In Harm's Way

California Workers at High Risk of Unemployment in the COVID-19 Pandemic

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ECONOMIC ROUNDTABLE
Knowledge for the Greater Good

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1. Executive Summary

In just one month, the coronavirus disease (COVID-19) has spread from infecting a few, distant countries to become a global pandemic, bringing large parts of California's economy to a standstill. Public health directives for consumers to stay at home and nonessential businesses to close for an indeterminate amount of time are causing a profoundly disruptive economic shock. We are seeing the economic fabric of workers earning wages from employers and employers receiving revenue from customers disintegrate as workers lose jobs and are unable to pay for basic needs such as housing, and employers lose customers and are unable to pay basic operating costs for preserving their businesses.

Meeting the basic needs of unemployed workers throughout this economic downturn is essential for preserving our social fabric and civic institutions. California needs to take direct action to address the economic emergency caused by COVID-19 that is causing widespread business closures and extremely high unemployment. *Forty-three percent of California workers have a high risk of unemployment.*

Among California counties the share of workers with a high risk of unemployment ranges from 33 percent in San Francisco up to 49 percent in Riverside, Mendocino, Tehama, and Stanislaus counties. Among California communities the share of at-risk workers ranges from 19 percent in Cupertino, Saratoga and Los Gatos in the Bay Area up to 70 percent in the neighborhood immediately south of downtown Los Angeles.

This report estimates the demography, occupations, industries, and communities of California workers who have a high risk of unemployment so that they and their employers can be located and provided with timely and effective assistance for preventing economic disaster. It uses data about workers, their occupations and the risk of unemployment from the Census Bureau, the Federal Reserve Bank of St. Louis and the U.S. Department of Labor.

The onset of unemployment has been sudden and widespread, and in the confusion of this economic emergency many suddenly destitute workers may not receive timely help or any help at all unless methodical, evidence-based tools are used to identify them. The information in this report can support systematic efforts to locate unemployed workers and meet their urgent needs.

The burden of unemployment is unequally distributed among workers. It rests most heavily on young adults, Latinos, and workers in restaurant, hotel, personal care, and janitorial jobs. Young adults graduating from school and attempting to enter the job market face extremely difficult challenges.

A consequence of social distancing and business closures to protect public health during the pandemic is to transform the health risks of older individuals, who are most vulnerable to COVID-19, into economic risks for low wage workers, who often are younger individuals and service workers who perform tangible rather than conceptual tasks, and who have the highest risk of unemployment. The assumption underlying this transfer of risk is that we all have an obligation to protect each other's lives. The reciprocal obligation

is to protect each other's economic well-being, specifically, employment and wages for workers whose jobs have been sacrificed to protect the lives of others.

Many workers who still have jobs are risking their health. Health care workers have uniquely high risks of being infected with COVID-19 because they have very frequent direct physical contact with infected individuals. The risk of being infected by the coronavirus as a result of working in close proximity to other people is greatest among physicians, nurses, and medical technicians. There also are elevated risks of infection for low income workers, African Americans, Latinos, young adults, health care support workers such as home health aides, personal care workers such as child care workers, and protective service workers such as police officers and firefighters.

Many households already have unpaid rent, bills and loan obligations. Half of California's workers earn $40,000 or less a year. These workers are likely to have little or no financial reserves and many are encumbered with debt. Workers in this group who are unemployed, or become unemployed, need immediate wage replacement.

Similar financial safety nets need to be extended to small and medium size businesses in order to preserve California's employment base. California has over 940,000 employment establishments, and over 800,000 of these establishments have less than 20 employees. This is an extraordinarily large and diverse employment community to locate, engage, and provide with timely, effective financial support.

The information shown in this report is available in much greater detail, breaking out workers in every demographic group, with every type of employer, in 265 communities, 269 industries, and 525 occupations.

As workers lose their jobs, businesses close and family incomes vanish, California government agencies, foundations and community-based organizations need to act rapidly to identify unemployed workers and provide all available regulatory, material and economic assistance. This support is particularly important in communities where a large share of workers have a high risk of unemployment and includes:

1. Food banks with adequate food inventories and staffing to meet community needs.
2. Regulatory, legal aid and community outreach staff to ensure that community residents receive the full benefit of all types mandated economic relief including moratoriums on evictions, foreclosures, utility shut-offs, and consumer debt collection.
3. Access to all forms of economic support including Unemployment Insurance and CARES Act payments, Pandemic Unemployment Assistance, public assistance benefits, disability insurance, and Paid Family Leave.
4. Outreach to employers to encourage and help structure work sharing programs that retain as many workers as possible on employers' payrolls and preserve their eligibility for employee benefits including health insurance.
5. Health care and health insurance.
6. Emergency housing.
7. Public employment programs and job training and re-employment programs.

2. Workers at High Risk of Unemployment

In just one month, the coronavirus disease (COVID-19) has spread from infecting a few, distant countries to become a global pandemic, bringing large parts of California's economy to a standstill. Public health directives for consumers to stay at home and nonessential businesses to close for an indeterminate amount of time are causing a profoundly disruptive economic shock. We are seeing the economic fabric of workers earning wages from employers and employers receiving revenue from customers disintegrate as workers lose jobs and are unable to pay for basic needs such as housing, and employers lose customers and are unable to pay basic operating costs for preserving their businesses.

This report estimates the demography, occupations, industries, and communities of workers who have a high risk of unemployment so that they and their employers can be located and provided with timely and effective assistance for preventing economic disaster.

Early data show that unemployment is spiking rapidly and we still don't know how long the economic shutdown will last. Since the baseline week of March 14, when social distancing and business closures began, weekly unemployment insurance claims increased 199 percent.[1]

- *2,074,736* U.S. unemployment insurance claims in the week ending March 14
- *3,383,382* U.S. unemployment insurance claims in the week ending March 21
- *5,823,917* U.S. unemployment insurance claims in the week ending March 28
- *6,203,359* U.S. unemployment insurance claims in the week ending April 4

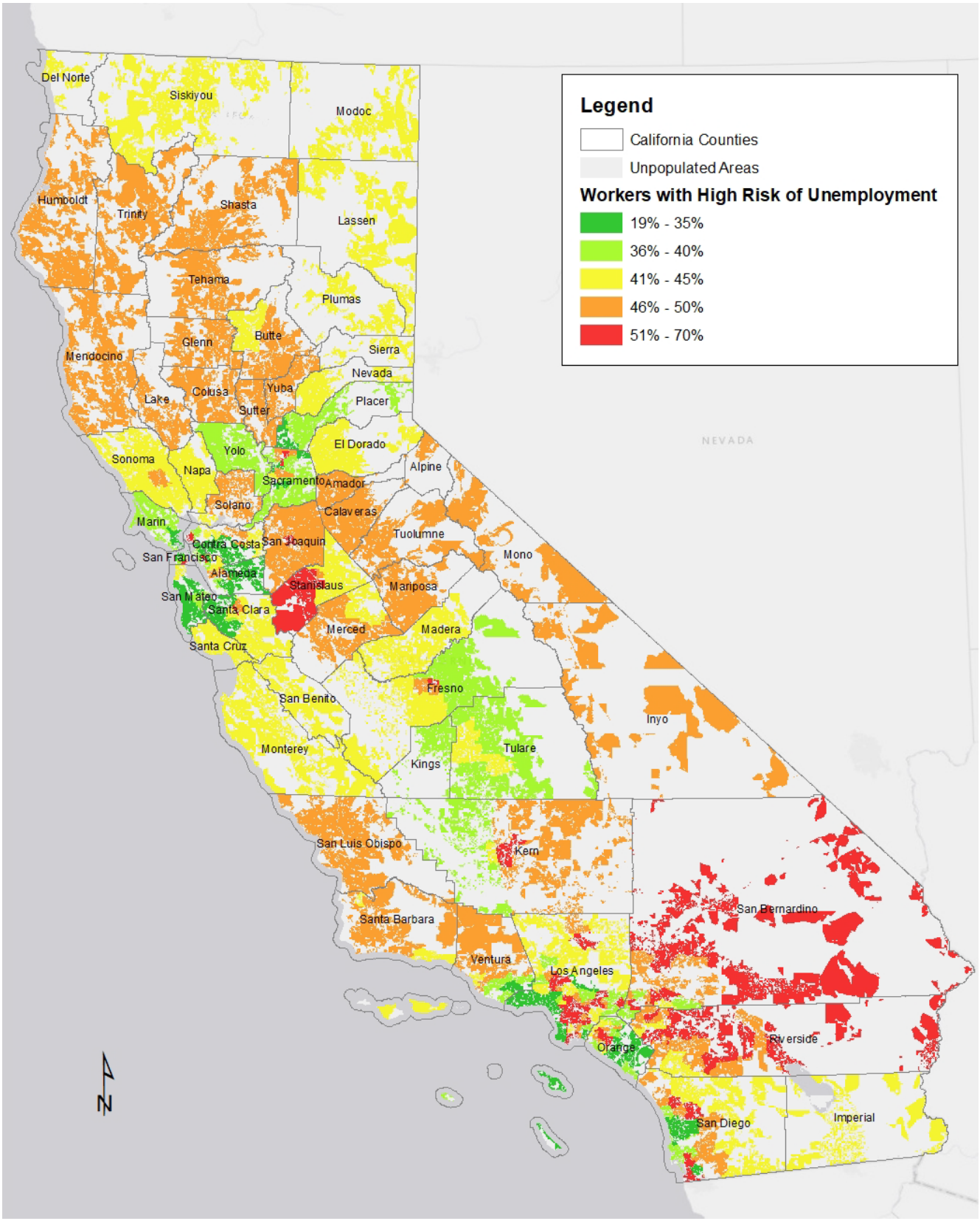
Over fifteen million people have applied for unemployment insurance in the last three weeks. This spike in unemployment claims is a likely precursor of very high rates of long-term unemployment as large numbers of workers lose jobs and are unable to find new employment.

There is a high likelihood of prolonged suspension of normal economic activity in order to avoid further waves of infections in the period before a vaccine becomes available. An economic projection by the U.S. Congressional Budget Office anticipates that social distancing policies will need to continue through the end of 2020.[2] It is possible that rapid development of a vaccine or effective medical treatments for COVID-19 will make it possible to resume normal economy activity sooner, but these solutions are not yet in sight. Unfortunately, it is more realistic to anticipate very high and prolonged levels of unemployment in California.

According to a recent poll, 33 percent of U.S. voters have already lost their job, been furloughed, placed on temporary leave, or had hours reduced, with 41 percent of those who've lost a job already reporting having trouble covering basic costs.[3]

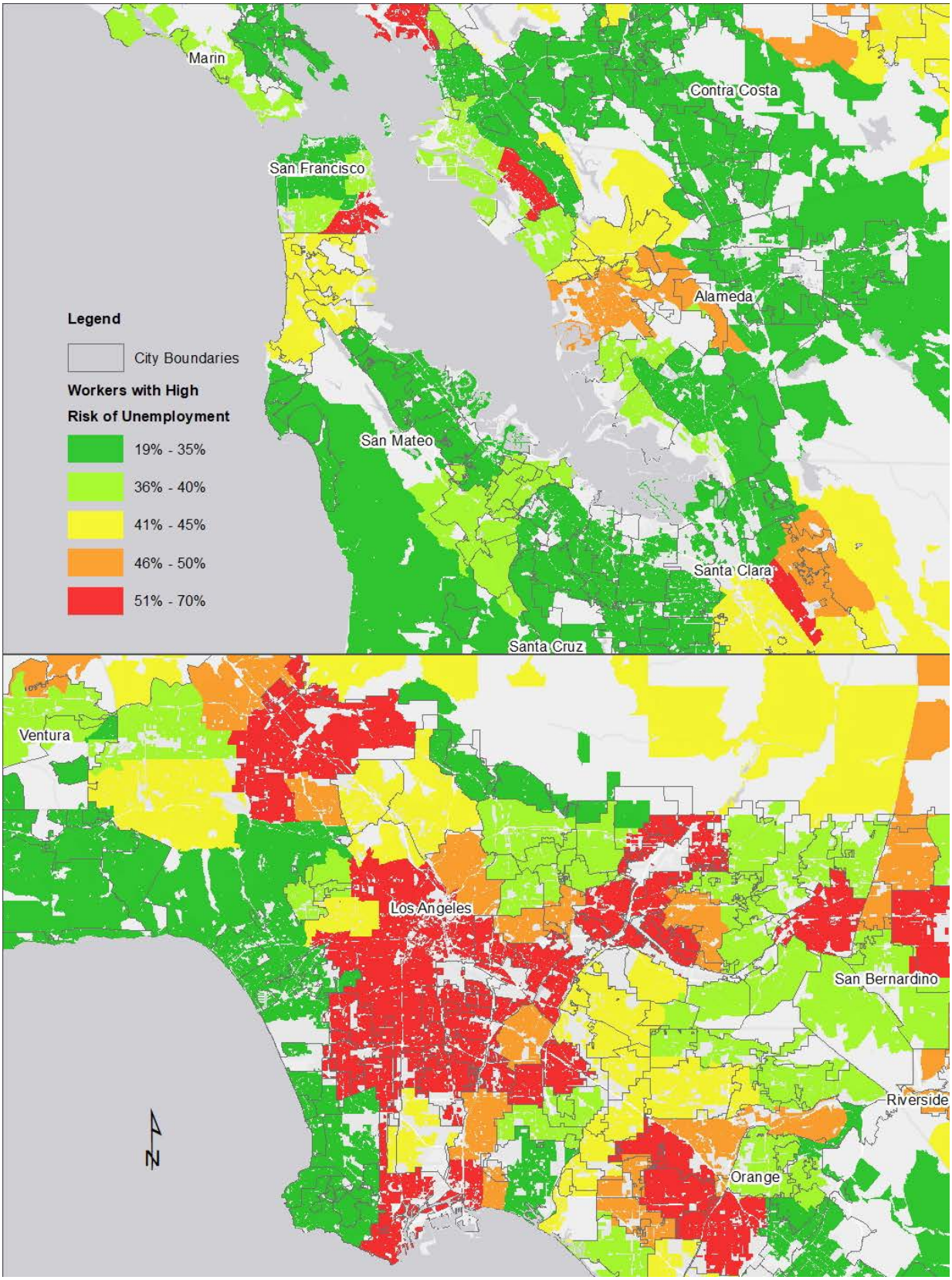
Meeting the basic needs of unemployed workers throughout this economic downturn is essential for preserving our social fabric and civic institutions. This report uses the most reliable data available about California's workers who are at high risk of unemployment because of the pandemic. Detailed worker-level records from the U.S. Census Bureau's

Figure 1: Percent of California Workers in Each Community at High Risk of Unemployment



Sources: Federal Reserve Bank of St. Louis, U.S. Census Bureau American Community Survey Public Use Microdata Sample, 2014-2018, and Economic Roundtable. Communities are Public Use Microdata Areas with an average population of approximately 150,000 residents.

Figure 2: Percent of Workers in at High Risk of Unemployment in the Bay Area and the Los Angeles Region



Sources: Federal Reserve Bank of St. Louis, U.S. Census Bureau American Community Survey Public Use Microdata Sample, 2014-2018, and Economic Roundtable. Communities are Public Use Microdata Areas with an average population of approximately 150,000 residents.

American Community Survey (ACS) Public Use Microdata Sample (PUMS) 2014 to 2018[4] have been integrated with occupational risk factors identified by the Federal Reserve Bank of St. Louis[5] and with job characteristic metrics catalogued by the U.S. Department of Labor.[6] This data includes all California civilian workers, including self-employed individuals and independent contractors.

Workers in occupations that do not meet any of the following three criteria were identified by the Federal Reserve Bank of St. Louis as being at high risk of unemployment:

1. Occupations essential to public health or safety (e.g., police)
2. Occupations where *work can likely be completed off-site* (e.g., computer programmers)
3. Positions likely to be *salaried* (e.g., elementary school teachers)

The Federal Reserve Bank of St. Louis' three predictive factors for workers who have a high risk of unemployment provide an inexact but intuitively reasonable and systematic template for identifying jobs that are precarious in a severe recession.

We applied these three factors to all of the workers in California's labor force and found that 43 percent do not have any of the three employment safeguards listed above and are at high risk of unemployment if the coronavirus pandemic causes severe and persistent economic slowdown. The share of workers in each California community who face a high risk of unemployment is mapped in *Figure 1*.

Areas where the most workers have the high risk of unemployment, shaded red in the map, include the urban center of Los Angeles, the Inland Empire, Bakersfield, and Stockton.

Close-up maps of the share of workers with a high risk of unemployment in the Los Angeles region and the Bay Area are shown in *Figure 2*. In the Los Angeles region there is a much lower level of risk in affluent, stable coastal and hillside communities, and a much higher level of risk in the urban center of Los Angeles.

The Bay Area has much higher incomes overall and much lower levels of unemployment risk than the Los Angeles region.

Among California counties the share of workers with a high risk of unemployment ranges from 33 percent in San Francisco up to 49 percent in Riverside, Mendocino, Tehama, and Stanislaus counties. Among California communities the share of at-risk workers ranges from 19 percent in Cupertino, Saratoga and Los Gatos in the Bay Area up to 70 percent in the neighborhood immediately south of downtown Los Angeles. Tables in chapters 9 and 10 provide tables detailing this information for each county and community.

The higher level of job insecurity in the Los Angeles region is in part an outcome of land use policies that have favored businesses that generate sales revenue despite paying low wages.

The share of workers with a high risk of unemployment in Los Angeles County is 47 percent, San Bernardino County 48 percent, and Riverside county 49 percent. In

comparison, the share at high risk in San Francisco County is 33 percent and in Alameda County it's 37 percent.

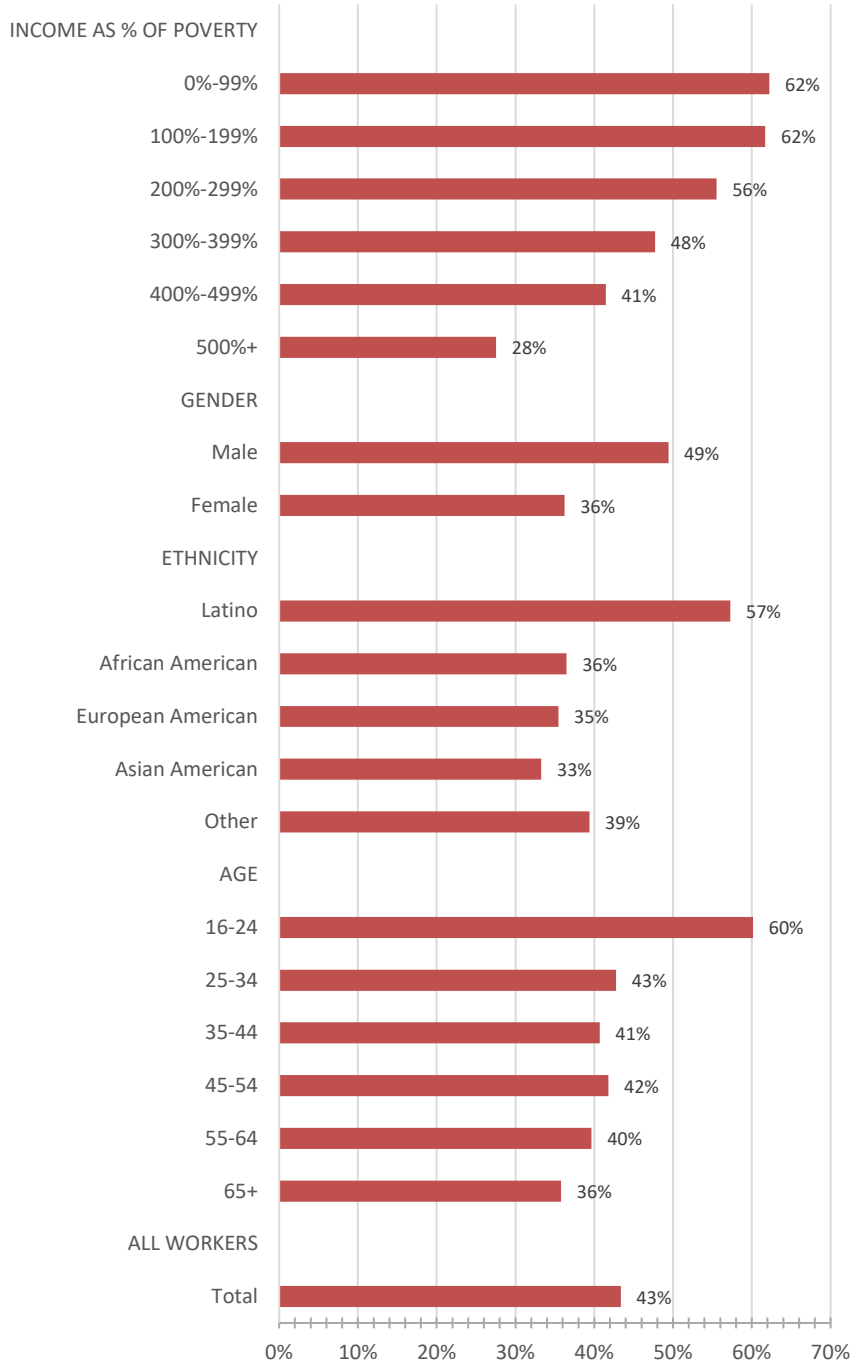
The risk of unemployment decreases for California workers as their income increases, dropping from 62 percent of workers in poverty to 28 percent of workers with family incomes that are five times or more greater than the poverty threshold, as shown in *Figure 3*.

Men have greater risks than women (49 vs 36 percent).

Latinos face much greater risks of unemployment than any other ethnic group – 57 percent compared to from 36 to 39 percent for other ethnicities.

Sixty percent of young adult workers face unemployment compared to about 40 percent of older workers. The high level of risk for young adults already in the labor force indicates that it will be very difficult for youth graduating from high school and college this year to find work unless they are qualified for a high-demand occupation.

Figure 3: Attributes of workers at high risk of unemployment



Sources: Federal Reserve Bank of St. Louis, California ACS PUMS 2014 to 2018, Economic Roundtable

All California workers in five occupational groups have a high risk of unemployment, as shown in *Figure 4*. This includes all workers who prepare and serve food, do janitorial

work, provide personal care such as child care, miners, and repair and maintenance workers such as automotive mechanics.

Almost three-quarters of *Sales* workers (73 percent) and half (51 percent) of workers in *Art, Design, Entertainment and Media* occupations are at risk of unemployment.

Workers in professional and managerial occupational groups are estimated to face much lower risk of unemployment: 17 percent of health care professionals, 15 percent of managers, and six percent of scientists and social workers.

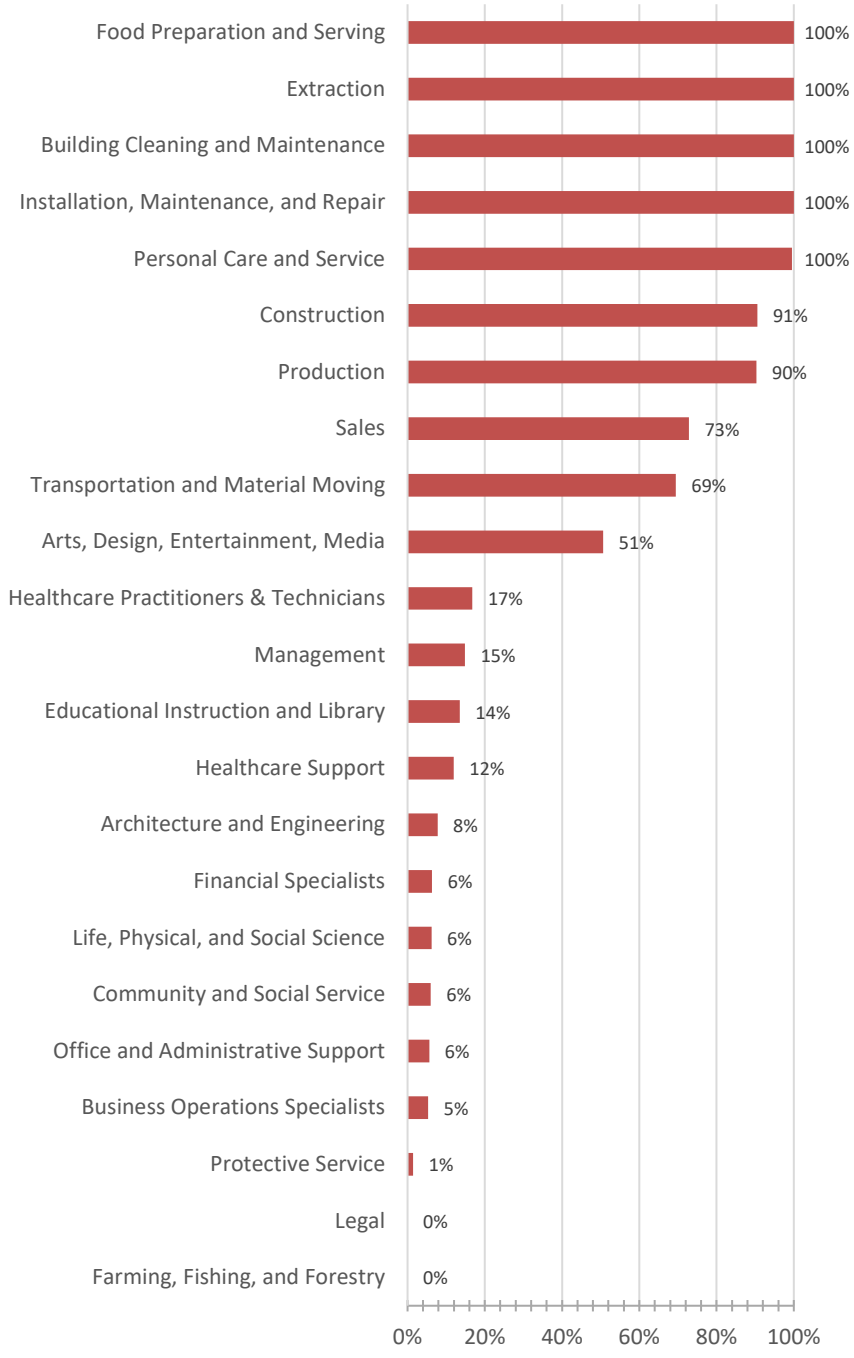
Lawyers and agricultural workers are estimated to have minimal risk of unemployment.

Each industry uses workers in a variety of occupations to produce goods or services, so the risk of unemployment caused by COVID-19 varies among the occupations within industries as well as between industries as a whole.

Almost all restaurant workers (93 percent) and hotel workers (80 percent) face a high risk of unemployment, as shown in *Figure 5*.

Taking the size of industries into account, the fact that half to three-quarters of workers in the *Sales*, *Transportation*, and *Entertainment* industry sectors are at high risk of unemployment is especially significant.

Figure 4: Percent of workers at high risk of unemployment by occupation



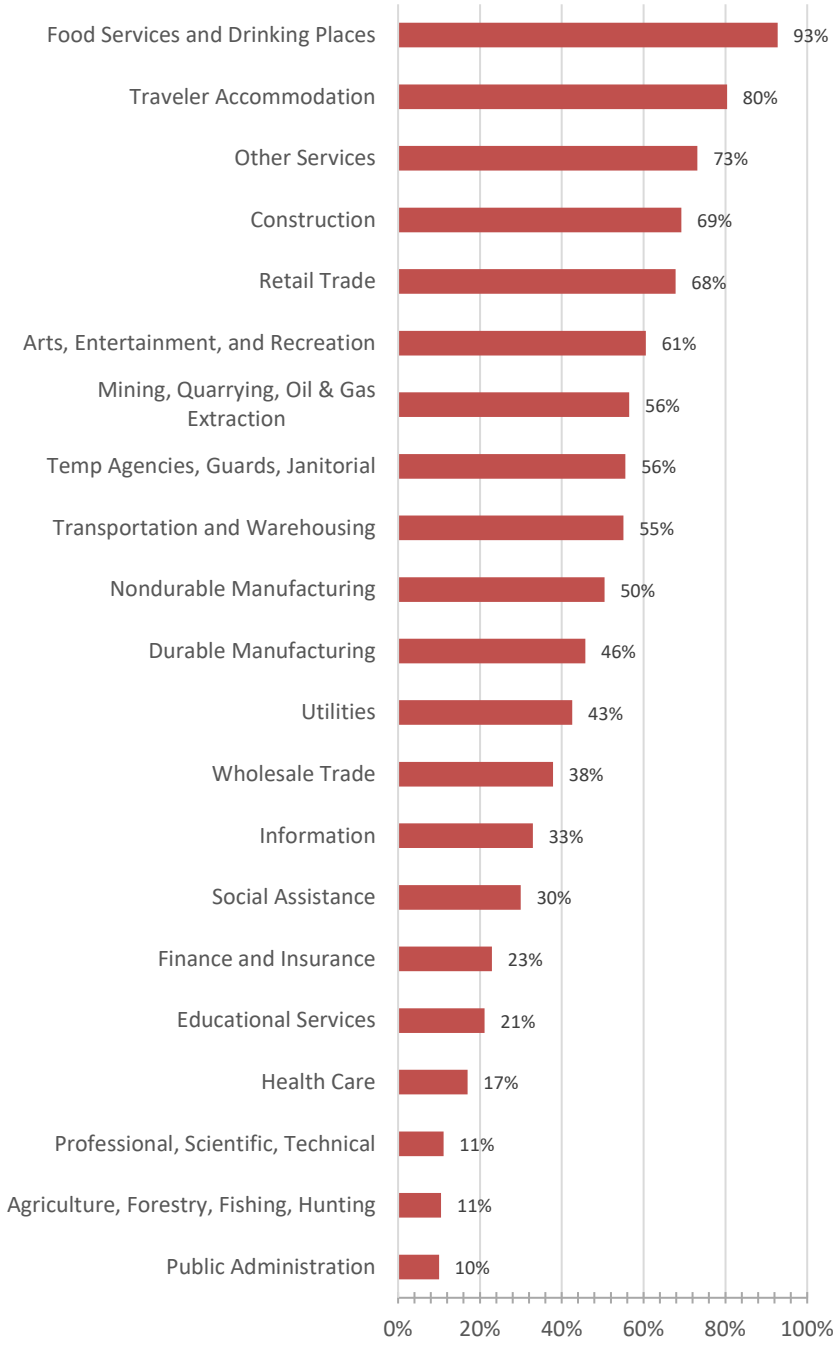
Sources: Federal Reserve Bank of St. Louis, California ACS PUMS 2014 to 2018, Economic Roundtable

This risk projection is validated by a New York Times analysis of credit card use showing the change in American consumption over the month of March:[7]

- *Movie theaters:* -99 percent
- *Airlines:* -92 percent
- *Discount department stores:* -91 percent
- *Lodging*: -88 percent
- *Fine dining*: -85 percent
- *Shoe stores*: -76 percent
- *Apparel stores:* -69 percent
- *Fast food:* -39 percent

Workers in *Government, Agriculture, Professional Occupations, Health Care, Education, Financial Services, Social Services,* and *Information* have the lowest risk of unemployment. Workers in these industry sectors who *are* at high risk include non-salaried, classified positions such as teacher assistants, nursing assistants, and janitors.

Figure 5: Percent of workers at high risk of unemployment by industry



Sources: Federal Reserve Bank of St. Louis, California ACS PUMS 2014 to 2018, Economic Roundtable

In summary, 43 percent of California workers have a high risk of unemployment. The burden of unemployment is unequally distributed. It rests most heavily on young adults, Latinos, and restaurant, hotel, personal care, and janitorial workers.

Young adults entering the job market face very difficult challenges, and every industry has at least some workers at high risk.

3. Jobs without Social Distance

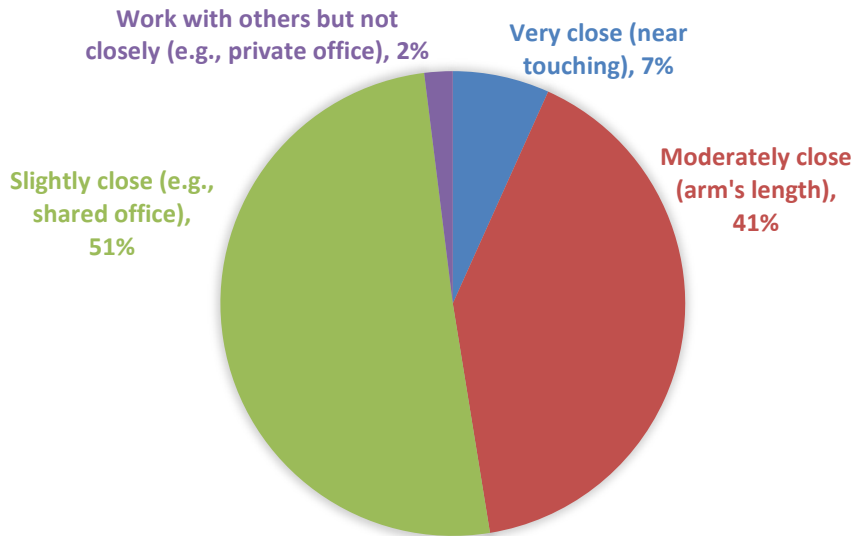
Almost half of California's workers (47 percent) have jobs that require them to be in close physical proximity with other people, as shown in *Figure 6*. This includes 41 percent of workers who are within an arms-length of other people and 7 percent of workers who touch other people in the course of their work.

Social distancing is challenging or impossible for workers whose jobs require them to be in close proximity to other people. This elevates their risk of becoming infected with COVID-19.

These occupational risks are greatest for low-income workers, women, African Americans, Latinos, and young adult workers, as shown in *Figure* 7.

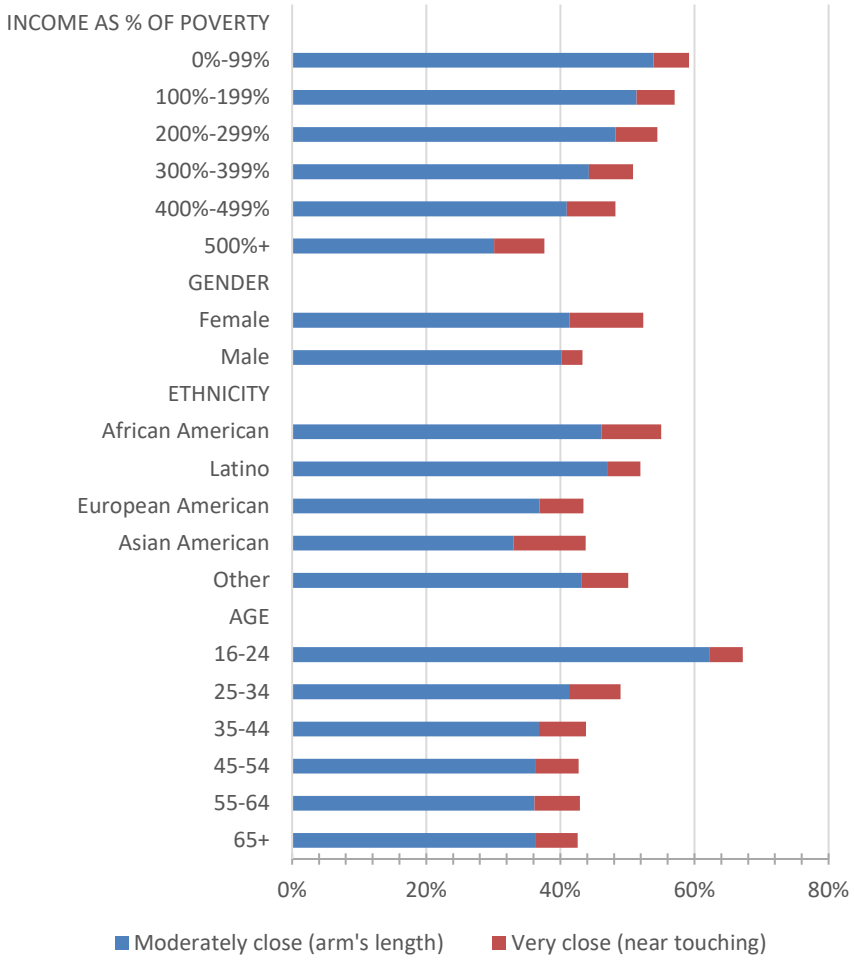
The highest level of risk is among workers who

Figure 6: Percent of workers in close physical proximity to other people



*Sources: California ACS PUMS 2014 to 2018, O*NET version 24.2, Economic Roundtable*

Figure 7: Attributes of workers in close physical proximity to other people



*Sources: California ACS PUMS 2014 to 2018, O*NET version 24.2, Economic Roundtable*

physically touch other people as part of their job. This close level of physical contact is most frequent in the work done by:

- Females 11 percent
- Asian Americans 11 percent
- African Americans 9 percent

The next level of risk, working with in arms-length of other people is most frequent in the work done by:

- Workers age 16-24 62 percent
- Workers with incomes 0 to 99 percent of the poverty threshold 54 percent
- Workers with incomes 100 to 199 percent of the poverty threshold 51 percent

Occupational groups that are most frequently in close physical proximity with other people include health care, personal care and services, and protective services, for example, police and firefighters, as shown in *Figure 8*.

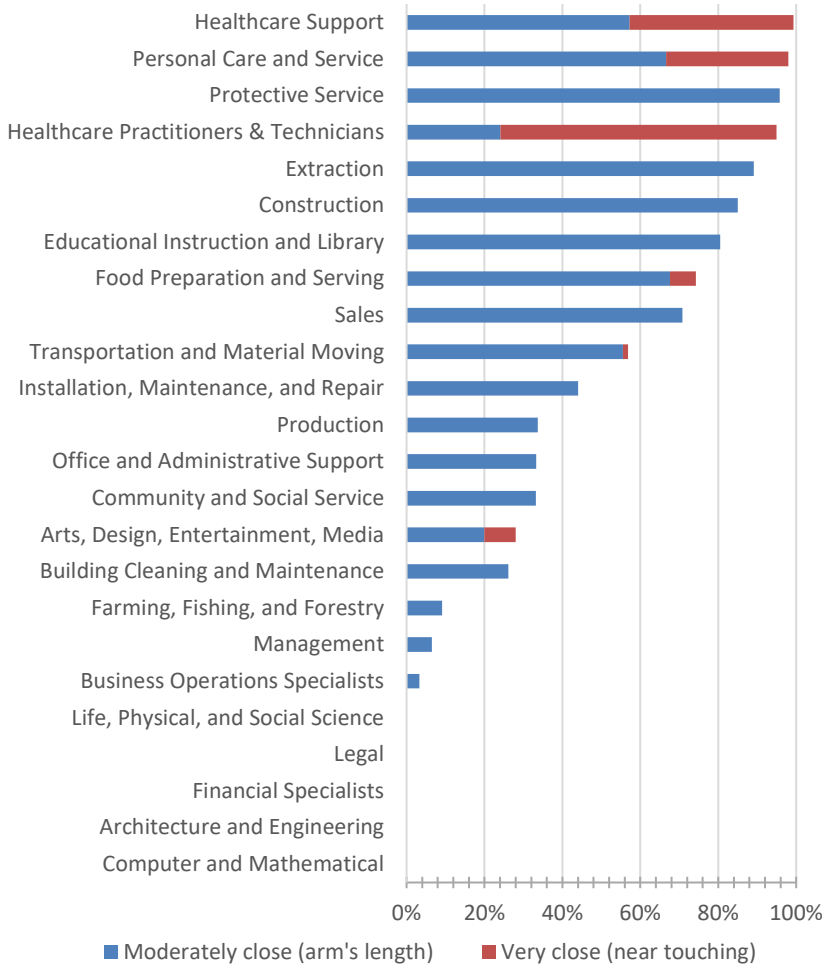
Occupational groups that entail touching other people and have the highest level of risk include:

- Healthcare Practitioners and Technicians: *71 percent*
- Healthcare Support: *42 percent*
- Personal Care and Service: *31 percent*

Occupational groups that most frequently have the next highest level of risk, working within arms-length of other people include:

- Protective Service: *96 percent*
- Extraction (oil, gas, mining): *89 percent*
- Construction: *85 percent*
- Educational Instruction and Library: *80 percent*

Figure 8: Percent of workers in close physical proximity to other people by occupation



*Sources: California ACS PUMS 2014 to 2018, O*NET version 24.2, Economic Roundtable*

Five occupational groups are classified as not requiring any close physical proximity with other people, these include jobs where workers have their own offices or at most are in shared office space:

- Computer and Mathematical
- Architecture and Engineering
- Financial Specialists
- Legal
- Life, Physical, and Social Science

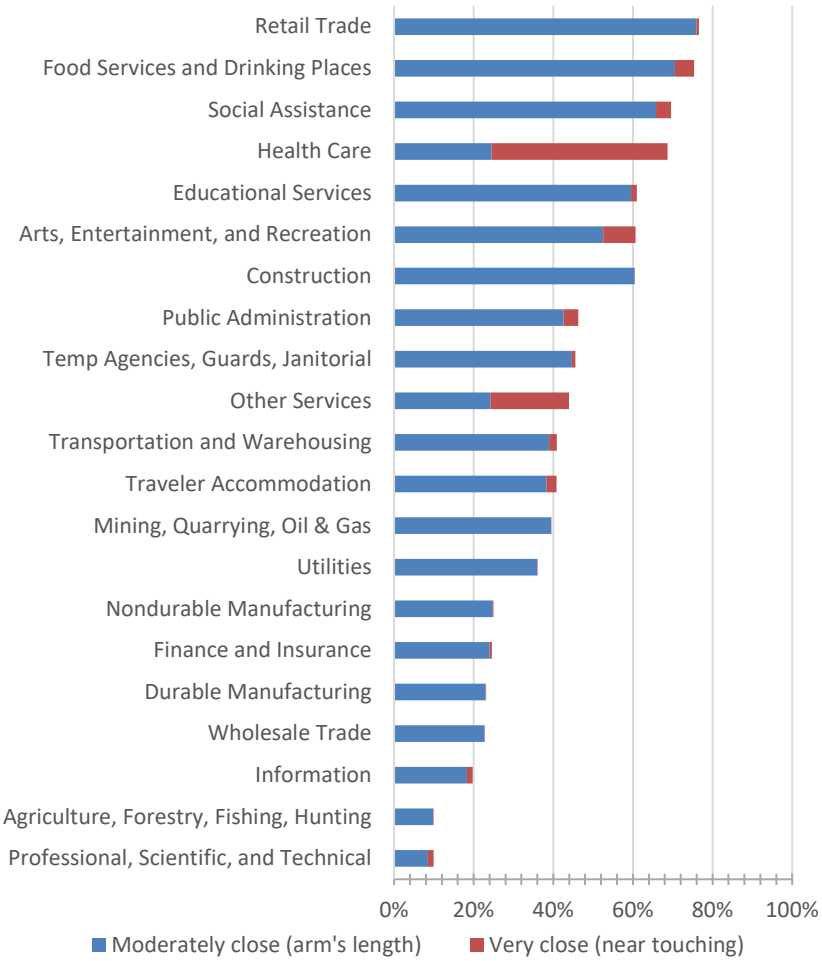
Industry risks are greatest in California's *Retail Trade*, *Food Services and Drinking*, *Social Assistance*, and *Health Care* industry sectors, as shown in *Figure 9*.

Healthcare Practitioners and Technicians, that is physicians and medical technicians, stand out as most frequently having the highest level of risk. Forty-four percent of workers in these industries touch other people in order to do their jobs. The industry where workers are next most likely to touch other people is *Personal Care and Service*, for example beauty salons, where 20 percent of the jobs entail touching other people

Most *Retail Trade* (76 percent), *Food Service* (71 percent) and *Social Assistance* (66 percent) workers are within an arms-length of other people when they do their jobs, creating significant risks of COVID-19 infection.

In summary, the risk of being infected by the coronavirus as a result of working in close proximity to other people is greatest among low income workers, physicians, medical technicians, African Americans, Latinos, young adults, health care support workers such as home health aides, personal care workers such as child care workers, and protective service workers such as police officers and firefighters.

Figure 9: Percent of workers in close physical proximity to other people by industry



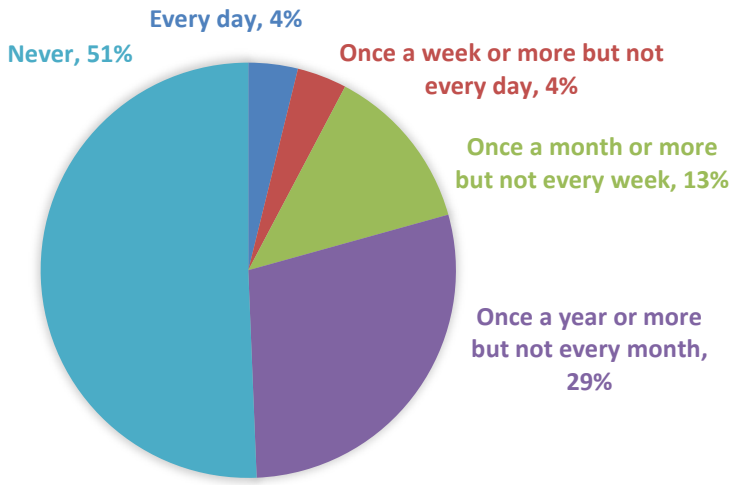
*Sources: California ACS PUMS 2014 to 2018, O*NET version 24.2, Economic Roundtable*

4. Workers Exposed to Disease and Infection

Only four percent of California workers have jobs that expose them to disease and infection every day, as shown in *Figure 10*. Another four percent of workers are exposed to infection once or more a week. Over half of workers (51 percent) are never exposed to disease and infection in the course of their work.

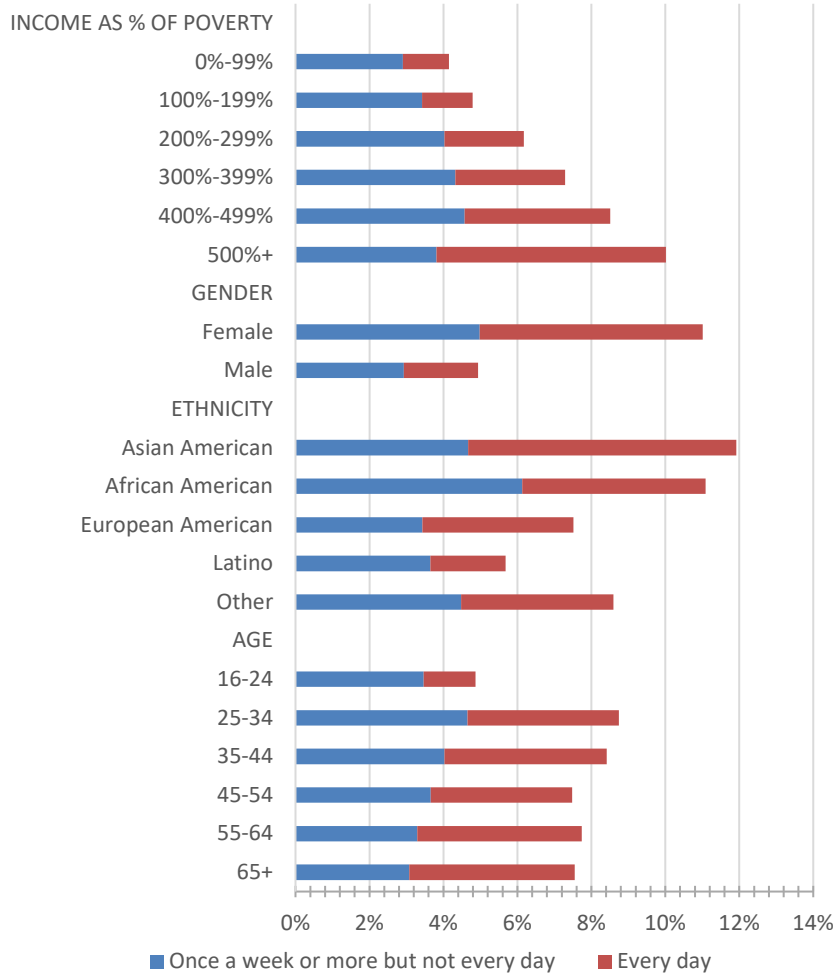
The workers who are most frequently exposed to disease and infection – health care workers – are the same people we turn to for help in treating the coronavirus, which in turn creates high risks that they will become infected themselves.

Figure 10: Percent of workers exposed to disease and infection



*Sources: California ACS PUMS 2014 to 2018, O*NET version 24.2, Economic Roundtable*

Figure 11: Attributes of workers exposed to disease and infection



*Sources: California ACS PUMS 2014 to 2018, O*NET version 24.2, Economic Roundtable*

These workers are disproportionately higher-income, female, Asian American, and African American, as shown in *Figure 11*.

The highest level of risk is among workers who are exposed to disease and infection every day. This high level of exposure is most frequent in the work done by:

- Asian Americans 7 percent
- Income over 500 percent of poverty threshold 6 percent
- Females 6 percent
- African Americans 5 percent

The next level of risk is among workers who are exposed to disease and infection once a week or more but not every day:

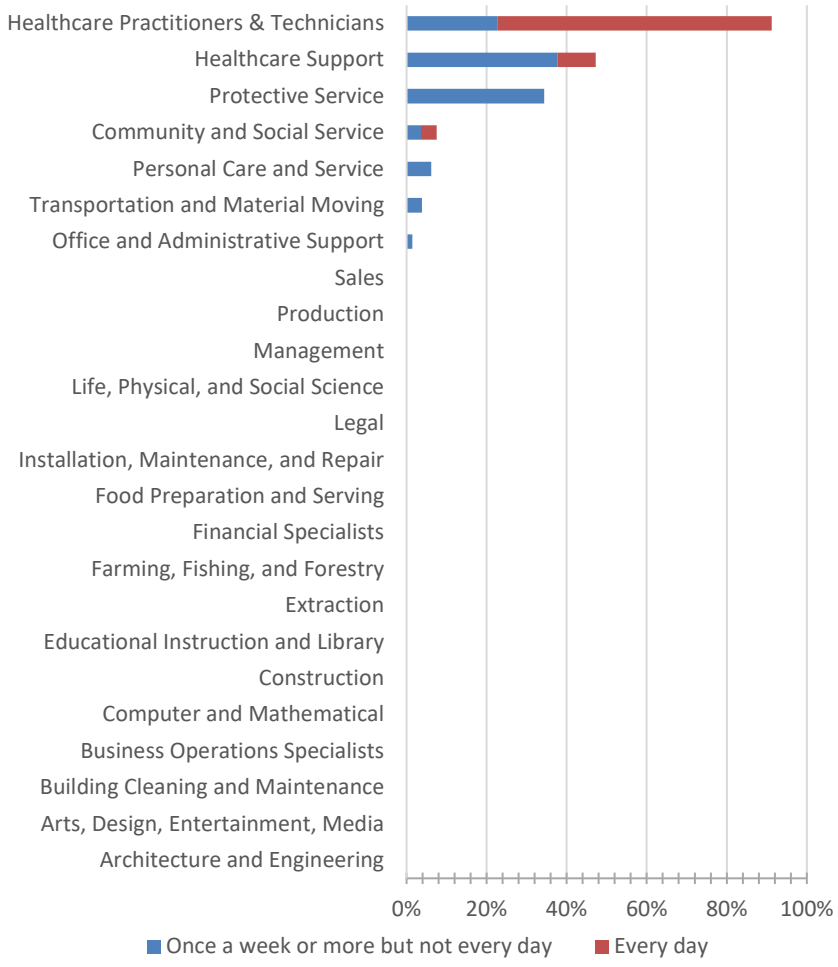
- African Americans 6 percent
- Females 5 percent
- Asian Americans 5 percent

Occupational groups that most frequently require workers to be exposed to disease and infection include *Healthcare Practitioners and Technicians*, *Healthcare Support* workers, and *Protective Service* workers, as shown *Figure 12*.

Physicians and medical technicians are unique in the frequency of daily exposure to disease and infection. Sixty-eight percent of workers in this occupational group have this highest level of risk.

Most occupations do not require workers to have any exposure to disease and infection. Health care workers are unique in the risks they accept to protect the well-being of everyone else.

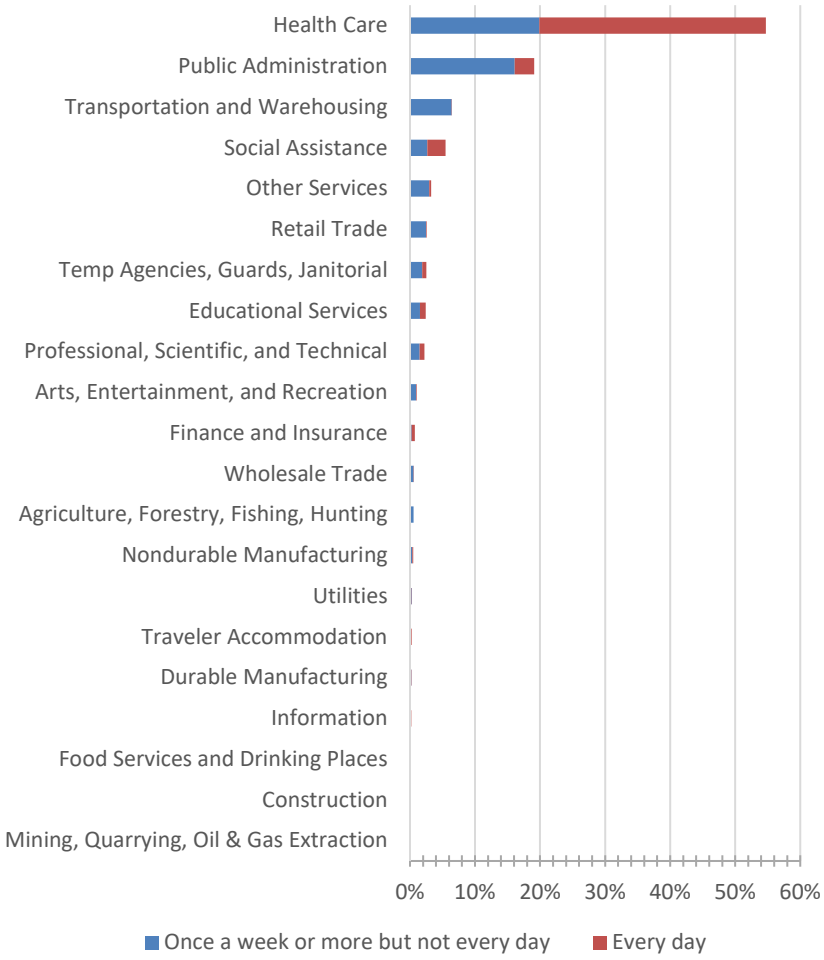
Figure 12: Percent of workers exposed to disease and infection by occupation



*Sources: California ACS PUMS 2014 to 2018, O*NET version 24.2, Economic Roundtable*

A similar picture emerges when workers are grouped by industry sector, as shown in *Figure 13*.

Figure 13: Percent of workers exposed to disease and infection by industry



*Sources: California ACS PUMS 2014 to 2018, O*NET version 24.2, Economic Roundtable*

Health Care workers stand out as having as having by far the most frequent exposure disease and infection. Fifty-five percent of these workers face this risk at least once a week.

Every industry needs the skills of workers in multiple occupations, so many industries have a small share of worker who are exposed to disease and infection. These are likely to be either *Health Care* or *Protective Service* workers.

Public Administration (government) is shown in *Figure 12* to have the second highest rate of exposure to disease and infection among workers. This industry sector employs both Health Care and Protective Service workers.

In summary, there are uniquely high risks from exposure to disease and infection among health workers. Asian Americans, African Americans, females, and individuals with family incomes over 500 percent of the poverty threshold are frequently employed in the health services sector and are exposed to many types of disease and infection, including the coronavirus.

5. Workers who are Essential for Public Health and Safety

The first of the three factors that the Federal Reserve Bank of St. Louis called out as identifying occupations that do not have a high risk of unemployment is work that is essential for public health and safety. This often overlaps with the other two factors, flexibility to work from home and a salaried position. Seventeen percent of California workers have jobs identified by the Federal Reserve Bank of St. Louis as essential for public health and safety, as shown in *Figure 14*.

The profile shown in *Figure 14* is distinct from all of the other profiles shown in this briefing paper because of the comparatively even distribution of these occupations across demographic groups. The two most significant variations are:

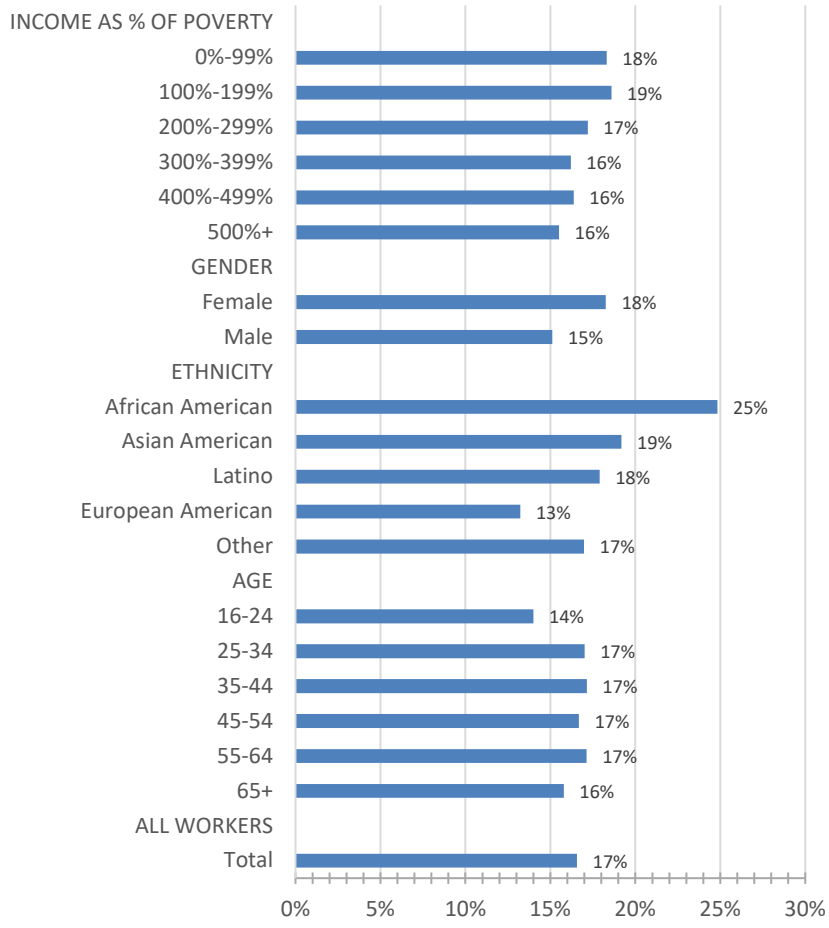
Over-representation of African American workers – 25 percent of African American workers are in these occupations.

Under-representation of European American workers – only 13 percent of European American workers are in these occupations.

There is a comparatively even distribution across income groups. A somewhat larger share of females compared to males, and a comparatively small share of young adult workers.

These occupations perform work that protects society and builds and maintains essential infrastructure, as shown in *Figure 15*.

Figure 14: Attributes of workers with jobs that are essential for public health and safety



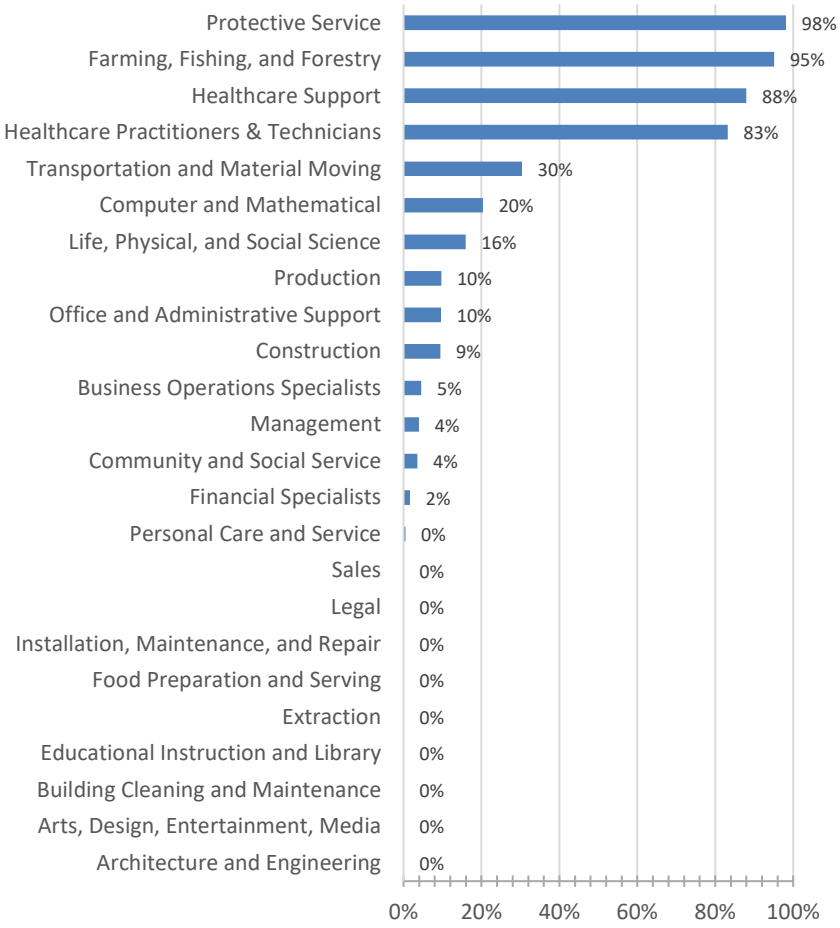
Sources: Federal Reserve Bank of St. Louis, California ACS PUMS 2014 to 2018, Economic Roundtable

The four occupational groups that stand out as having the largest shares of workers performing tasks that are essential for public health and safety are:

- Protective Service: *98 percent*
- Farming, Fishing, and Forestry: *95 percent*
- Healthcare Support: *88 percent*
- Healthcare Practitioners and Technicians: *83 percent*

Transportation and material moving occupations, which include last-mile delivery of e-commerce packages, hold fifth place with 30 percent of workers providing essential services.

Figure 15: Percent of workers with jobs that are essential for public health and safety by occupation



Sources: Federal Reserve Bank of St. Louis, California ACS PUMS 2014 to 2018, Economic Roundtable

Computer and mathematical occupations, which are essential for the internet, hold sixth place with 20 percent of workers providing essential services.

Ten occupational groups do not include any workers providing services that are essential for public health and safety.

Every industry group includes some workers whose occupations are essential for public health and safety, as shown in *Figure 16*.

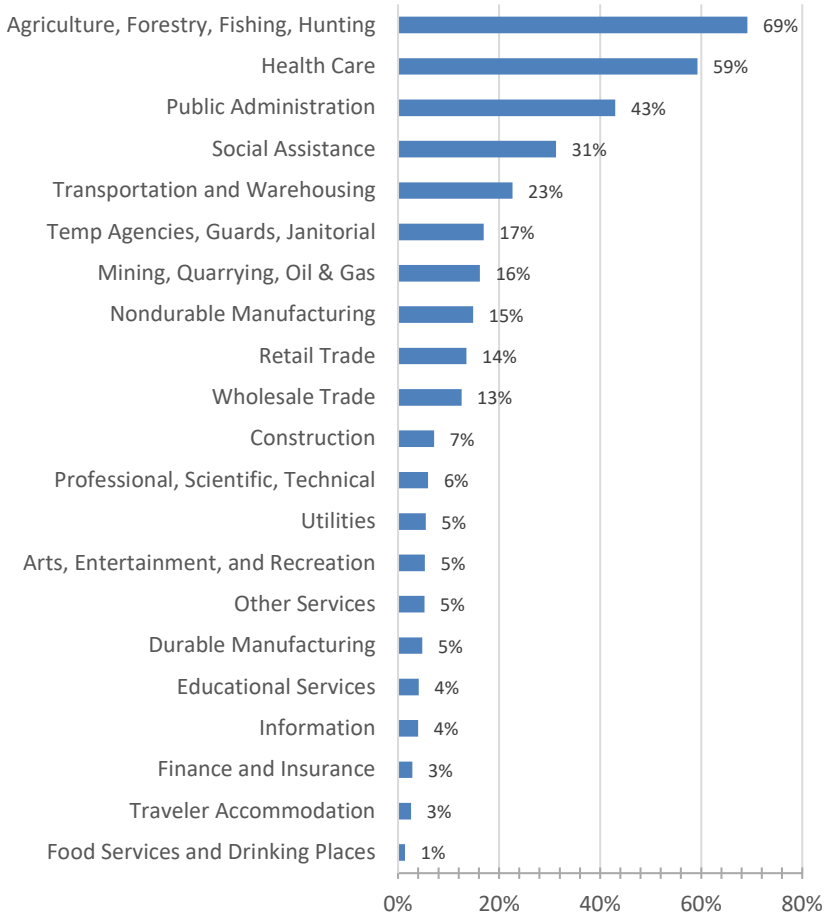
The five industry sectors in which the largest shares of workers are essential for public health and safety are:

- Agriculture, Forestry, Fishing, Hunting 69 percent
- Health Care 59 percent
- Public Administration 43 percent
- Social Assistance 31 percent
- Transportation and Warehousing 23 percent

In summary, workers whose services are essential for public health and safety are comparatively evenly distributed across demographic groups with some over-representation of African Americans and under-representation of European Americans and young adults.

The occupations that are most essential for public health and safety are made up of police officers, firefighters, farm workers, and health care workers.

Figure 16: Percent of workers with jobs that are essential for public health and safety by industry



Sources: Federal Reserve Bank of St. Louis, California ACS PUMS 2014 to 2018, Economic Roundtable

6. Workers with the Flexibility to Work from Home

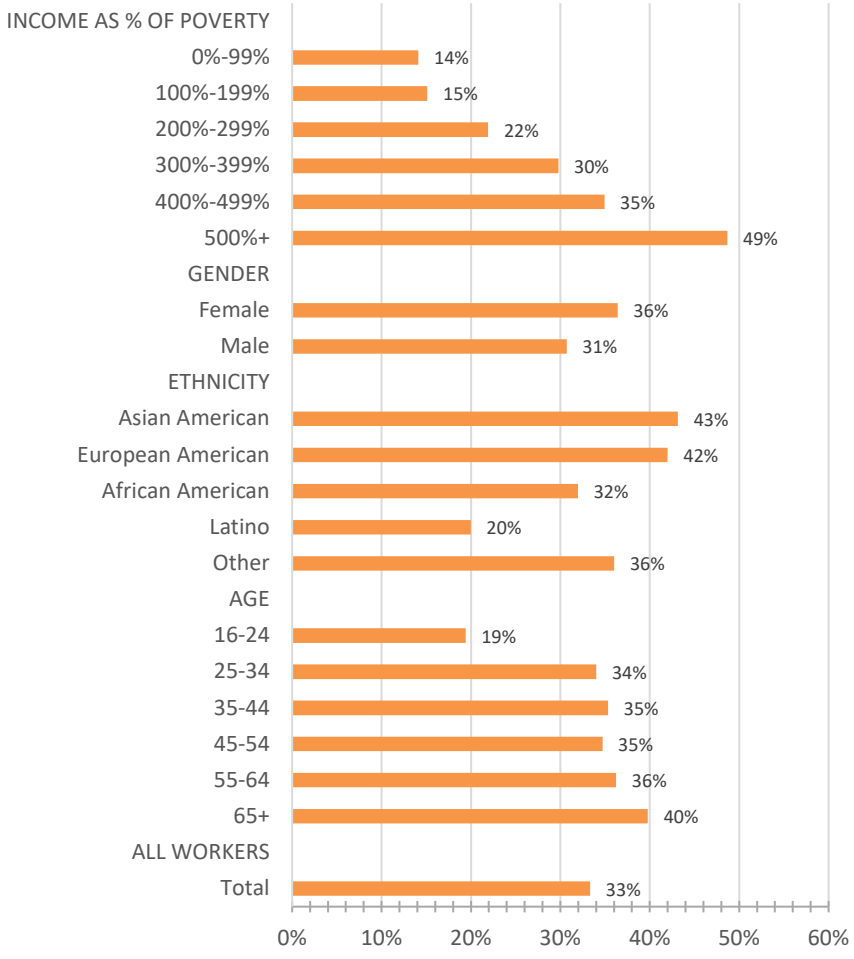
The second of the three factors that the Federal Reserve Bank of St. Louis flagged as identifying occupations that do not have a high risk of unemployment is jobs with the flexibility to work from home. This and the third factor, salaried positions, often overlap. The flexibility to work from home is a crucial benefit during the coronavirus shutdown because it enables workers to continue drawing a paycheck after their offices are shuttered. One third of California workers hold jobs identified by the Federal Reserve as offering the flexibility to work from home, as shown in *Figure 17*.

Several things stand out about these jobs. Most significantly, this flexibility increases in direct proportion to income. Half (49 percent) of workers with incomes five or more times greater than the poverty threshold have this flexibility compared to just 14 percent of workers in poverty and 15 percent of workers just above the poverty threshold. Low wage workers have a very high risk of becoming unemployed when their place of work is closed to maintain social distancing.

Second, Latinos and young adults seldom have the flexibility to work from home (20 and 19 percent respectively).

African Americans have this flexibility in 32 percent of their jobs. Asian Americans and European Americans have it in 43 and 42 percent, respectively, of their jobs.

Figure 17: Attributes of workers with the flexibility to work from home



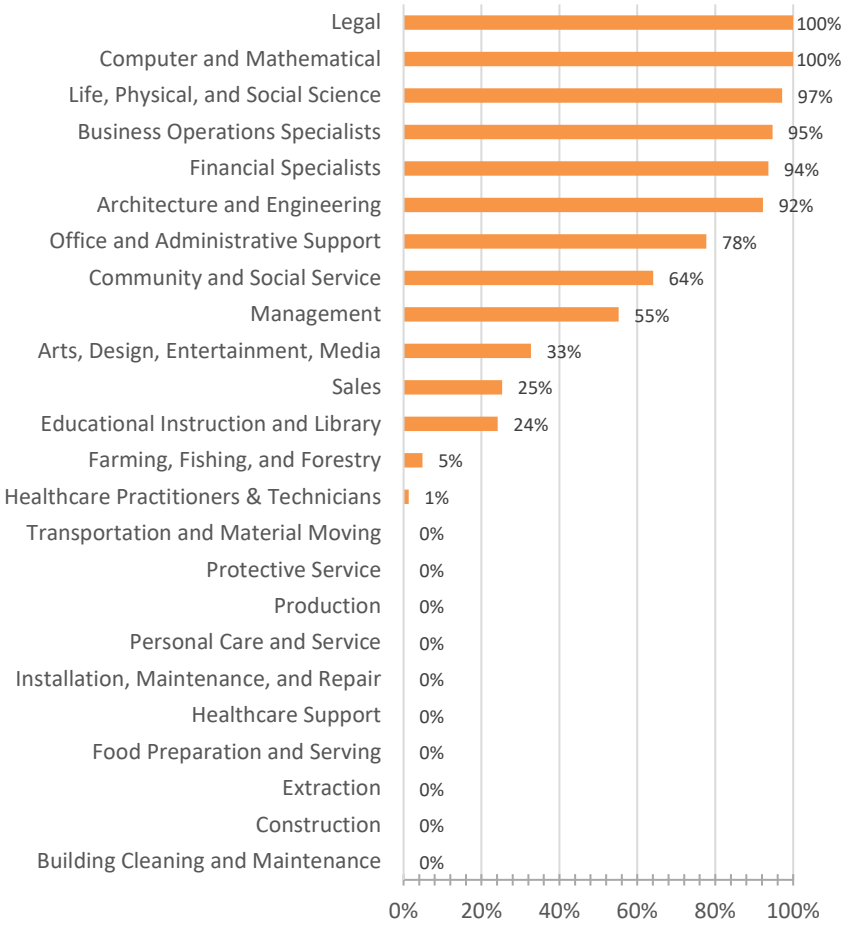
Sources: Federal Reserve Bank of St. Louis, California ACS PUMS 2014 to 2018, Economic Roundtable

These occupations perform work that is often based in offices and focused on analytic and communication tasks that can be performed remotely, as shown in *Figure 18*.

Three-quarters or more of the workers in seven occupational groups typically have the flexibility to work from home.

- Computer and Mathematical: *100 percent*
- Legal: *100 percent*
- Life, Physical, and Social Science: *97 percent*
- Business Operations Specialists: *95 percent*
- Financial Specialists: *94 percent*
- Architecture and Engineering: *92 percent*
- Office and Administrative Support: *78 percent*

Figure 18: Percent of workers with the flexibility to work from home by occupation



Sources: Federal Reserve Bank of St. Louis, California ACS PUMS 2014 to 2018, Economic Roundtable

Ten occupational groups are completely site-based and do not have any identified flexibility to work at home.

Every industry group includes some workers whose occupations provide the flexibility to work from home, as shown in *Figure 19*.

The three industry sectors in which half or more of workers have the flexibility to work from home are:

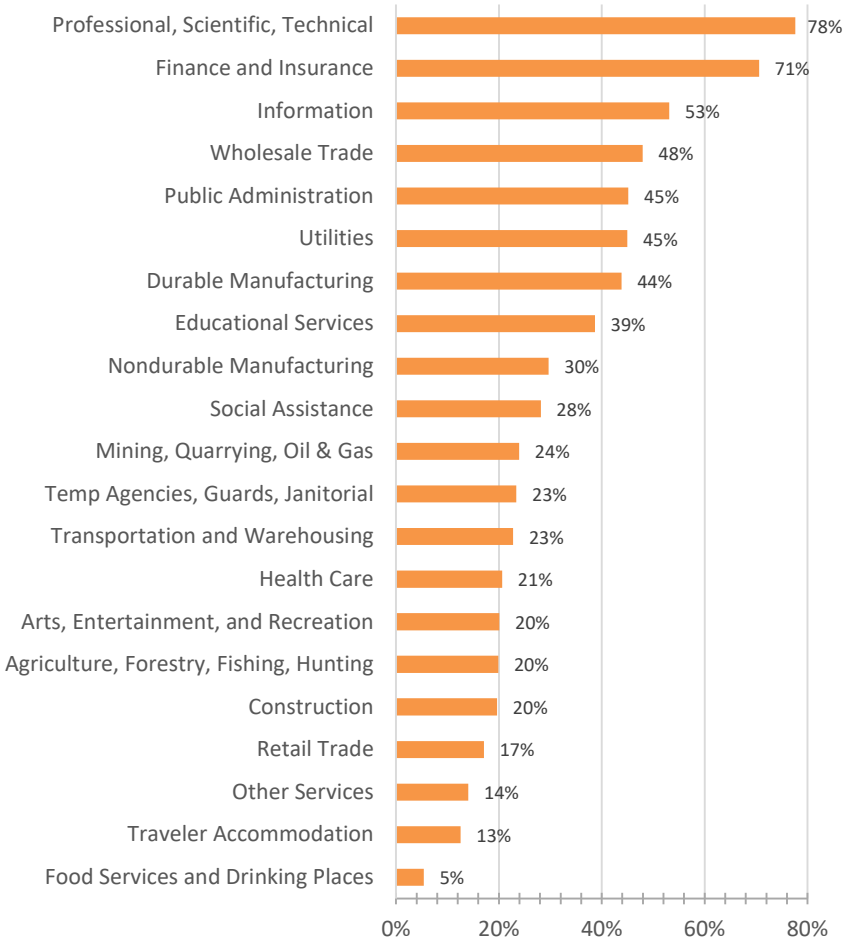
- Professional, Scientific, Technical *78 percent*
- Finance and Insurance *71 percent*
- Information *53 percent*

The seven industry sectors in which only one-fifth or less of workers have the flexibility to work from home, and in which four-fifths or more workers face lay-offs during this economic shutdown are:

- Food Services and Drinking Places: *5 percent*
- Traveler Accommodation: *13 percent*
- Other Services: *14 percent*
- Retail Trade: *17 percent*
- Construction: *20 percent*
- Agriculture, Forestry, Fishing, Hunting: *20 percent*
- Arts, Entertainment, and Recreation: *20 percent*

In summary, the flexibility to work at home increases in direct proportion to income. Low-wage workers have a very high risk of becoming unemployed when their place of work is closed to maintain social distancing. Latinos and young adults seldom have the flexibility to work from home.

Figure 19: Percent of workers with the flexibility to work from home by industry



Sources: Federal Reserve Bank of St. Louis, California ACS PUMS 2014 to 2018, Economic Roundtable

7. Workers in Salaried Jobs

The third factor that the Federal Reserve Bank of St. Louis called out as identifying occupations that do not have a high risk of unemployment is salaried positions. Jobs in which workers are paid by the month rather than the hours are likely to have more resilient employment connections and to be less vulnerable to layoffs during a recession. Over half (57 percent) of California workers are in occupations identified by the Federal Reserve Board of St. Louis as likely to be held by salaried workers, as shown in *Figure 20.*

Several things stand out about these jobs. Most significantly, the likelihood of holding a salaried position increases in direct proportion to income. Almost three quarters (73 percent) of workers with incomes five or more times greater than the poverty threshold have salaried positions compared to 38 percent of both workers in poverty and workers just above the poverty threshold. Low wage workers have a higher risk of becoming unemployed because of weaker employment connections.

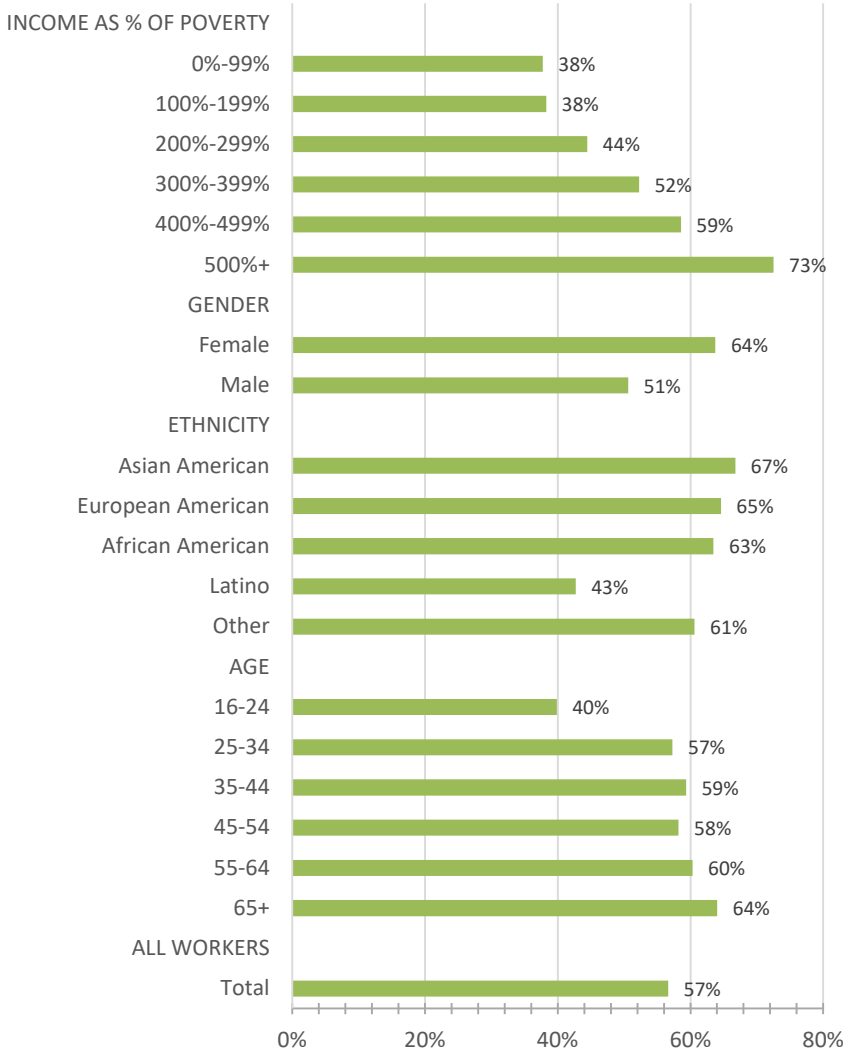
Women are substantially more likely than men to hold salaried positions (64 vs 51 percent)

Latinos and young adults are much less likely to hold salaried positions (43 and 40 percent respectively).

Similar shares of ethnic groups other than Latinos have salaried positions, with a range from 61 to 67 percent.

Salaried occupations perform work that is often focused on business process, managerial, analytic, and communication tasks

Figure 20: Attributes of workers with salaried positions



Sources: Federal Reserve Bank of St. Louis, California ACS PUMS 2014 to 2018, Economic Roundtable

that require more time to become proficient and entail greater recruitment and training costs for the employer if these workers have to be replaced. Salaried rather than hourly compensation often indicates greater employment continuity.

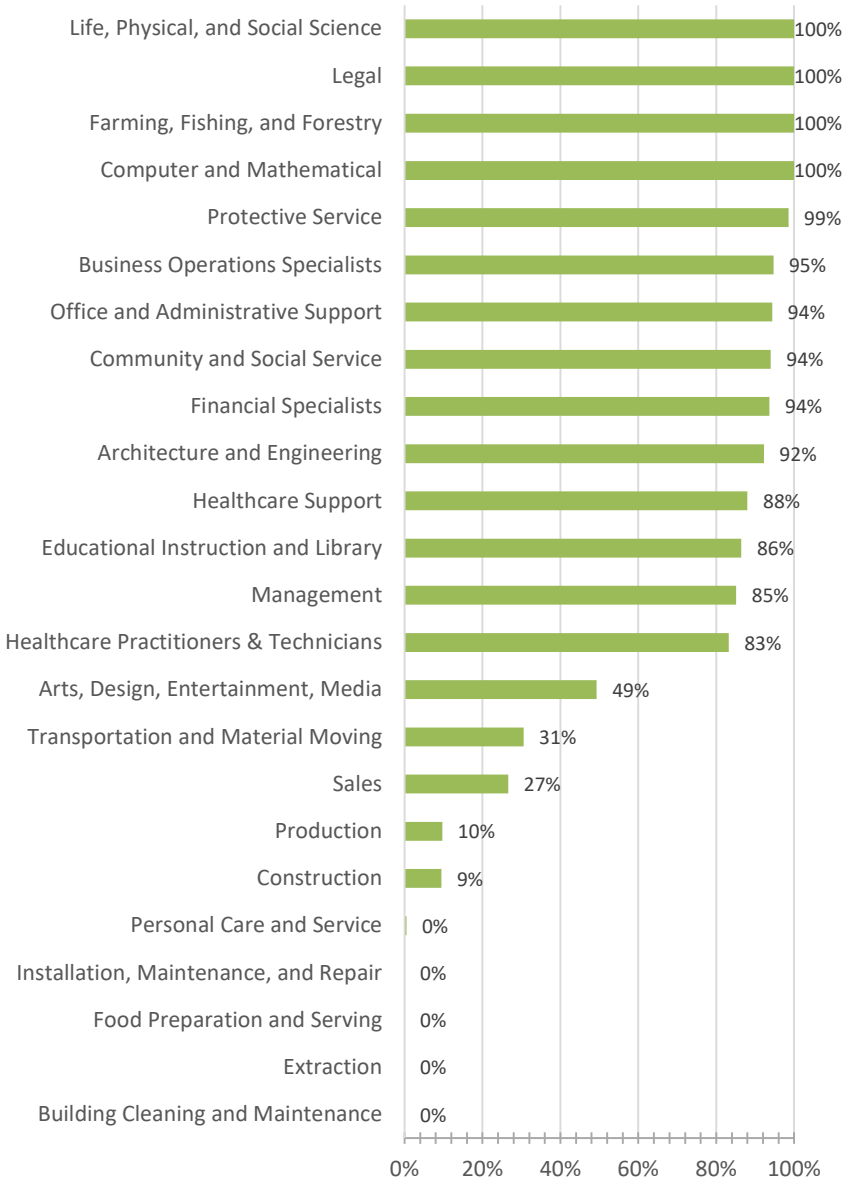
Over 80 percent of workers in 14 occupational groups hold salaried positions, as shown in *Figure 21*.

In contrast, five occupational groups do not have any occupations that typically are salaried, and two other occupational groups have include fewer than 10 percent of workers in salaried positions.

Every industry group includes some workers who hold salaried positions, as shown in *Figure 22*.

Government is the industry sector with the largest share of salaried positions – 90 percent.

Figure 21: Percent of workers with salaried positons by occupation



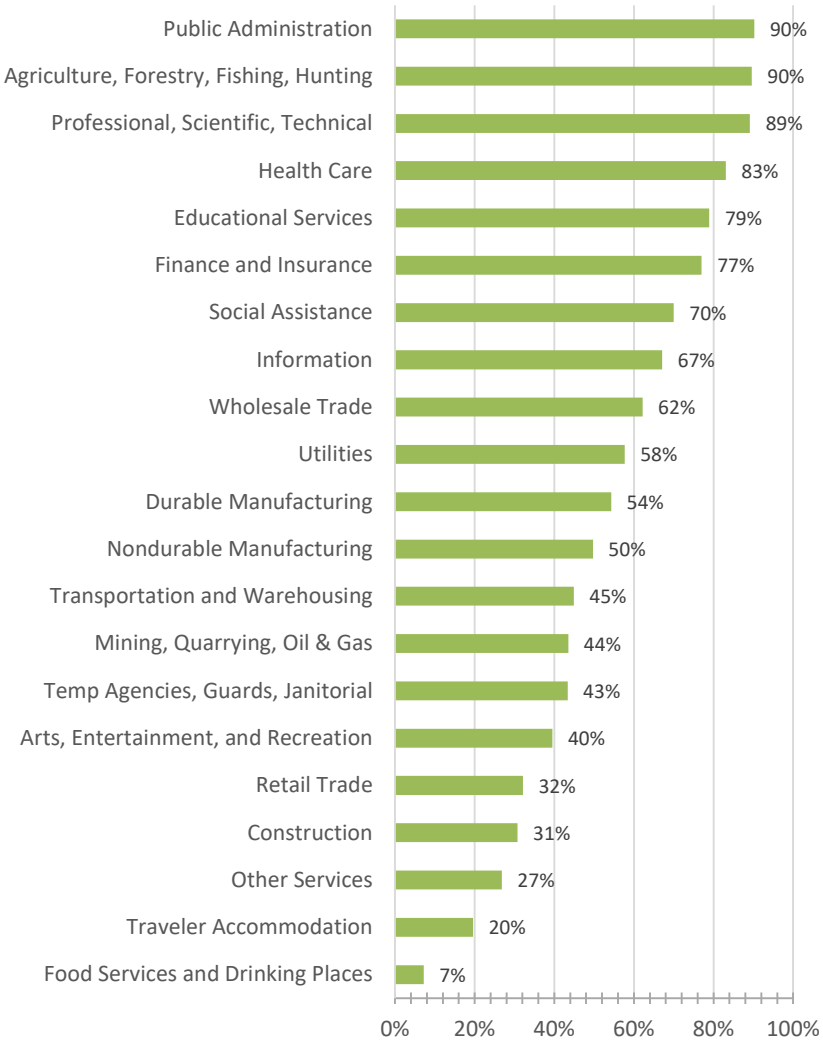
Sources: Federal Reserve Bank of St. Louis, California ACS PUMS 2014 to 2018, Economic Roundtable

Food service and drinking establishments have the smallest share of salaried positions of any industry sector – seven percent.

In summary, frequency of salaried positions increases in direct proportion to income. Women are more likely than men to hold salaried positions, and Latinos and young adults are much less likely to have salaried jobs.

Based on the criteria of whether or not workers are salaried, there are significantly higher risks of unemployment for low-wage workers, Latinos and young adults.

Figure 22: Percent of workers with salaried positions by industry



Sources: Federal Reserve Bank of St. Louis, California ACS PUMS 2014 to 2018, Economic Roundtable

8. California Labor Force

The overall structure of California's labor force is described here to provide the context for previous chapters that show the distribution of workers based on specific criteria such as whether they have a high risk of unemployment, work in close physical proximity to other people, or are exposed to disease or infection. This information is for employed civilian residents of California. It does not include individuals in military service. It does include the full gamut of employment situations, as shown in *Figure 23*.

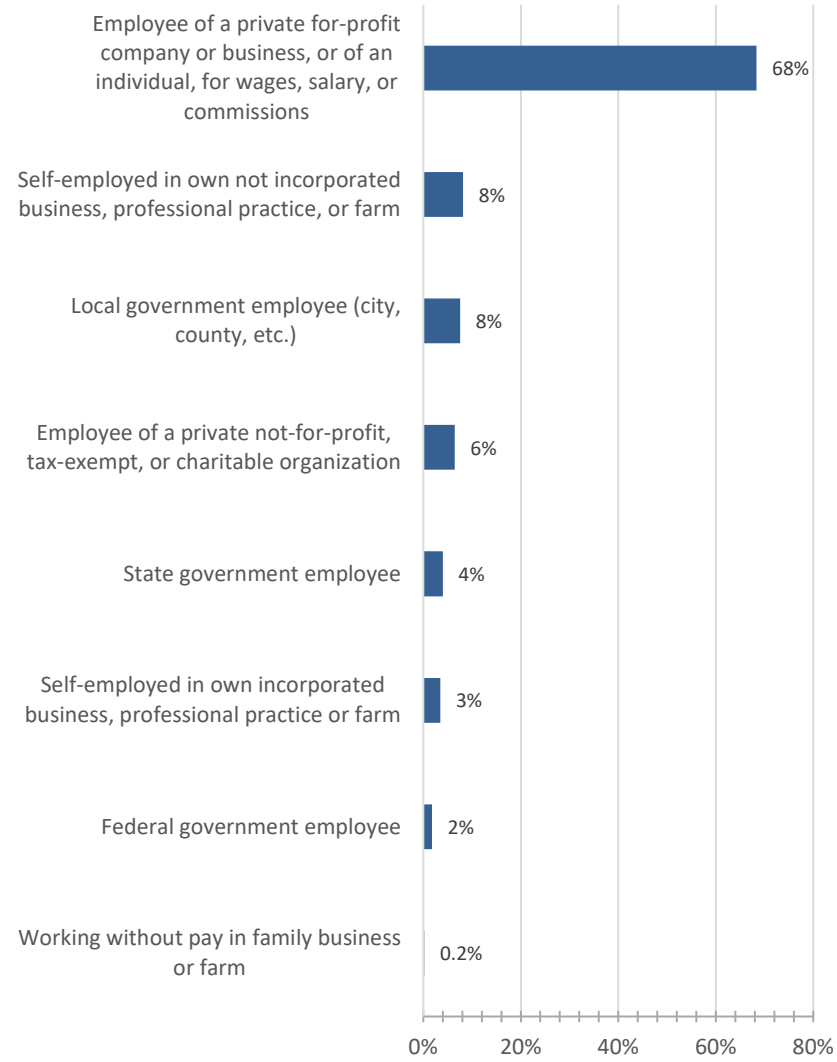
Over two-thirds (68 percent) of California workers have jobs with a private, for-profit employer. The other one-third are distributed across seven types of employers:

- *8 percent* are self-employed in an unincorporated business
- *8 percent* work for local government
- *6 percent* work for nonprofit organizations
- *4 percent* work for state government
- *3 percent* are self-employed in an incorporated business
- *2 percent* work for the federal government
- *0.2 percent* work without pay in a family enterprise

Efforts are underway to preserve employment and employer payrolls, however it will be challenging to quickly create financial safety nets for this diverse range of employers.

California has over 940,000 employment establishments, and over

Figure 23: California civilian workers broken out by the type of ownership of the employing organization



Sources: California ACS PUMS 2014 to 2018, Economic Roundtable

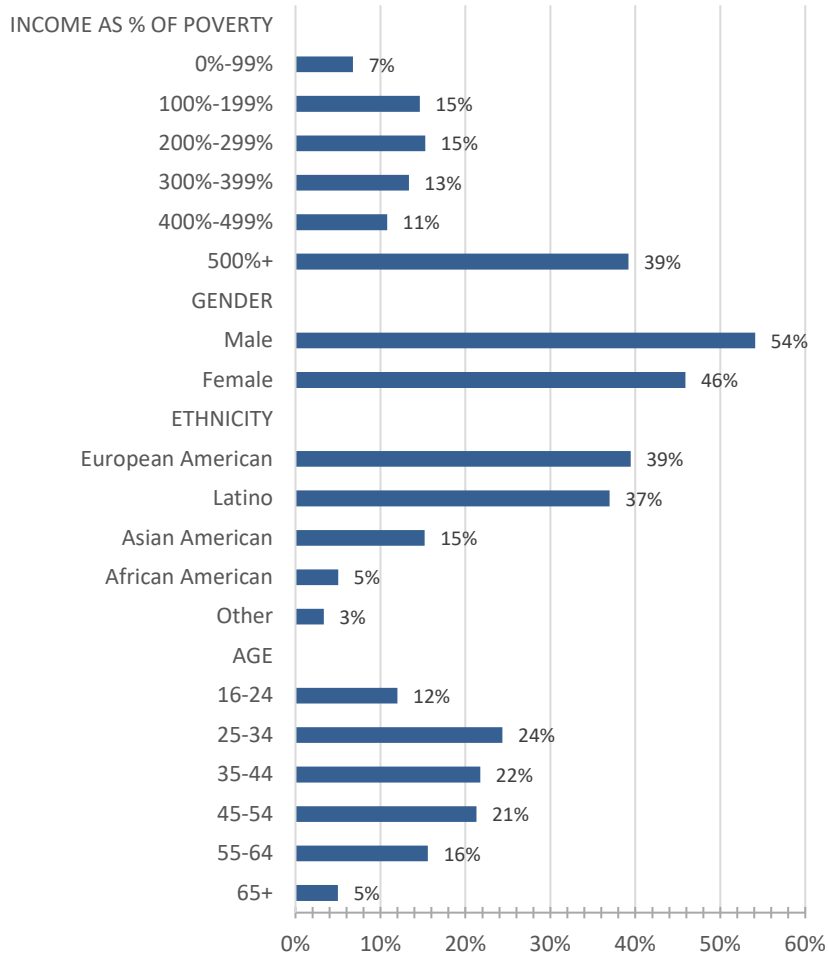
800,000 of these establishments have less than 20 employees.[8] This is an extraordinarily large and diverse employment community to locate, engage, and provide with timely, effective financial support.

The income, gender, ethnicity and age distribution of California workers is shown in *Figure 24*.

Workers with family incomes that are five or more times greater than the poverty threshold are the largest income group, as shown in *Figure 24*.

This information helps understand the financial condition of workers' households, however a limitation is that the poverty threshold varies based on the size of a workers' household, so workers with significantly different earnings can be in the same poverty bracket.

Figure 24: Attributes of California's civilian labor force



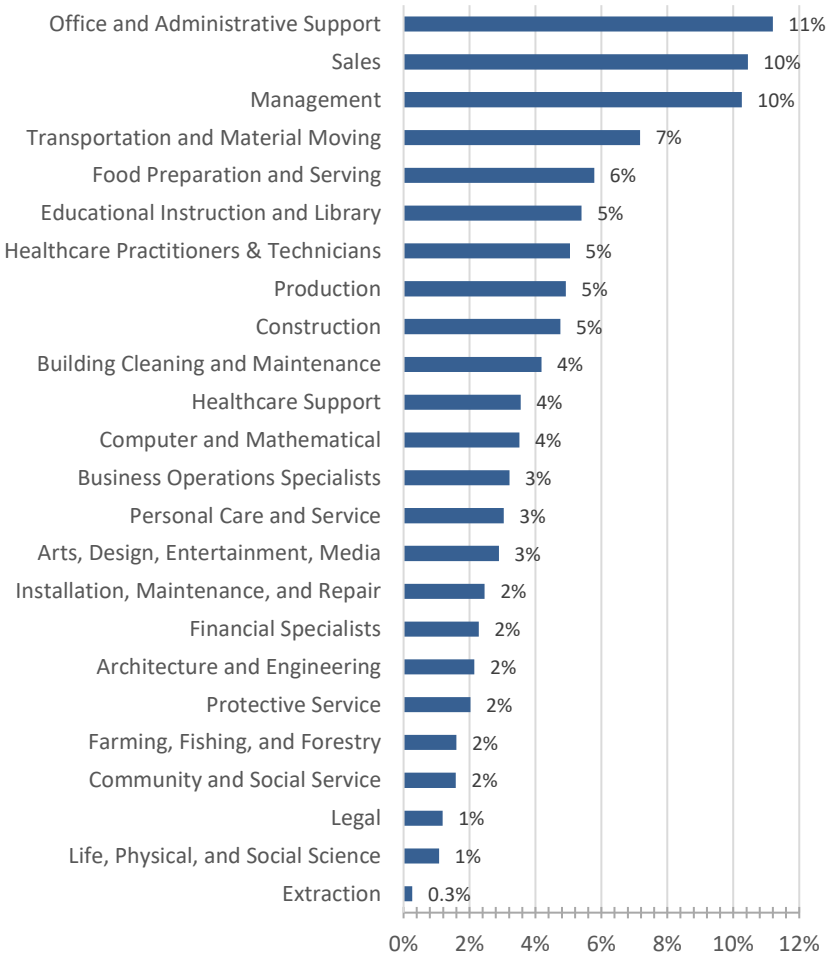
Sources: California ACS PUMS 2014 to 2018, Economic Roundtable

We computed the median earnings of workers in each poverty bracket to provide a picture of the earnings distribution within California's labor force. The median annual earnings in 2018 dollars of workers in each of the poverty ratio brackets shown in *Figure 23* is as follows:

- 0-99 percent of poverty threshold $9,422
- 100-199 percent of poverty threshold $20,243
- 200-299 percent of poverty threshold $29,609
- 300-399 percent of poverty threshold $40,524
- 400-499 percent of poverty threshold $51,792
- 500 percent or more of poverty threshold $81,048

Half of workers, those in the first four poverty ration brackets, earn $40,000 or less a year. These workers are likely to have little or no financial reserves and many are encumbered with debt.[9] Workers in this group who are unemployed, or become unemployed, need immediate wage replacement.

Figure 25: Percent of California civilian workers in each occupational group



Sources: California ACS PUMS 2014 to 2018, Economic Roundtable

Over half (54 percent) of California workers are men, a plurality (39 percent) are European American. Latinos account for 37 percent of the labor force, Asian Americans 15 percent, African Americans 5 percent, and other ethnicities 3 percent.

A quarter (24 percent) of workers are 25 to 34 years of age – this is the largest age group. Young adults make up 12 percent, and workers 55 years of age and older make up 21 percent.

The largest occupational group is office and administrative support workers (11 percent), roughly described as clerical workers, as shown in *Figure 25*. They are followed by sales (10 percent), management (10 percent), transportation (7 percent), and food preparation (6 percent) workers.

Almost half (46 percent) of workers are in nine occupational groups where half or more of the workers have a high risk of unemployment.

Occupational Group	*Percent of Total Labor Force*	*Percent with High Risk of Unemployment*
• Sales	10%	73%
• Transportation and Material Moving	7%	69%
• Food Preparation and Serving	6%	100%

• Production	5%	90%
• Construction	5%	91%
• Building Cleaning and Maintenance	4%	100%
• Personal Care and Service	3%	100%
• Arts, Design, Entertainment, Media	3%	51%
• Installation, Maintenance, and Repair	2%	100%

Retail trade is the industry sector that employs the most California workers (11 percent), and most stores have been directed to close in order to preserve social distance. The share of California employment accounted for by each industry sector is shown in *Figure 26*.

Almost half (45 percent) of California employment is in ten industry sectors were half or more of workers have a high risk of unemployment.

Industry Sector	*Percent of Total Labor Force*	*Percent with High Risk of Unemployment*
• Retail Trade	11%	68%
• Food Services and Drinking Places	7%	93%
• Construction	6%	69%
• Other Services	5%	73%
• Temp Agencies, Guards, Janitorial	5%	56%
• Transportation and Warehousing	4%	55%
• Arts, Entertainment, and Recreation	3%	61%
• Nondurable Manufacturing	3%	50%
• Traveler Accommodation	1%	80%
• Mining, Quarrying, Oil and Gas	0.2%	56%

In summary, it will be challenging to quickly create financial safety nets for California's diverse range of employers.

California has over 940,000 employment establishments, and over 800,000 of these establishments have less than 20 employees. This is an extraordinarily large and diverse employment community to locate, engage, and provide with timely, effective financial support.

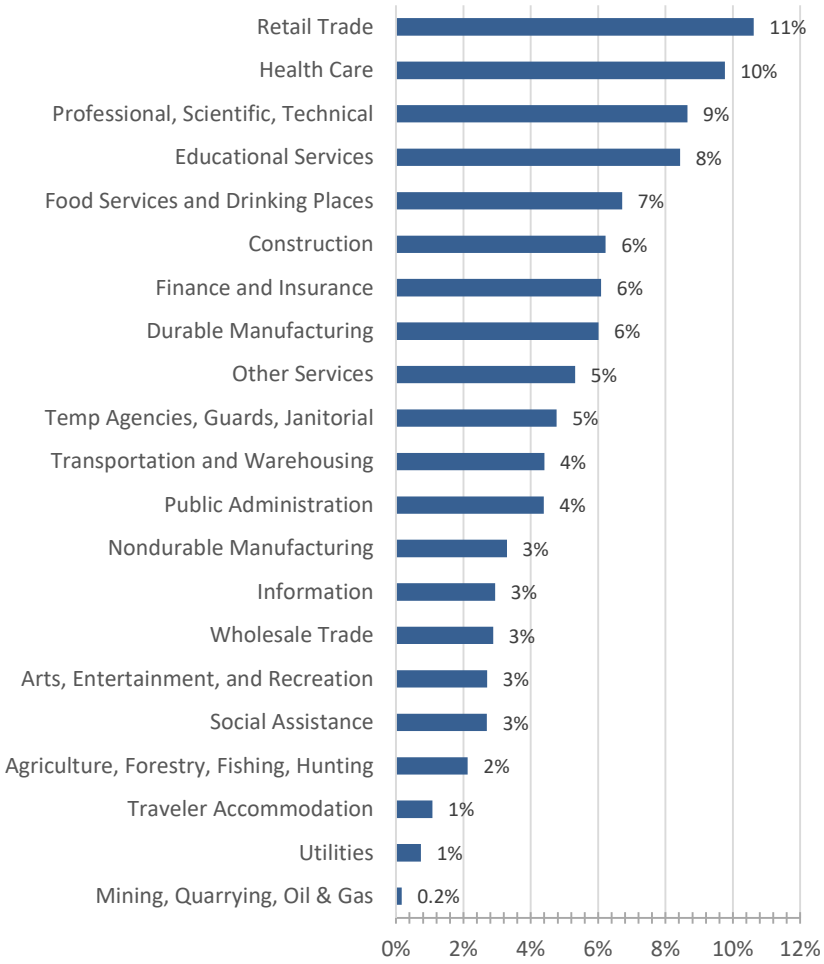
Half of California's workers earn $40,000 or less a year. These workers are likely to have little or no financial reserves and many are encumbered with debt. Workers in this group who are unemployed, or become unemployed, need immediate wage replacement.

Almost half of California workers are in nine occupational groups where half or more of the workers have a high risk of unemployment.

Similarly, when we look at workers based on the industry of their employer rather than their individual occupation, almost half of California employment is in ten industry sectors were half or more of workers have a high risk of unemployment.

The severe economic downturn that is underway has already displaced many of these workers from their jobs and many more workers in high risk jobs will become unemployed in the coming months as demand for goods and services by both businesses and workers continues to shrink.

Figure 26: Percent of California civilian workers in each industry sector



Sources: California ACS PUMS 2014 to 2018, Economic Roundtable

9. California Counties

This table shows the number of civilian workers reported by the 2014-2018 American Community Survey to reside in each of the 40 California counties that have populations large enough comprise at least one Public Use Microdata Area (PUMA). The geographic location of workers is based on place of residence rather than place of work. Using the occupational risk factors developed by the Federal Reserve Bank of St. Louis, the table shows the percent of workers with a high risk of unemployment along with the three factors used to make that assessment: workers in occupations that are essential for public health and safety, workers with the flexibility to work from home, and salaried workers.

California Counties	Total Workers	High Risk of Unemployment	Not Essential Workers	No Flexibility to Work from Home	Not Salaried
Alameda CA	846,496	37%	86%	58%	37%
Butte CA	95,037	45%	81%	71%	45%
Contra Costa CA	547,413	40%	84%	62%	40%
El Dorado CA	82,196	40%	84%	63%	40%
Fresno CA	400,580	42%	75%	74%	42%
Humboldt CA	61,182	46%	82%	70%	46%
Imperial CA	59,228	45%	73%	78%	44%
Kern CA	339,005	46%	74%	77%	46%
Kings CA	52,935	40%	69%	77%	40%
Los Angeles CA	4,869,577	47%	85%	69%	47%
Madera CA	57,575	44%	72%	79%	44%
Marin CA	130,259	35%	88%	55%	35%
Mendocino CA	62,106	49%	80%	76%	49%
Merced CA	102,807	46%	74%	78%	46%
Monterey CA	213,453	43%	74%	76%	43%
Napa CA	70,842	45%	83%	71%	45%
Nevada CA	44,682	43%	83%	67%	43%
Orange CA	1,578,131	42%	87%	63%	42%
Placer CA	173,146	37%	84%	62%	37%
Riverside CA	1,006,026	49%	82%	74%	49%
Sacramento CA	685,069	41%	82%	65%	41%
San Bernardino CA	889,836	48%	81%	74%	48%
San Diego CA	1,571,281	43%	85%	64%	43%
San Francisco CA	514,234	33%	87%	53%	33%
San Joaquin CA	306,002	48%	79%	75%	48%
San Luis Obispo CA	128,799	46%	83%	70%	46%
San Mateo CA	411,096	37%	86%	58%	37%
Santa Barbara CA	211,923	44%	81%	70%	44%
Santa Clara CA	986,586	35%	87%	54%	35%
Santa Cruz CA	133,949	41%	82%	67%	41%
Shasta CA	72,567	46%	81%	72%	46%
Solano CA	201,660	45%	78%	72%	45%
Sonoma CA	253,174	44%	83%	69%	44%
Stanislaus CA	221,120	49%	79%	76%	49%
Sutter CA	68,331	48%	78%	76%	48%
Tehama CA	50,819	49%	76%	78%	49%
Tulare CA	176,145	42%	70%	79%	42%
Ventura CA	411,760	41%	82%	67%	41%
Yolo CA	97,694	40%	84%	63%	39%

10. California Communities

This table shows the number of civilian workers reported by the 2014-2018 American Community Survey to reside in each of the 265 California communities as defined by Public Use Microdata Area (PUMA) boundaries. PUMA's have an average population of about 150,000 residents. The geographic location of workers is based on place of residence rather than place of work. Using the occupational risk factors developed by the Federal Reserve Bank of St. Louis, the table shows the percent of workers with a high risk of unemployment along with the three factors used to make that assessment: workers in occupations that are essential for public health and safety, workers with the flexibility to work from home, and workers in salaried positions.

PUMA	California Communities	Total Workers	High Risk of Unemployment	Not Essential Workers	No Flexibility to Work from Home	Not Salaried
00101	Alameda County (North)--Berkeley & Albany Cities	72,372	27%	91%	47%	27%
00102	Alameda County (Northwest)--Oakland (Northwest) & Emeryville Cities	96,871	39%	86%	61%	39%
00103	Alameda County (Northeast)--Oakland (East) & Piedmont Cities	75,141	28%	88%	50%	28%
00104	Alameda County (North Central)--Oakland City (South Central)	60,534	59%	84%	82%	59%
00105	Alameda County (West)--San Leandro, Alameda & Oakland (Southwest) Cities	89,420	39%	85%	61%	39%
00106	Alameda County (North Central)--Castro Valley, San Lorenzo & Ashland	71,420	42%	83%	66%	42%
00107	Alameda County (Central)--Hayward City	79,983	46%	81%	69%	46%
00108	Alameda County (Southwest)--Union City, Newark & Fremont (West) Cities	75,550	37%	83%	58%	37%
00109	Alameda County (South Central)--Fremont City (East)	104,177	32%	86%	50%	32%
00110	Alameda County (East)--Livermore, Pleasanton & Dublin Cities	121,028	29%	88%	50%	29%
00300	Alpine, Amador, Calaveras, Inyo, Mariposa, Mono & Tuolumne Counties	73,050	48%	83%	73%	48%
00701	Butte County (Northwest)--Chico City	56,393	42%	84%	68%	42%
00702	Butte County (Southeast)--Oroville City & Paradise Town	38,644	48%	78%	76%	48%
01100	Colusa, Glenn, Tehama & Trinity Counties	50,819	49%	76%	78%	49%
01301	Contra Costa County (Far Southwest)--Richmond (Southwest) & San Pablo Cities	58,459	57%	83%	78%	57%
01302	Contra Costa County (Far Northwest)--Richmond (North), Hercules & El Cerrito Cites	64,364	39%	83%	62%	39%
01303	Contra Costa County (Northwest)--Concord (West), Martinez & Pleasant Hill Cities	71,101	41%	84%	65%	41%
01304	Contra Costa County--Walnut Creek (West), Lafayette, Orinda Cities & Moraga Town	58,580	26%	88%	48%	26%
01305	Contra Costa County (South)--San Ramon City & Danville Town	63,730	24%	88%	44%	24%
01306	Contra Costa County (Central)--Concord (South), Walnut Creek (East) & Clayton Cities	60,915	32%	86%	53%	32%
01307	Contra Costa County (North Central)--Pittsburg & Concord (North & East) Cities	63,690	50%	82%	72%	50%
01308	Contra Costa County (Northeast)--Antioch City	51,918	48%	81%	72%	48%
01309	Contra Costa County (East)--Brentwood & Oakley Cities	54,656	43%	82%	68%	43%
01500	Del Norte, Lassen, Modoc, Plumas & Siskiyou Counties	44,799	42%	75%	73%	42%

PUMA	California Communities	Total Workers	High Risk of Unemployment	Not Essential Workers	No Flexibility to Work from Home	Not Salaried
01700	El Dorado County--El Dorado Hills	82,196	40%	84%	63%	40%
01901	Fresno County (West)--Selma, Kerman & Coalinga Cities	55,427	40%	63%	82%	40%
01902	Fresno County (North Central)--Fresno City (North)	89,425	37%	80%	64%	37%
01903	Fresno County (Central)--Fresno City (East Central)	40,951	51%	79%	77%	51%
01904	Fresno County (Central)--Fresno City (Southwest)	66,982	48%	76%	77%	48%
01905	Fresno County (Central)--Fresno City (Southeast)	41,654	50%	73%	80%	50%
01906	Fresno County (Central)--Clovis City	52,751	38%	80%	66%	38%
01907	Fresno County (East)--Sanger, Reedley & Parlier Cities	53,390	39%	68%	77%	39%
02300	Humboldt County	61,182	46%	82%	70%	46%
02500	Imperial County--El Centro City	59,228	45%	73%	78%	44%
02901	Kern County (West)--Delano, Wasco & Shafter Cities	73,426	40%	66%	79%	40%
02902	Kern County (Central)--Bakersfield City (West)	97,842	43%	80%	71%	43%
02903	Kern County (Central)--Bakersfield City (Northeast)	59,603	51%	74%	81%	51%
02904	Kern County (Central)--Bakersfield City (Southeast)	42,193	54%	70%	87%	54%
02905	Kern County (East)--Ridgecrest, Arvin, Tehachapi & California City Cities	65,941	46%	78%	74%	46%
03100	Kings County--Hanford City	52,935	40%	69%	77%	40%
03300	Lake & Mendocino Counties	62,106	49%	80%	76%	49%
03701	Los Angeles County (North/Unincorporated)--Castaic	58,744	41%	83%	66%	41%
03702	Los Angeles County (Northwest)--Santa Clarita City	96,641	39%	83%	64%	40%
03703	Los Angeles County (North Central)--Lancaster City	57,643	48%	79%	75%	48%
03704	Los Angeles County (North Central)--Palmdale City	67,567	54%	82%	78%	54%
03705	Los Angeles County (North)--LA City (Northwest/Chatsworth & Porter Ranch)	92,370	39%	86%	62%	39%
03706	Los Angeles County (North)--LA City (North Central/Granada Hills & Sylmar)	69,783	47%	83%	70%	47%
03707	Los Angeles County--LA (North Central/Arleta & Pacoima) & San Fernando Cities	71,451	58%	84%	79%	58%
03708	Los Angeles County (North)--LA City (Northeast/Sunland, Sun Valley & Tujunga)	62,467	52%	85%	73%	52%
03709	Los Angeles County (Central)--San Gabriel Valley Region (North)	55,155	34%	87%	56%	34%
03710	Los Angeles County--Baldwin Park, Azusa, Duarte & Irwindale Cities	84,961	51%	84%	72%	51%
03711	Los Angeles County (East Central)--Glendora, Claremont, San Dimas & La Verne Cities	80,954	37%	85%	61%	37%
03712	Los Angeles County (East Central)--Pomona City	66,891	56%	82%	77%	56%
03713	Los Angeles County (East Central)--Covina & Walnut Cities	53,263	39%	83%	62%	39%
03714	Los Angeles County--Diamond Bar, La Habra Heights (East) Cities & Rowland Heights	52,931	37%	86%	60%	37%
03715	Los Angeles County (East Central)--West Covina City	56,959	47%	81%	70%	47%
03716	Los Angeles County (East Central)--La Puente & Industry Cities	52,157	55%	82%	78%	55%
03717	Los Angeles County (East Central)--Arcadia, San Gabriel & Temple City Cities	91,153	37%	85%	59%	37%
03718	Los Angeles County (Central)--Pasadena City	72,951	36%	88%	56%	36%
03719	Los Angeles County (Central)--Glendale City	96,623	41%	84%	64%	41%
03720	Los Angeles County (Central)--Burbank City	63,200	41%	87%	61%	41%
03721	Los Angeles County (North)--LA City (Northeast/North Hollywood & Valley Village)	72,167	50%	88%	71%	50%
03722	Los Angeles County (Northwest)--LA City (North Central/Van Nuys & North Sherman Oaks)	90,552	53%	86%	74%	53%
03723	Los Angeles County (North)--LA City (North Central/Mission Hills & Panorama City)	70,142	59%	83%	81%	59%
03724	Los Angeles County (Northwest)--LA City (Northwest/Encino & Tarzana)	90,664	45%	85%	66%	45%

PUMA	California Communities	Total Workers	High Risk of Unemployment	Not Essential Workers	No Flexibility to Work from Home	Not Salaried
03725	Los Angeles County--LA City (Northwest/Canoga Park, Winnetka & Woodland Hills)	95,901	43%	87%	63%	43%
03726	Los Angeles County--Calabasas, Agoura Hills, Malibu & Westlake Village Cities	48,505	30%	91%	50%	30%
03727	Los Angeles County (Central)--LA City (Central/Pacific Palisades)	89,357	33%	91%	51%	33%
03728	Los Angeles County (Southwest)--Santa Monica City	59,774	33%	91%	50%	33%
03729	Los Angeles County (West Central)--LA City (West Central/Westwood & West Los Angeles)	115,225	34%	90%	52%	34%
03730	Los Angeles County (West Central)--LA City (Central/Hancock Park & Mid-Wilshire)	96,345	41%	90%	59%	41%
03731	Los Angeles County (Central)--West Hollywood & Beverly Hills Cities	68,427	39%	92%	56%	39%
03732	Los Angeles County (Central)--LA City (East Central/Hollywood)	104,308	52%	89%	70%	52%
03733	Los Angeles County (Central)--LA City (Central/Koreatown)	63,252	61%	88%	78%	61%
03734	Los Angeles County--LA City (East Central/Silver Lake, Echo Park & Westlake)	111,961	57%	89%	75%	57%
03735	Los Angeles County--LA City (Mount Washington, Highland Park & Glassell Park)	98,321	49%	84%	72%	49%
03736	Los Angeles County (Central)--Alhambra & South Pasadena Cities	59,018	39%	85%	61%	39%
03737	Los Angeles County (Central)--Monterey Park & Rosemead Cities	58,818	48%	83%	70%	48%
03738	Los Angeles County (Central)--El Monte & South El Monte Cities	60,059	59%	82%	80%	59%
03739	Los Angeles County (Southeast)--Whittier City & Hacienda Heights	80,337	41%	84%	65%	41%
03740	Los Angeles County (Central)--Pico Rivera & Montebello Cities	59,437	51%	83%	74%	51%
03741	Los Angeles County (Central)--Bell Gardens, Bell, Maywood, Cudahy & Commerce Cities	63,910	63%	83%	83%	63%
03742	Los Angeles County (Central)--Huntington Park City, Florence-Graham & Walnut Park	56,519	64%	82%	86%	64%
03743	Los Angeles County (Central)--East Los Angeles	51,515	62%	84%	83%	62%
03744	Los Angeles County (Central)--LA City (East Central/Central City & Boyle Heights)	80,650	53%	85%	74%	53%
03745	Los Angeles County (Central)--LA City (Southeast/East Vernon)	52,474	70%	84%	90%	70%
03746	Los Angeles County--LA City (Central/Univ. of Southern California & Exposition Park)	51,169	58%	86%	80%	58%
03747	Los Angeles County (Central)--LA City (Central/West Adams & Baldwin Hills)	74,996	50%	84%	74%	50%
03748	Los Angeles County--LA (Southwest/Marina del Rey & Westchester) & Culver City Cities	106,010	32%	90%	53%	33%
03749	Los Angeles County (Central)--Inglewood City	54,875	51%	83%	74%	51%
03750	Los Angeles County (South Central)--LA City (South Central/Westmont)	76,394	59%	81%	82%	59%
03751	Los Angeles County (South Central)--LA City (South Central/Watts)	61,203	64%	81%	87%	64%
03752	Los Angeles County (South)--South Gate & Lynwood Cities	75,328	62%	84%	82%	62%
03753	Los Angeles County (South)--Downey City	55,374	47%	84%	70%	47%
03754	Los Angeles County (Southeast)--La Mirada & Santa Fe Springs Cities	65,032	45%	85%	68%	45%
03755	Los Angeles County (Southeast)--Norwalk City	56,448	51%	82%	74%	50%
03756	Los Angeles County (Southeast)--Bellflower & Paramount Cities	52,936	53%	81%	78%	53%
03757	Los Angeles County (South Central)--Compton City & West Rancho Dominguez	66,417	58%	81%	82%	58%

PUMA	California Communities	Total Workers	High Risk of Unemployment	Not Essential Workers	No Flexibility to Work from Home	Not Salaried
03758	Los Angeles County (South Central)--Gardena, Lawndale Cities & West Athens	73,652	52%	83%	74%	52%
03759	Los Angeles County (South Central)--Hawthorne City	57,856	52%	83%	74%	52%
03760	Los Angeles County--Redondo Beach, Manhattan Beach & Hermosa Beach Cities	75,247	29%	90%	50%	29%
03761	Los Angeles County (South Central)--Torrance City	63,168	34%	88%	54%	34%
03762	Los Angeles County (South Central)--Carson City	54,182	42%	79%	68%	42%
03763	Los Angeles County (South Central)--Long Beach City (North)	67,024	48%	80%	73%	48%
03764	Los Angeles County (South)--Lakewood, Cerritos, Artesia & Hawaiian Gardens Cities	75,256	39%	81%	66%	39%
03765	Los Angeles County (Southeast)--Long Beach City (East)	70,319	34%	87%	58%	34%
03766	Los Angeles County (South)--Long Beach City (Southwest & Port)	48,479	52%	83%	74%	52%
03767	Los Angeles County (South)--LA City (South/San Pedro)	86,833	55%	83%	78%	55%
03768	Los Angeles County (Southwest)--Palos Verdes Peninsula	51,177	32%	88%	55%	32%
03769	Los Angeles County (Southeast)--Long Beach (Central) & Signal Hill Cities	48,700	47%	83%	69%	48%
03900	Madera County--Madera City	57,575	44%	72%	79%	44%
04101	Marin County (North & West)--Novato & San Rafael (North) Cities	55,354	37%	85%	60%	37%
04102	Marin County (Southeast)--San Rafael (South), Mill Valley & Sausalito Cities	74,905	33%	90%	52%	33%
04701	Merced County (West & South)--Los Banos & Livingston Cities	44,334	49%	74%	81%	49%
04702	Merced County (Northeast)--Merced & Atwater Cities	58,473	44%	74%	76%	44%
05301	Monterey County (North Central)--Seaside, Monterey, Marina & Pacific Grove Cities	82,274	44%	83%	70%	44%
05302	Monterey County (Northeast)--Salinas City	73,387	43%	68%	80%	43%
05303	Monterey (South & East) & San Benito Counties	57,792	42%	70%	78%	42%
05500	Napa County--Napa City	70,842	45%	83%	71%	45%
05700	Nevada & Sierra Counties	44,682	43%	83%	67%	43%
05901	Orange County (Southwest)--San Clemente, Laguna Niguel & San Juan Capistrano Cities	90,550	38%	90%	58%	39%
05902	Orange County (South Central)--Mission Viejo & Rancho Santa Margarita (West) Cities	57,558	35%	89%	57%	35%
05903	Orange County (West Central)--Newport Beach, Aliso Viejo & Laguna Hills Cities	104,833	29%	89%	49%	29%
05904	Orange County (Central)--Irvine City (Central)	116,123	27%	88%	47%	27%
05905	Orange County (Northeast)--Lake Forest, Irvine (North) Cities & Silverado	115,366	35%	87%	57%	35%
05906	Orange County (North)--Yorba Linda, La Habra & Brea Cities	93,158	38%	87%	61%	38%
05907	Orange County (North Central)--Fullerton & Placentia Cities	96,455	44%	87%	65%	44%
05908	Orange County (Northwest)--Buena Park, Cypress & Seal Beach Cities	87,296	41%	84%	65%	41%
05909	Orange County (North Central)--Anaheim City (West)	72,556	54%	84%	74%	54%
05910	Orange County (North Central)--Anaheim City (East)	99,470	50%	86%	71%	50%
05911	Orange County (Central)--Orange & Villa Park Cities	70,285	39%	87%	61%	39%
05912	Orange County (Northwest)--Westminster, Stanton & Garden Grove (West) Cities	80,018	50%	85%	70%	50%
05913	Orange County (Northwest)--Garden Grove City (East)	80,050	56%	87%	74%	56%
05914	Orange County (Northwest)--Huntington Beach City	103,757	37%	86%	60%	37%

PUMA	California Communities	Total Workers	High Risk of Unemployment	Not Essential Workers	No Flexibility to Work from Home	Not Salaried
05915	Orange County (Southeast)--Rancho Santa Margarita City (East) & Ladera Ranch	54,552	29%	89%	50%	29%
05916	Orange County (Central)--Santa Ana City (West)	77,262	62%	87%	79%	62%
05917	Orange County (Central)--Santa Ana City (East)	79,912	63%	87%	80%	63%
05918	Orange County (Central)--Costa Mesa & Fountain Valley Cities	98,930	42%	89%	61%	42%
06101	Placer County (Southwest)--Roseville City	66,387	34%	83%	60%	34%
06102	Placer County (Central)--Rocklin, Lincoln Cities & Loomis Town	55,193	39%	84%	63%	39%
06103	Placer County (East/High Country Region)--Auburn & Colfax Cities	51,566	40%	84%	64%	40%
06501	Riverside County (East)--Indio, Coachella, Blythe & La Quinta (East) Cities	74,958	57%	78%	83%	57%
06502	Riverside County (Central)--Cathedral City, Palm Springs & Rancho Mirage Cities	55,718	52%	85%	74%	52%
06503	Riverside County (Southwest)--Temecula City	63,361	40%	83%	66%	40%
06504	Riverside County (Southwest)--Murrieta & Wildomar Cities	62,153	44%	84%	69%	44%
06505	Riverside County (Southwest)--Menifee, Lake Elsinore & Canyon Lake Cities	84,185	49%	83%	74%	49%
06506	Riverside County (Southwest)--Hemet City & East Hemet	58,412	49%	79%	75%	49%
06507	Riverside County (North Central)--San Jacinto, Beaumont, Banning & Calimesa Cities	61,965	51%	79%	77%	51%
06508	Riverside County (Northwest)--Moreno Valley City	82,752	52%	80%	76%	52%
06509	Riverside County (West Central)--Perris City, Temescal Valley & Mead Valley	53,282	53%	80%	79%	53%
06510	Riverside County (Northwest)--Riverside City (East)	70,104	47%	84%	70%	47%
06511	Riverside County (Northwest)--Riverside City (West)	80,735	54%	83%	76%	54%
06512	Riverside County (West Central)--Corona City (South), Woodcrest & Home Gardens	52,871	41%	82%	67%	41%
06513	Riverside County (West Central)--Corona (Northwest) & Norco Cities	72,358	47%	84%	70%	47%
06514	Riverside County (Northwest)--Jurupa Valley & Eastvale Cities	73,738	48%	80%	73%	48%
06515	Riverside County--Palm Desert, La Quinta (West) & Desert Hot Springs Cities	59,434	50%	85%	72%	50%
06701	Sacramento County (North Central)--Citrus Heights City	52,559	46%	82%	69%	46%
06702	Sacramento County (Central)--Rancho Cordova City	57,441	39%	84%	62%	39%
06703	Sacramento County (North Central)--Arden-Arcade, Carmichael & Fair Oaks (West)	51,938	36%	84%	61%	36%
06704	Sacramento County (North Central)--North Highlands, Foothill Farms & McClellan Park	56,161	51%	83%	74%	51%
06705	Sacramento County (Northwest)--Sacramento City (Northwest/Natomas)	55,272	38%	83%	61%	38%
06706	Sacramento County (North)--Sacramento City (North), Antelope & Rio Linda	52,742	50%	83%	74%	50%
06707	Sacramento County (West)--Sacramento City (Central/Downtown & Midtown)	62,362	31%	84%	55%	31%
06708	Sacramento County--Sacramento City (Southeast/Fruitridge, Avondale & Depot Park)	54,831	50%	81%	74%	50%
06709	Sacramento County--Sacramento City (Southwest/Pocket, Meadowview & North Laguna)	61,470	43%	81%	69%	43%
06710	Sacramento County (Central)--Elk Grove City	75,970	35%	81%	62%	35%
06711	Sacramento County (South)--Galt, Isleton Cities & Delta Region	51,611	39%	78%	67%	39%
06712	Sacramento County (Northeast)--Folsom City, Orangevale & Fair Oaks (East)	52,712	31%	86%	54%	31%
07101	San Bernardino County (Northeast)--Twentynine Palms & Barstow Cities	44,039	53%	84%	77%	53%

PUMA	California Communities	Total Workers	High Risk of Unemployment	Not Essential Workers	No Flexibility to Work from Home	Not Salaried
07102	San Bernardino County (West Central)--Victorville & Adelanto Cities	57,374	54%	82%	78%	54%
07103	San Bernardino County (West Central)--Hesperia City & Apple Valley Town	63,474	52%	82%	78%	52%
07104	San Bernardino County (Southwest)--Phelan, Lake Arrowhead & Big Bear City	45,928	50%	83%	74%	50%
07105	San Bernardino County (Southwest)--Redlands & Yucaipa Cities	64,556	40%	78%	69%	40%
07106	San Bernardino County (Southwest)--Colton, Loma Linda & Grand Terrace Cities	45,574	45%	76%	74%	45%
07107	San Bernardino County (Southwest)--San Bernardino City (East)	42,865	54%	79%	80%	54%
07108	San Bernardino County (Southwest)--San Bernardino City (West)	66,283	56%	80%	81%	56%
07109	San Bernardino County (Southwest)--Rialto City	49,356	55%	80%	79%	55%
07110	San Bernardino County (Southwest)--Fontana City (East)	44,686	59%	77%	84%	59%
07111	San Bernardino County (Southwest)--Rancho Cucamonga City	85,244	37%	82%	63%	37%
07112	San Bernardino County (Southwest)--Upland & Montclair Cities	59,447	48%	84%	70%	48%
07113	San Bernardino County (Southwest)--Ontario City	85,009	51%	81%	76%	51%
07114	San Bernardino County (Southwest)--Chino & Chino Hills Cities	75,638	38%	83%	63%	38%
07115	San Bernardino County (Southwest)--Fontana City (West)	60,363	47%	79%	74%	47%
07301	San Diego County (Northwest)--Oceanside City & Camp Pendleton	84,249	47%	84%	69%	47%
07302	San Diego County (North & East)--Fallbrook, Alpine & Valley Center	49,904	45%	83%	70%	45%
07303	San Diego County (Northwest)--Vista City	55,978	51%	82%	74%	51%
07304	San Diego County (Northwest)--Carlsbad City	59,932	36%	90%	54%	35%
07305	San Diego County (Northwest)--San Marcos & Escondido (West) Cities	59,761	47%	87%	67%	47%
07306	San Diego County (Northwest)--Escondido City (East)	69,935	55%	86%	74%	55%
07307	San Diego County (Central)--Lakeside, Winter Gardens & Ramona	54,879	46%	85%	67%	46%
07308	San Diego County (Central)--San Diego (Northeast/Rancho Bernardo) & Poway Cities	63,635	30%	86%	52%	30%
07309	San Diego County (West)--San Diego (Northwest/San Dieguito) & Encinitas Cities	85,555	31%	88%	51%	31%
07310	San Diego County (West)--San Diego City (Southwest/Central Coastal)	89,763	36%	88%	57%	36%
07311	San Diego County (West Central)--San Diego City (Northwest/Del Mar Mesa)	63,539	27%	85%	47%	27%
07312	San Diego County (Central)--San Diego City (Central/Mira Mesa & University Heights)	60,324	31%	85%	51%	31%
07313	San Diego County (Central)--El Cajon & Santee Cities	84,358	48%	84%	70%	48%
07314	San Diego County (Central)--San Diego (East Central/Navajo) & La Mesa Cities	76,115	37%	85%	59%	37%
07315	San Diego County (West Central)--San Diego City (Central/Clairemont & Kearny Mesa)	90,139	40%	84%	61%	40%
07316	San Diego County (South Central)--San Diego City (Central/Centre City & Balboa Park)	98,755	37%	87%	57%	36%
07317	San Diego County (South Central)--San Diego City (Central/Mid-City)	83,477	56%	87%	74%	56%
07318	San Diego County (South)--San Diego City (Southeast/Encanto & Skyline)	71,525	55%	81%	78%	55%
07319	San Diego County (South Central)--Lemon Grove City, La Presa & Spring Valley	62,343	46%	84%	70%	46%

PUMA	California Communities	Total Workers	High Risk of Unemployment	Not Essential Workers	No Flexibility to Work from Home	Not Salaried
07320	San Diego County (Southwest)--Sweetwater Region--Chula Vista City (East)	71,595	34%	80%	62%	34%
07321	San Diego County (Southwest)--Chula Vista (West) & National City Cities	75,246	54%	81%	78%	54%
07322	San Diego County (South)--San Diego City (South/Otay Mesa & South Bay)	60,274	53%	81%	77%	53%
07501	San Francisco County (North & West)--Richmond District	88,332	29%	88%	47%	28%
07502	San Francisco County (North & East)--North Beach & Chinatown	73,173	27%	90%	42%	27%
07503	San Francisco County (Central)--South of Market & Potrero	85,343	35%	90%	53%	35%
07504	San Francisco County (Central)--Inner Mission & Castro	78,116	27%	89%	45%	27%
07505	San Francisco County (Central)--Sunset District (North)	65,350	31%	85%	53%	31%
07506	San Francisco County (South Central)--Sunset District (South)	66,270	39%	85%	60%	39%
07507	San Francisco County (South Central)--Bayview & Hunters Point	57,650	51%	82%	73%	51%
07701	San Joaquin County (Central)--Stockton City (North)	77,996	46%	77%	75%	46%
07702	San Joaquin County (Central)--Stockton City (South)	57,033	53%	75%	81%	53%
07703	San Joaquin County (South)--Tracy, Manteca & Lathrop Cities	99,027	48%	83%	71%	48%
07704	San Joaquin County (North)--Lodi, Ripon & Escalon Cities	71,946	47%	78%	76%	47%
07901	San Luis Obispo County (West)--Coastal Region	80,038	46%	85%	69%	45%
07902	San Luis Obispo County (East)--Inland Region	48,761	46%	81%	72%	46%
08101	San Mateo County (North Central)--Daly City, Pacifica Cities & Colma Town	82,251	42%	83%	65%	41%
08102	San Mateo County (North Central)--South San Francisco, San Bruno & Brisbane Cities	68,678	42%	81%	66%	42%
08103	San Mateo County (Central)--San Mateo (North), Burlingame & Millbrae Cities	56,388	34%	88%	54%	35%
08104	San Mateo County (South & West)--San Mateo (South) & Half Moon Bay Cities	69,546	30%	88%	50%	30%
08105	San Mateo County (East Central)--Redwood City, San Carlos & Belmont Cities	75,064	34%	88%	52%	33%
08106	San Mateo County (Southeast)--Menlo Park, East Palo Alto Cities & Atherton Town	59,169	37%	88%	59%	37%
08301	Santa Barbara County (Northwest)--Santa Maria City & Orcutt	58,612	42%	68%	79%	42%
08302	Santa Barbara County (North)--Lompoc, Guadalupe, Solvang & Buellton Cities	46,466	49%	80%	76%	49%
08303	Santa Barbara County--South Coast Region	106,845	42%	88%	62%	42%
08501	Santa Clara County (Northwest)--Mountain View, Palo Alto & Los Altos Cities	104,441	21%	90%	39%	21%
08502	Santa Clara County (Northwest)--Sunnyvale & San Jose (North) Cities	86,617	26%	89%	41%	25%
08503	Santa Clara County (Northwest)--San Jose (Northwest) & Santa Clara Cities	86,535	29%	87%	46%	29%
08504	Santa Clara County (North Central)--Milpitas & San Jose (Northeast) Cities	74,180	34%	84%	53%	34%
08505	Santa Clara County (North Central)--San Jose City (East Central) & Alum Rock	57,187	48%	85%	69%	48%
08506	Santa Clara County (East)--Gilroy, Morgan Hill & San Jose (South) Cities	60,141	42%	84%	67%	42%
08507	Santa Clara County (Southwest)--Cupertino, Saratoga Cities & Los Gatos Town	64,855	19%	91%	38%	19%
08508	Santa Clara County (Central)--San Jose (West Central) & Campbell Cities	74,251	32%	89%	50%	32%

PUMA	California Communities	Total Workers	High Risk of Unemployment	Not Essential Workers	No Flexibility to Work from Home	Not Salaried
08509	Santa Clara County (Central)--San Jose City (Northwest)	75,260	45%	88%	63%	45%
08510	Santa Clara County (Central)--San Jose City (Central)	81,320	41%	86%	62%	41%
08511	Santa Clara County (Central)--San Jose City (South Central/Branham) & Cambrian Park	57,235	36%	87%	57%	36%
08512	Santa Clara County (Central)--San Jose City (Southwest/Almaden Valley)	55,289	30%	87%	53%	30%
08513	Santa Clara County (Central)--San Jose City (Southeast/Evergreen)	56,767	41%	86%	61%	41%
08514	Santa Clara County (Central)--San Jose City (East Central/East Valley)	52,508	59%	84%	78%	59%
08701	Santa Cruz County (North)--Watsonville & Scotts Valley Cities	70,586	41%	78%	69%	41%
08702	Santa Cruz County (South & Coastal)--Santa Cruz City	63,363	41%	85%	66%	41%
08900	Shasta County--Redding City	72,567	46%	81%	72%	46%
09501	Solano County (Southwest)--Vallejo & Benicia Cities	71,013	43%	79%	70%	43%
09502	Solano County (Central)--Fairfield & Suisun City Cities	69,457	46%	77%	73%	46%
09503	Solano County (Northeast)--Vacaville & Dixon Cities	61,190	46%	79%	73%	46%
09701	Sonoma County (North)--Windsor Town, Healdsburg & Sonoma Cities	90,565	42%	84%	66%	42%
09702	Sonoma County (South)--Petaluma, Rohnert Park & Cotati Cities	64,864	44%	84%	68%	44%
09703	Sonoma County (Central)--Santa Rosa City	97,745	46%	81%	71%	46%
09901	Stanislaus County (Southwest)--Ceres, Patterson & Newman Cities	48,272	55%	81%	79%	56%
09902	Stanislaus County (Central)--Modesto City (West)	48,582	51%	79%	79%	51%
09903	Stanislaus County (Northeast)--Turlock, Riverbank, Oakdale & Waterford Cities	77,408	44%	78%	75%	44%
09904	Stanislaus County (Central)--Modesto City (East)	46,858	46%	79%	73%	46%
10100	Sutter & Yuba Counties--Yuba City	68,331	48%	78%	76%	48%
10701	Tulare County (Northwest)--Visalia City	59,001	43%	79%	73%	43%
10702	Tulare County (West Central)--Tulare & Porterville Cities	58,315	44%	70%	80%	44%
10703	Tulare County (Outside Visalia, Tulare & Porterville Cities)	58,829	40%	62%	83%	40%
11101	Ventura County (Southeast)--Simi Valley City	59,023	39%	86%	62%	39%
11102	Ventura County (Southeast)--Thousand Oaks City	75,055	33%	87%	56%	33%
11103	Ventura County (Southwest)--Oxnard & Port Hueneme Cities	94,130	48%	75%	77%	48%
11104	Ventura County (Southwest)--San Buenaventura (Ventura) City	62,069	42%	83%	67%	42%
11105	Ventura County (North)--Santa Paula, Fillmore & Ojai Cities	57,306	46%	80%	73%	46%
11106	Ventura County (South Central)--Camarillo & Moorpark Cities	64,177	37%	82%	62%	37%
11300	Yolo County--Davis, Woodland & West Sacramento Cities	97,694	40%	84%	63%	39%

11. Conclusions

California needs to take direct action to address the COVID-19 economic emergency that is causing widespread business closures and extremely high unemployment. *Forty-three percent of California workers have a high risk of unemployment.*

Over fifteen million people have applied for unemployment insurance in the last three weeks. This spike in unemployment claims is a likely precursor of very high rates of long-term unemployment as large numbers of workers lose jobs and are unable to find new employment.

The onset of unemployment has been sudden and widespread, and in the confusion of this economic emergency many suddenly destitute workers may not receive timely help or any help at all unless methodical, evidence-based tools are used to identify them. The information in this report can support systematic efforts to locate unemployed workers and meet their urgent needs.

According to a recent poll, 33 percent of U.S. voters have already lost their job, been furloughed, placed on temporary leave, or had hours reduced, with 41 percent of those who've lost a job already reporting having trouble covering basic costs.

The risk of unemployment varies throughout California depending on the industry structure of communities. In the Los Angeles region there is a much lower level of risk in affluent, stable coastal and hillside communities, and a much higher level of risk in the urban center of Los Angeles. Overall, the Bay Area has much higher incomes and much lower levels of unemployment risk than the Los Angeles region.

Much of the higher level of job insecurity in the Los Angeles region is in part an outcome of land use policies that have favored businesses that generate sales tax revenue despite paying low wages.

Among California counties the share of workers with a high risk of unemployment ranges from 33 percent in San Francisco up to 49 percent in Riverside, Mendocino, Tehama, and Stanislaus counties. Among California communities the share of at-risk workers ranges from 19 percent in Cupertino, Saratoga and Los Gatos in the Bay Area up to 70 percent in the neighborhood immediately south of downtown Los Angeles.

The risk of unemployment decreases for California workers as their income increases, dropping from 62 percent of workers in poverty to 28 percent of workers with family incomes that are five times or more greater than the poverty threshold.

The risk of unemployment falls most heavily on:

- Young adults
- Latinos
- Restaurant workers
- Hotel workers
- Personal care workers such as fitness instructors

- Janitorial workers

Young adults graduating from school and attempting to enter the job market face extremely difficult challenges.

A consequence of social distancing and business closures to protect public health during the pandemic is to transform the health risks of older individuals, who are most vulnerable to COVID-19, into economic risks for low wage workers, who often are younger individuals and service workers who perform tangible rather than conceptual tasks, and who have the highest risk of unemployment. The assumption underlying this transfer of risk is that we all have an obligation to protect each other's life. The reciprocal obligation is to protect each other's economic well-being, specifically, employment and wages for workers whose jobs have been sacrificed to protect the lives of others.

Many workers who still have jobs are risking their health. Health care workers have uniquely high risks of being infected with COVID-19 because they have very frequent direct physical contact with infected individuals. The risk of being infected by the coronavirus as a result of working in close proximity to other people is greatest among:

- Physicians
- Nurses
- Medical technicians

There are also elevated risks for:

- Low income workers
- African Americans
- Latinos
- Young adults
- Health care support workers such as home health aides
- Personal care workers such as child care workers
- Protective service workers such as police officers and firefighters.

Front-line workers should have protective equipment to do their job and the right to speak out about dangerous job conditions. Health care workers and others who have direct physical contact with COVID-19 patients should receive hazard pay.

As workers lose their jobs, businesses close and family incomes vanish, California needs to extend economic relief to workers and their families. This includes expediting delivery of every type of cash support that can be provided, including unemployment insurance, public assistance, food stamps, and public health insurance.

Many households already have unpaid rent, bills and loan obligations. Half of California's workers earn $40,000 or less a year. These workers are likely to have little or no financial reserves and many are encumbered with debt. Workers in this group who are unemployed, or become unemployed, need immediate wage replacement.

Similar financial safety nets need to be extended to small and medium size businesses in order to preserve California's employment base. California has over 940,000 employment establishments, and over 800,000 of these establishments have less than 20 employees. This

is an extraordinarily large and diverse employment community to locate, engage, and provide with timely, effective financial support.

The information shown in this report is available in much greater detail, breaking out workers in every demographic group, with every type of employer, in 265 communities, 269 industries, and 525 occupations.

As workers lose their jobs, businesses close and family incomes vanish, California government agencies, foundations and community-based organizations need to act rapidly to identify unemployed workers and provide all available regulatory, material and economic assistance. This support is particularly important in communities where a large share of workers have a high risk of unemployment and includes:

1. Food banks with adequate food inventories and staffing to meet community needs.
2. Regulatory, legal aid and community outreach staff to ensure that community residents receive the full benefit of all types mandated economic relief including moratoriums on evictions, foreclosures, utility shut-offs, and consumer debt collection.
3. Access to all forms of economic support including Unemployment Insurance and CARES Act payments, Pandemic Unemployment Assistance, public assistance benefits, disability insurance, and Paid Family Leave.
4. Outreach to employers to encourage and help structure work sharing programs that retain as many workers as possible on employers' payrolls and preserve their eligibility for employee benefits including health insurance.
5. Health care and health insurance.
6. Emergency housing.
7. Public employment programs and job training and re-employment programs.

11. End Notes

[1] U.S. Department of Labor News Release (April 2, 2020), https://www.dol.gov/ui/data.pdf.

[2] Swagel, Phill (April 2, 2020), "Updating CBO's Economic Forecast to Account for the Pandemic, Congressional Budget Office, https://www.cbo.gov/publication/56314.

[3] Swasey, Charlotte, Winter, Ethan Analyst and Sheyman, Ilya (April 9, 2020), "The Staggering Econoomic Impact of the Coronavirus Pandemic," Data, Data for Progress, https://www.dataforprogress.org/memos/coronavirus-economic-impact

[4] The American Community Survey Public Use Microdata Sample (PUMS) for 2014 to 2018 provides de-identified person-level records with all of the information from the census long-form questionnaire, including information about disabilities, health insurance, demographics, veteran's service, household structure, income, employment, including industry, occupation and type of employer, education, and housing. This is a five percent survey sample and each record is weighted so that California's entire population is represented by the survey. This dataset contains 1,879,923 records that represent 39,148,760 California residents. There are 858,742 records that represent 18,302,570 employed California residents. The location of survey respondents is based on the Public Use Microdata Area (PUMA) in which they live. There are 265 PUMAs within California, with each representing an average of approximately 150,000 residents.

[5] Gascon, Charles (March 24, 2020), "COVID-19: Which Workers Face the Highest Unemployment Risk?" Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/on-the-economy/2020/march/covid-19-workers-highest-unemployment-risk.
In order to measure the number of workers facing a high risk of unemployment, the author used the Bureau of Labor Statistics Occupational Employment Statistics (OES) for 2018 and classified the 808 detailed occupations based on three criteria:

- First, occupations essential to public health or safety (e.g., police)
- Second, occupations where work can likely be completed off-site (e.g., computer
- programmers)
- Third, positions likely to be salaried (e.g., elementary school teachers)

Workers in occupations that do not meet any of these three criteria were identified as being at high risk of unemployment.
The Economic Roundtable created a crosswalk from the 808 OES occupations to the 529 Standard Occupational Classification (SOC) used by the American Community Survey to classify the work done by California residents. These two occupational classification systems are highly compatible and the integrity of the risk factors identified by the Federal Reserve Bank of St. Louis was preserved in linking these factors to PUMS records. This linkage made it possible to describe the attributes of workers at high risk of unemployment using all of the information in each PUMS record.

[6] The Occupational Information Network (O*NET) was developed under the sponsorship of the U.S. Department of Labor/Employment and Training Administration. It provides a wide range of information about each occupation in the Standard Occupational Classification (SOC) compendium of occupational titles. One of the many types of information classifies the work context for each occupation. These work context factors include:

- *Physical proximity to other people*, with one of the following five ratings applied to each occupation: 1=I don't work near other people (beyond 100 ft.), 2=I work with others but not closely (e.g., private office), 3=Slightly close (e.g., shared office), 4=Moderately close (at arm's length), 5=Very close (near touching)

- *Exposure to disease and infection*, with one of the following five ratings applied to each occupation to describe the frequency with which workers are exposed to disease and infection: 1=Never, 2=Once a year or more but not every month, 3=Once a month or more but not every week, 4=Once a week or more but not every day, 5=Every day

The Economic Roundtable produced a crosswalk from the 2010 SOC classifications used by O*NET to the 2017 SOC classifications used by the American Community Survey. This made it possible to use all of the information in PUMS records to describe workers who have heightened risk of being infected with COVID-19 because of the tasks they perform.

Previous work using these two O*NET factors to identify occupations in which social distancing is compromised has been done by Leibovici, Fernando, Santacreu, Ana Maria and Famiglietti, Matthew (March 24, 2020), "Social Distancing and Contact-Intensive Occupations," Federal Reserve Bank of St. Louis, https://www.stlouisfed.org/on-the-economy/2020/march/social-distancing-contact-intensive-occupations.

The New York Times used these factors in an article by Lazaro Gamio (March 15, 2020), "The Workers Who Face the Greatest Coronavirus Risk,"
https://www.nytimes.com/interactive/2020/03/15/business/economy/coronavirus-worker-risk.html

[7] Leatherby, Lauren and Gelles, David (April 11, 2020), "How the Virus Transformed the Way Americans Spend Their Money," New York Times, https://www.nytimes.com/interactive/2020/04/11/business/economy/coronavirus-us-economy-spending.html?action=click&module=Top

[8] U.S. Census Bureau, County Business Patterns, Complete State file for 2017, https://www.census.gov/data/datasets/2017/econ/cbp/2017-cbp.html

[9] Household expenditure data from the annual Household Consumption Survey conducted by the U.S. Bureau of Labor Statistics, "Table 1203. Income before taxes: Annual expenditure means, shares, standard errors, and coefficients of variation, Consumer Expenditure Survey, 2017," shows that households with incomes under $50,000 a year typically have expenses that exceed their incomes and consequently accrue debt. https://www.bls.gov/cex/2017/combined/income.pdf