high blood pressure in Madera County (28.9 percent) is also higher relative to other counties in California.

FIGURE 3.11

Share of Adults with High Blood Pressure in California, by County, 2019



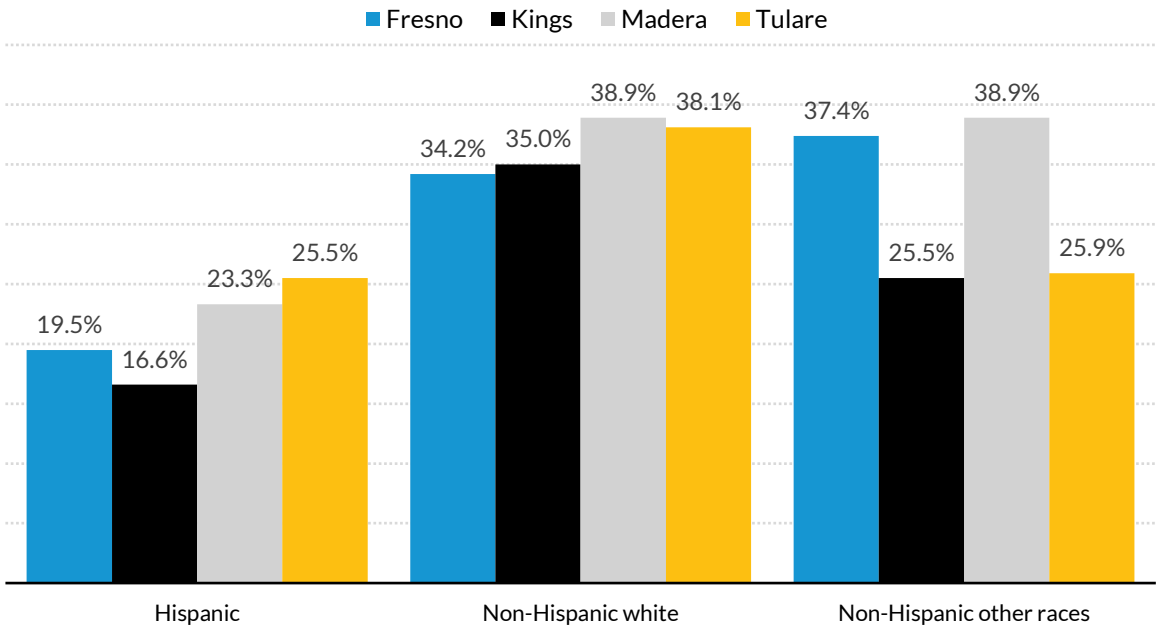
URBAN INSTITUTE

Source: 2022 Centers for Disease Control and Prevention PLACES data release, drawing on 2019 Behavioral Risk Factor Surveillance System (BRFSS) data.
Notes: Adults are ages 18 and older. Estimates are age-adjusted.

According to the 2019–2021 California Health Interview Survey, non-Hispanic white adults have among the highest rates of high blood pressure across the four counties of the Central San Joaquin Valley (figure 3.12). Adults of non-Hispanic other races also have high rates of blood pressure in Fresno and Madera Counties.[27]

FIGURE 3.12

Share of Adults Reporting They Were Ever Diagnosed with High Blood Pressure among Counties of the Valley CERF Region, by Race and Ethnicity, 2019–2021



Source: 2019–2021 California Health Interview Survey AskCHIS.
Notes: Adults are ages 18 and older. "Other races" includes non-Hispanic Black, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, and people who are two or more races.

Rates of Depression in the Central San Joaquin Valley Are Higher Compared with California Overall

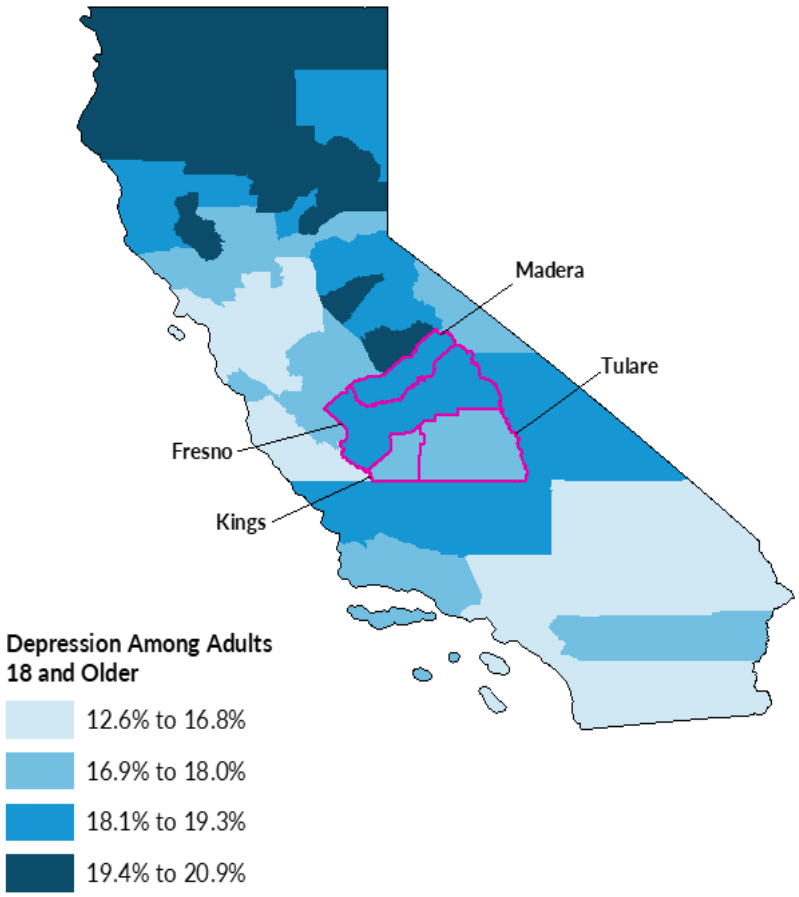
Depression is one of the leading causes of disability worldwide, according to the World Health Organization (Greenberg 2021). Socioeconomic status, financial and job strain, and lower educational attainment have all been linked to depression (Remes et al. 2021). Climate change poses a threat to mental health beyond climate anxiety. Exposure to air pollution has been linked to depression and increased risk of suicide (Keswani et al. 2022). Exposure to wildfires, extreme heat, and drought has also

been associated with increased psychological distress, increased psychiatric hospitalizations, and heightened mortality among people with preexisting mental health conditions (Charlson et al. 2021).

About 16.3 percent of adults in California report having depression.[28] Rates of depression are higher in the four Central San Joaquin Valley counties relative to the state (figure 3.13). Of the four counties, Madera County has the highest rates of depression (18.9 percent), followed by Fresno County (18.1 percent), Tulare County (18.0 percent), and Kings County (17.3 percent).

FIGURE 3.13

Share of Adults with Depression in California, by County, 2020



URBAN INSTITUTE

Source: 2022 Centers for Disease Control and Prevention PLACES data release, drawing on 2020 Behavioral Risk Factor Surveillance System (BRFSS) data.
Notes: Adults are ages 18 and older. Estimates are age-adjusted.

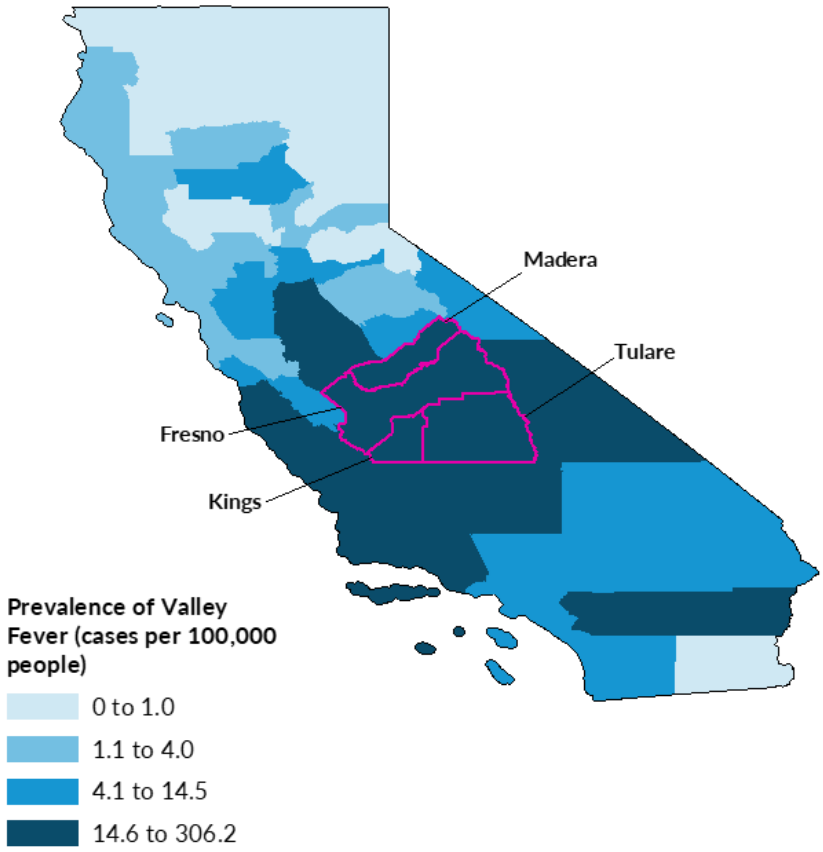
The Central San Joaquin Valley Has Among the Highest Rates of Valley Fever in California

Valley fever, or coccidioidomycosis, is a fungal infection endemic to the southwestern US that occurs when fungus spores from disturbed dust enter a person's lungs. Valley fever can cause fever, headache, fatigue, difficulty breathing, and life-threatening complications such as pneumonia, or meningeal infection. Cases of Valley fever in California tripled from 2015 to 2018.[29] Employment in agricultural occupations increases risk of developing Valley fever due to exposure to dust that can carry fungus spores. Climate change has also increased the proliferation of Valley fever in the Central San Joaquin Valley.

In California overall, there were about 20.1 cases of Valley fever per 100,000 people in 2021. Cases of Valley fever were higher in the four Central San Joaquin Valley counties higher relative to the state (figure 3.14). Kings County had the most cases of Valley fever per 100,000 people in the region (108.3), followed by Tulare County (65.8), Madera County (23.6), and Fresno County (39.8).

FIGURE 3.14

Cases of Valley Fever Per 100,000 People in California, by County, 2021



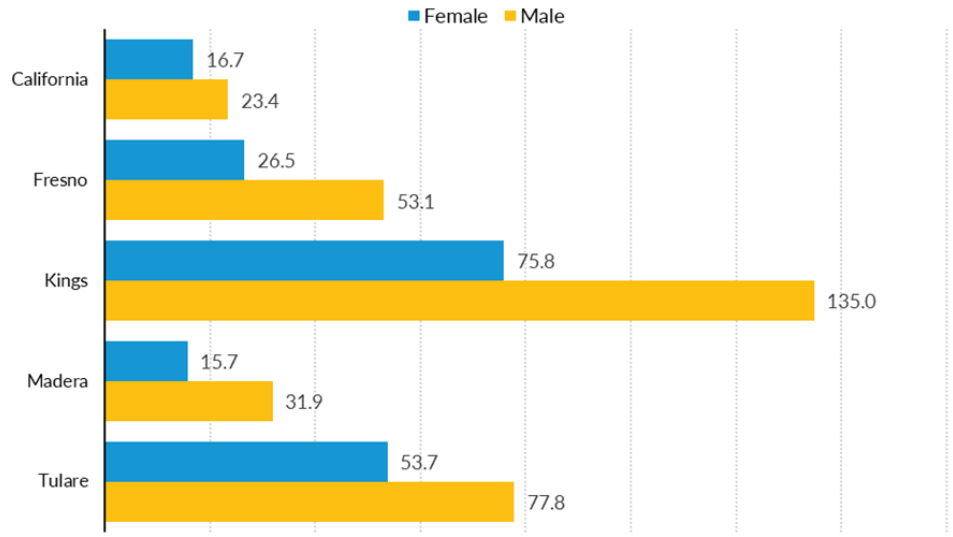
URBAN INSTITUTE

Source: California Department of Public Health 2021 report of Infectious Diseases by Disease, County, Year, and Sex.

Prevalence of Valley fever is higher among men than women in both California and in the four Central San Joaquin Valley counties (figure 3.15). Among men, prevalence of Valley fever is highest in Kings County (135 cases per 100,000 people), followed by Tulare County (77.8 cases per 100,000), Fresno County (53.1 cases per 100,000), and Madera County (31.9 cases per 100,000).

FIGURE 3.15

Cases of Valley Fever per 100,000 People in California and Counties of the Valley CERF Region, by County and Gender, 2021



URBAN INSTITUTE

Source: California Department of Public Health 2021 report of infectious diseases by disease, county, year, and sex.

Implications for Stakeholders in the Region

The economic, equity, public health, and climate change challenges facing Central San Joaquin Valley, some of which are discussed in this baseline report, are intersecting and interdependent and have many implications for the well-being of residents and vitality of the region as a whole—now and into the future. This section introduces these implications, as well as some of the opportunities for regional stakeholders to address them.

Climate Change Is Both a Threat—and an Opportunity—for the Economic Stability and Vitality of the Valley CERF Region

Climate change comes with an economic toll; the Valley CERF region has been experiencing some of these costs firsthand. For example, agricultural outputs, and the livelihoods of the workers who make them possible, have been harmed by the increased duration and severity of drought as well as the return of Tulare Lake (Medellin-Azuara et al. 2022). The trends of more severe and longer-lasting heat and drought, as well as groundwater depletion and the increased risk of wildfire that follows, will no doubt continue to negatively impact the region's economy.[30] Among other things, this creates both the need and opportunity to invest in strategies that increase the region's economic resilience, including by supporting current dominant industries as they integrate climate-forward measures, such as reducing greenhouse gas emissions and other pollutants, as well as by growing new industries that are well-positioned to support climate and economic goals (such as clean energy, one-water resource management, and circular manufacturing). Some of these industries will be defined and explored in greater depth through the second phase of research support for the Valley CERF process.

Particularly given the region's demonstrated strengths in securing federal funding, there is an opportunity to leverage federal funding under the Infrastructure Investment and Jobs Act[31] as well as the Inflation Reduction Act[32] to invest in some of these industries, such as clean energy and one-water resource management. Some advocates believe that some of the proposed provisions in the 2023 Farm Bill present significant opportunities to invest in regenerative agriculture and forestry practices, which provide economic, equity, public health, and ecosystem benefits.[33]

The prevalence of disinvested communities in the Valley CERF region is also a critical opportunity for climate-conscious investments to center equity. There are many equity considerations, including how decisions are made about what investments to make; where investments are made; and who benefits from the direct, indirect, and induced economic outcomes of investments.

There Is a Significant Mismatch Between Available Housing-Wage Jobs in the Region and the Profile Of Workers Living in Disinvested Communities

To ameliorate this mismatch, several economic frameworks—and the business models that stem from them—can be adopted and scaled in the region in support of CERF goals. Frameworks like local economies, triple-bottom-line economies, cooperative economies, circular economies, and doughnut economies have been correlated with (or show promise to lead to) higher wages, economic equity, environmental health, stronger and more resilient businesses, and stronger and more resilient economies.[34] Some of these economic frameworks will be defined and explored in greater depth through the second phase of research support for the Valley CERF process.

Considering the prevalence of government jobs in the region, as well as the underrepresentation of residents living in disadvantaged communities in these jobs, there is a need and an opportunity for government entities in the region to become employers that model practices aligned with CERF goals. This includes ensuring that the government workforce in the region is fully representative of the region's communities and that the pay and benefits provided reflect the needs of a diverse workforce and the context of the region. Achieving this may require an analysis of and adjustments to current recruitment practices and hiring requirements.

Further, the business ecosystem can be designed to ensure economic resilience, equity, and environmental health. For example, policies (regulatory, restrictive, and facilitating) can activate the private sector to adopt, maintain, and improve socially and environmentally responsible business practices. Business development efforts, as well as equitable and procurement policies, can focus on local business owners—especially women owners and owners of color—which can not only ensure that business owners in the region are representative of the population but also help ensure investments create equitable opportunities for diverse local businesses. Upskilling and reskilling workers, with a focus on workers living in disinvested areas, can help ensure investments lead to family-supporting jobs for people with a range of work experiences, lower educational attainment, or those facing other barriers to employment. And well-designed programs and initiatives can help ensure new technologies and other resources are accessible and affordable to those living in disinvested areas.

Investing in Public Health in the Region Not Only Can Help Meet Current and Future Health Care Needs of Residents in the Region's Disinvested Areas but also Create New and Quality Jobs in Those Communities

There are significant gaps in the availability of health care services in the region, with disparities between residents living in disinvested areas and those living in the rest of the Valley CERF region. Further, the impacts of climate change will continue to negatively affect air, water, and soil quality in the region.[35] As discussed in this report, increasing public health concerns for residents in the region will follow these climate-change related impacts and will be disproportionately felt by people living in disinvested areas. Current and future public health needs create both the need and opportunity to significantly expand the number—and improve the distribution—of health care providers, as well as increase health insurance coverage and access to preventative care, all with a focus on people living in disinvested areas.

Additionally, given the racial and ethnic diversity of the region, policymakers need to ensure current and future health care providers are representative of and culturally sensitive to the communities they serve. Achieving this representation is dependent on many things, including addressing the disparities between current levels of education in the region—especially for those living in disinvested areas—and the education requirements of many health care jobs.

Poverty and Inequality in the Region Are Persistent, and Families and Communities Lack Basic Needs Necessary for Them to Thrive

Residents in the Valley CERF region need more pathways out of poverty and low-paying jobs. There are many factors necessary to achieve upward mobility, including affordable housing, jobs that provide a thriving wage, and digital access.[36]

Reliable internet and broadband are necessary for many things in today's world. They enable the public and private sectors to deliver—and consumers to receive—health care, education, public services, social services, and goods. They are also critical for connecting people to employment opportunities,[37] as well as advancing the clean energy economy and "smart" technologies that can help with water and energy conservation and other resource conservation practices. There is a need and opportunity for the region to leverage its many sources of federal funding to expand broadband, particularly in rural areas, to ensure everyone in the region has access.

The Urban Institute has many resources on boosting upward mobility and housing justice. Urban's *Boosting Upward Mobility: A Planning Guide for Local Action*, one of many publications under Urban's Boosting Upward Mobility Framework,[38] offers a step-by-step guide for local government and community leaders to better understand barriers to upward mobility and to build a team capable of planning, advocating for, and implementing a set of systems changes intended to bring and keep all members of their community out of poverty. Urban's Housing Justice Hub[39] draws on researchers' expertise in housing research and policy, racial equity analytics, and strategic advising on cross-sector housing solutions, and creates and shares data tools and analyses intended to support policymakers and community partners to design, implement, and monitor policies and programs to achieve housing justice for all.

The Central San Joaquin Valley faces several intersecting and interdependent economic, equity, public health, and climate change challenges. Through evidence-based local and regional high-road economy road maps and transition plans, and subsequent state investment for implementation, Valley CERF has an important opportunity to begin to address them. And, as robust as CERF planning efforts are, they can only achieve so much. Current and comprehensive government-led plans, including at a local and regional scale, are also needed to ensure there is a clear directive and accountability for achieving economic health and resilience, equity, and climate action in the Central San Joaquin Valley. Local and regional plans, as noted earlier in this report, are required by California state laws, and could also better position local and regional governments to respond quickly to funding opportunities, whether they are from the state or federal government or other sources.

Notes

[1] Both are available on the Sierra San Joaquin Jobs Initiative website at https://www.s2j2initiative.org/news-resources.

[2] Migration Policy Institute analysis of US Census Bureau data from the 2015–19 American Community Survey pooled and the 2008 Survey of Income and Program Participation, drawing on a methodology developed in consultation with James Bachmeier of Temple University and Jennifer Van Hook of the Population Research Institute at Pennsylvania State University.

[3] "2021 Poverty Guidelines," Office of the Assistant Secretary for Planning and Evaluation, US Department of Health and Humans Services, February 1, 2021, https://aspe.hhs.gov/2021-poverty-guidelines.

[4] In this dataset, in most cases, businesses are one establishment and multi-establishment businesses are counted toward the primary or largest establishment. See also "California Size of Business – Number of Businesses by Employment Size, Industry, and County," Employment Development Department, State of California, https://labormarketinfo.edd.ca.gov/LMID/Size_of_siness_Data.html.

[5] Data are from "Business Dynamics Statistics (BDS)," US Census Bureau, updated January 31, 2024, https://www.census.gov/programs-surveys/bds.html.

[6] Only Fresno and Tulare Counties had data available for the percentage of Hispanic and female business owners, which is why our comparison is restricted to these counties. In Kings County, 71 percent of business owners are white, although white people in Kings County represent 57 percent of the population. In Madera, 75 percent of the business owners are white compared with 55 percent of the overall population. For Kings County and Madera County, demographic data for business owners are only reported for the following categories: white, male, and non-Hispanic. Data are suppressed for all other demographic categories due to small sample sizes.

[7] In California, 2 percent of businesses are Black owned compared with 6 percent of the population. In Fresno, 2 percent of the businesses are Black owned compared with 5 percent of the population. In Tulare, less than 1 percent of businesses are Black owned compared with 2 percent of the population. Across the state of California, 22 percent of businesses are Asian owned compared with 15 percent of the population. In Fresno, 18 percent of businesses are Asian owned compared with 11 percent of the population. In Tulare, 15 percent of businesses are Asian owned compared with 4 percent of the population.

[8] Data come from the 2021 Annual Business Survey, which reports data collected in 2020. The comparisons are from the five-year American Community Survey (2017–2021). Business ownership counts under each demographic when 51 percent or more of the business stock or equity is owned by that demographic.

[9] "Employment Projections: 2023–2033 Summary," US Bureau of Labor Statistics, news release, August 29, 2024, https://www.bls.gov/news.release/ecopro.nr0.htm.

[10] Note that this distribution is different from the graph above, which displays the top industries for job growth, rather than the top industries forecasted in 2030.

[11] Jose A. Del Real, "How Racism Ripples Through Rural California's Pipes," *New York Times*, November 29, 2019, https://www.nytimes.com/2019/11/29/us/water-racism-california.html. See also Greene (2021), London et al. (2021), and Fernandez-Bou et al. (2021).

[12] Emily Baumgaertner, Jason Kao, Eleanor Lutz, Josephine Sedgwick, Rumsey Taylor, Noah Throop, and Josh Williams, "Noise Could Take Years Off Your Life. Here's How," *New York Times*, June 9, 2023, https://www.nytimes.com/interactive/2023/06/09/health/noise-exposure-health-impacts.html; Basner et al. (2014).

[13] "Climate Change and Health Profile Reports," California Department of Public Health, updated December 21, 2023, https://www.cdph.ca.gov/Programs/OHE/pages/climatehealthprofilereports.aspx.

[14] "State Health Facts: Total Hospital Beds," KFF, https://www.kff.org/other/state-indicator/total-hospital-beds/.

[15] "Understanding Hospital Bed Capacities Nationwide amid COVID-19," Urban Institute, March 19, 2020, https://www.urban.org/policy-centers/health-policy-center/projects/understanding-hospital-bed-capacities-nationwide-amid-covid-19.

[16] Virginia Gewin, "How a Dangerous Stew of Air Pollution Is Choking the United States," *Nature*, December 6, 2022, https://www.nature.com/articles/d41586-022-04333-9; Keswani et al. (2022).

[17] Gewin, "How a Dangerous Stew of Air Pollution Is Choking the United States"; Keswani et al. (2022).

[18] Adults are considered to have current asthma if they answered affirmatively to the following questions: "Have you ever been told by a doctor, nurse, or other health professional that you have asthma?" and "Do you still have asthma?" in the 2020 BRFSS.

[19] Adults are considered to have chronic kidney disease if they answered affirmatively to having ever been told by a doctor, nurse, or other health professional that they have kidney disease in the 2020 BRFSS.

[20] Adults are considered to have chronic obstructive pulmonary disease if they answered affirmatively to ever having been told by a doctor, nurse, or other health professional that they had chronic obstructive pulmonary disease (COPD), emphysema, or chronic bronchitis in the 2020 BRFSS.

[21] Adults are considered to have diabetes if they answered affirmatively to having ever been told by a doctor, nurse, or other health professional that they have diabetes other than diabetes during pregnancy in the 2020 BRFSS.

[22] "Other races" includes non-Hispanic Black, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, and people who are two or more races.

[23] Adults are considered to have cancer if they answered affirmatively to having been told by a doctor, nurse, or other health professional that they have any other types of cancer (besides skin cancer) in the 2020 BRFSS.

[24] "Heart Disease Facts," Centers for Disease Control and Prevention, accessed DATE, https://www.cdc.gov/heart-disease/data-research/facts-stats/.

[25] "What Is Coronary Heart Disease?" National Heart, Lung, and Blood Institute, National Institutes of Health, accessed DATE, https://www.nhlbi.nih.gov/health/coronary-heart-disease.

[26] Adults are considered to have high blood pressure if they answered affirmatively to having ever been told by a doctor, nurse, or other health professional that they have high blood pressure in the 2019 BRFSS. Adults with diabetes excludes women who were told they have high blood pressure only during pregnancy or told they had borderline hypertension.

[27] "Other races" includes non-Hispanic Black, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, and people who are two or more races.

[28] Adults are considered to have depression if they answered affirmatively to having been told by a doctor, nurse, or other health professional that they had depressive disorder in the 2020 BRFSS.

[29] "Valley Fever," California Department of Public Health, updated June 25, 2024, https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/ValleyFeverBasics.aspx.

[30] For more information on trends related to climate change and environmental resources in the region, see "Community Economic Resilience Fund Environmental and Climate Report," Sierra Resource Conservation

District and Yosemite-Sequoia Resource Conservation and Development Council, 2023, https://sway.office.com/bcmSzA7iUXaGEBfB?ref=Link.

[31] H.R. 3684, Infrastructure Investment and Jobs Act, https://www.congress.gov/bill/117th-congress/house-bill/3684.

[32] H.R. 5376, Inflation Reduction Act of 2022, https://www.congress.gov/bill/117th-congress/house-bill/5376.

[33] "2023 Farm Bill Priorities," Natural Resources Defense Council, May 2023, https://www.nrdc.org/sites/default/files/2023-05/2023-farm-bill-priorities-fs.pdf.

[34] Marie Donahue, "Why Care About Independent, Locally Owned Businesses?" Institute for Local Self-Reliance, July 23, 2018, https://ilsr.org/why-care-about-independent-locally-owned-businesses/; Theodos, Scally, and Edmonds (2018); "What Is a Circular Economy?" Ellen Macarthur Foundation, https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview; Doughnut Economics Action Lab, https://doughnuteconomics.org/.

[35] "Community Economic Resilience Fund Environmental and Climate Report," Sierra Resource Conservation District and Yosemite-Sequoia Resource Conservation and Development Council.

[36] "Upward Mobility Initiative," Urban Institute, https://upward-mobility.urban.org/.

[37] Lara Fishbane and Adie Tomer, "Broadband is too important for this many in the US to be disconnected," Brookings Institution, August 14, 2019, https://www.brookings.edu/articles/broadband-is-too-important-for-this-many-in-the-us-to-be-disconnected/.

[38] "Upward Mobility Initiative," Urban Institute, https://upward-mobility.urban.org/.

[39] "Housing Justice Hub," Urban Institute, https://www.urban.org/projects/housing-justice-hub.

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