



2023 Districts Supplement

California Statewide National Security Economic Impacts Study

June 2024



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Key Findings

Economic output is concentrated in districts in the San Diego and Sacramento areas.

National security spending in 2022 resulted in nearly \$190 billion in statewide economic output.

\$10.9B
(CA-06)

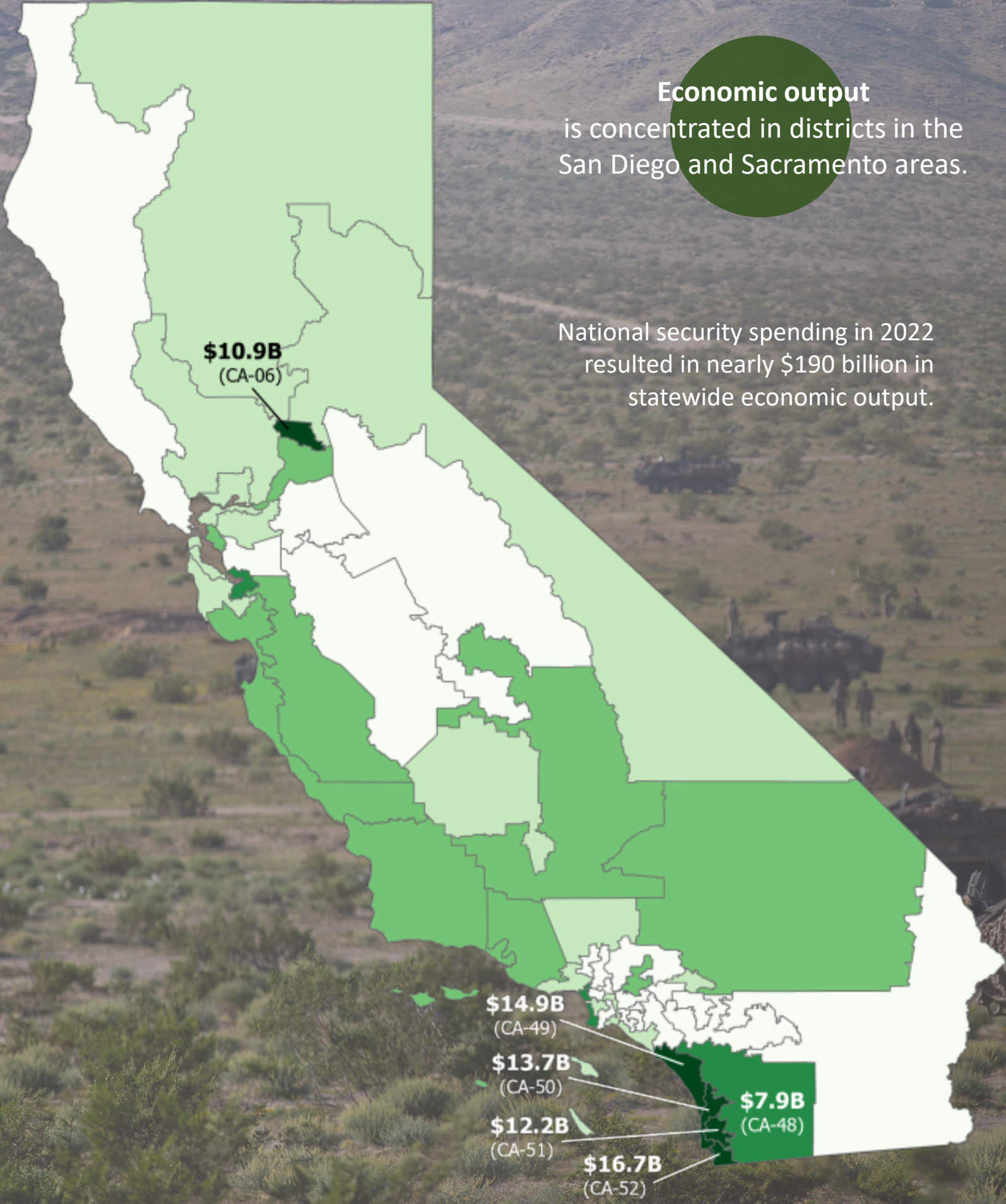
\$14.9B
(CA-49)

\$13.7B
(CA-50)

\$12.2B
(CA-51)

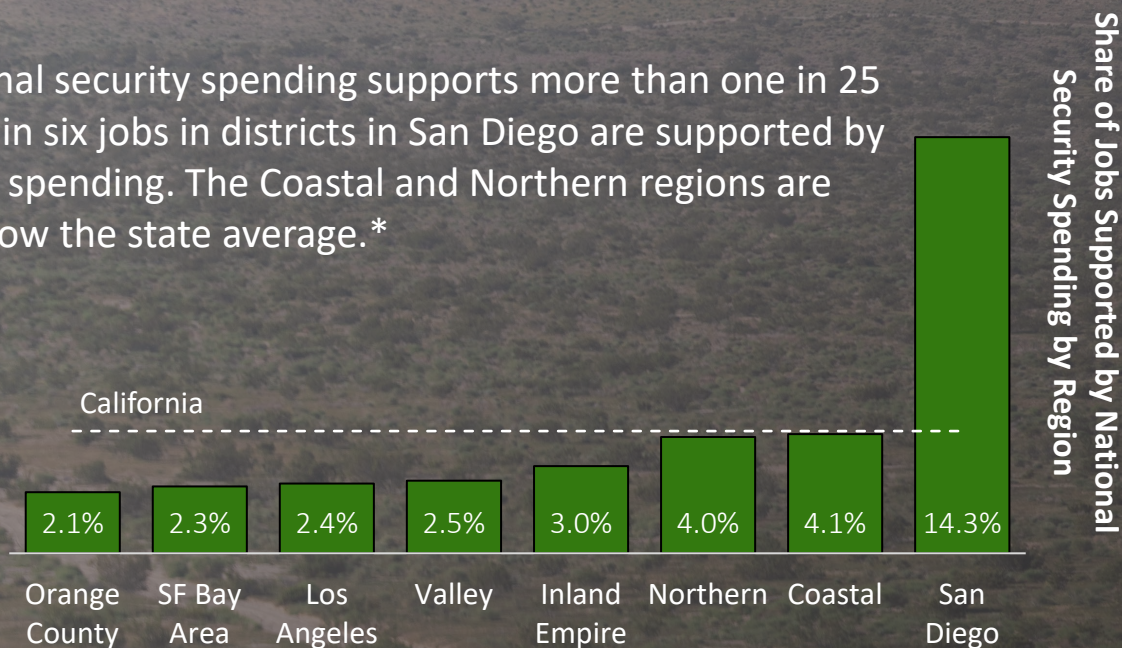
\$16.7B
(CA-52)

\$7.9B
(CA-48)



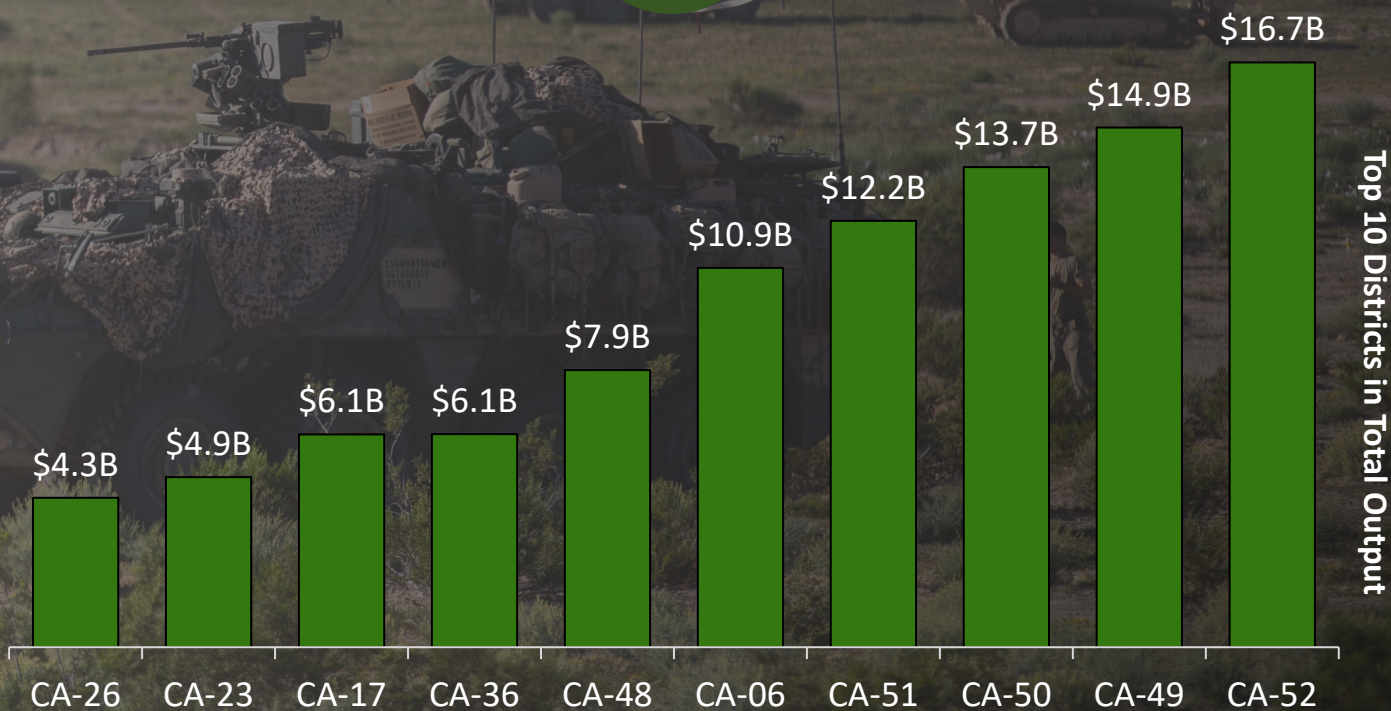
National security spending supports at least 4% of jobs in the Coastal and Northern regions and over 14% of jobs in the San Diego region.

Statewide, national security spending supports more than one in 25 jobs. Nearly one in six jobs in districts in San Diego are supported by national security spending. The Coastal and Northern regions are next and just below the state average.*



*Regions in this report are based on Congressional Districts, so totals may vary from county-based regions in the County supplement.

Districts in the San Diego, Northern and Los Angeles regions generate the most economic output.



The Falcon 9 successfully launches from
Vandenberg Space Force Base.



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An F-16D performs a test mission over Edwards Air Force Base.



California Statewide National Security Economic Impacts, 2023 Congressional Districts Supplement

Introduction

In November 2023, the California Research Bureau at the California State Library published the sixth annual report on Statewide National Security Economic Impacts in California. The Research Bureau produced this report at the request of the Governor’s Office of Planning and Research and the Governor’s Military Council. This is the first of two years of reports produced with support from the Governor’s Office of Business and Economic Development. This support has allowed for an expanded scope, including two local supplements. This supplement details findings by congressional district and the second provides findings by county. Readers should refer to the California Statewide National Security Economic Impacts, 2023 Update¹ for detailed information on data types and sources, such as direct spending and employment, methodology, and background, used in the main report as well as these supplements.

Using fiscal year 2022 spending and employment data from the three federal agencies that account for the bulk of national security spending and employment – the Departments of Defense, Homeland Security, and Veterans Affairs – this report examines the impact of national security spending and employment in California’s 52 congressional districts (map in Appendix II). Fiscal year 2022 includes continued impacts of COVID-19. Discussion of how this impacts the estimates is included in the statewide report.

In addition to this report, an Excel file containing the raw data specific to each county and congressional district is available.

Regions in the county supplement are based on the California Employment Development Department’s “California Economic Markets.”² Regions in this supplement start from that structure but are adjusted to account for congressional district lines that do not align closely with county boundaries and varying levels of population density throughout the state. This results in eight regions, as displayed in Figure 1, compared to the 11 in the county supplement.

¹ Bedi, S. & Lavelle, D. [“California Statewide National Security Economic Impacts, 2023 Update.”](#) California Research Bureau, California State Library, Nov. 2023.

² Lavelle, D. [OPR Economic Regions. Regional Designations Among California's Governments. EDD Economic Markets.](#) California Research Bureau, California State Library, Dec. 2022.

Because of limitations in the methodology developed to estimate congressional district results, this supplement omits the government revenue and industry output generated within each of the districts. While the methodology is accurate at a high level, it does not account for variations within a county. While economic activity can reasonably be assumed to be approximately proportionately distributed across the county, government revenue and industry totals are tied to specific government and business entities that are in specific locations, which are likely not evenly distributed. As a result, it would not be accurate to use the methodology to estimate government revenue and industry-specific economic activity at the congressional district level. Details on government revenue and industry-specific economic activity are available in the county supplement.



Figure 1: California Districts Grouped by Region

Regional Overview

Direct Activity

Direct Employment

In fiscal year 2022, the U.S. Departments of Defense, Homeland Security, and Veterans Affairs directly employed approximately 336,000 civilian and military employees in California, making up 860 of every 100,000 Californians. Around 220,000³ military and civilian personnel – nearly two-thirds of the statewide total – are concentrated in Southern California, which encompasses the Inland Empire, Los Angeles, Orange County and San Diego regions. Most of this employment is in the San Diego region, with nearly 153,000 civilian and military personnel, or around 4,000 out of 100,000 residents in the region. The Inland Empire and Coastal regions were the only other regions with over 30,000 military and civilian employees.

Two regions – San Diego and Coastal – have a higher proportion of military and federal civilian employment to the region’s population than the state average. Among the eight regions, San Diego and Coastal rank first and third, respectively, in total military employment, but are sixth and seventh in total population.

Figure 2: Direct Employment by Region

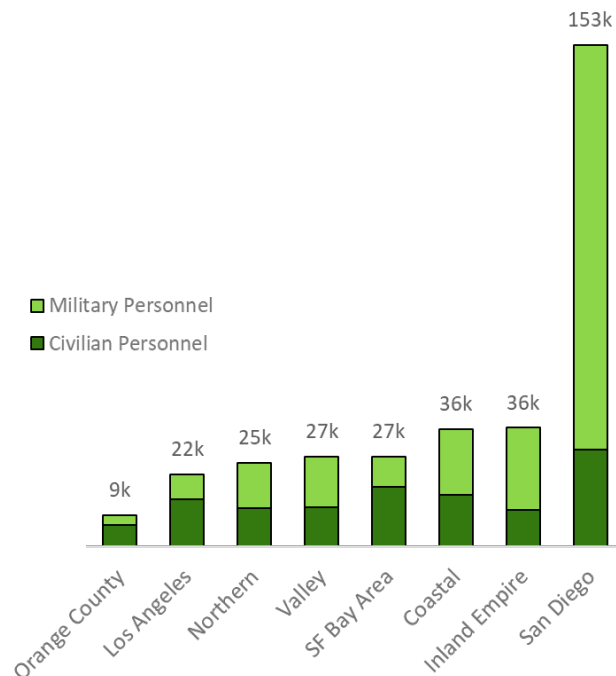
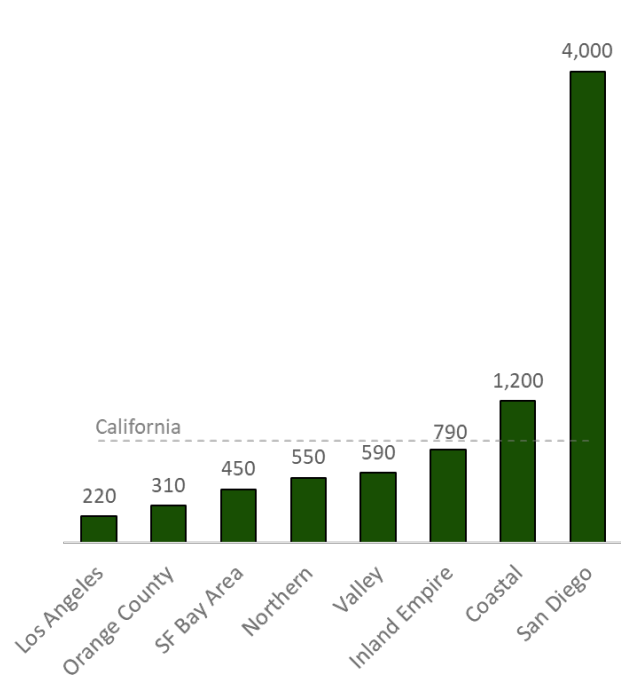


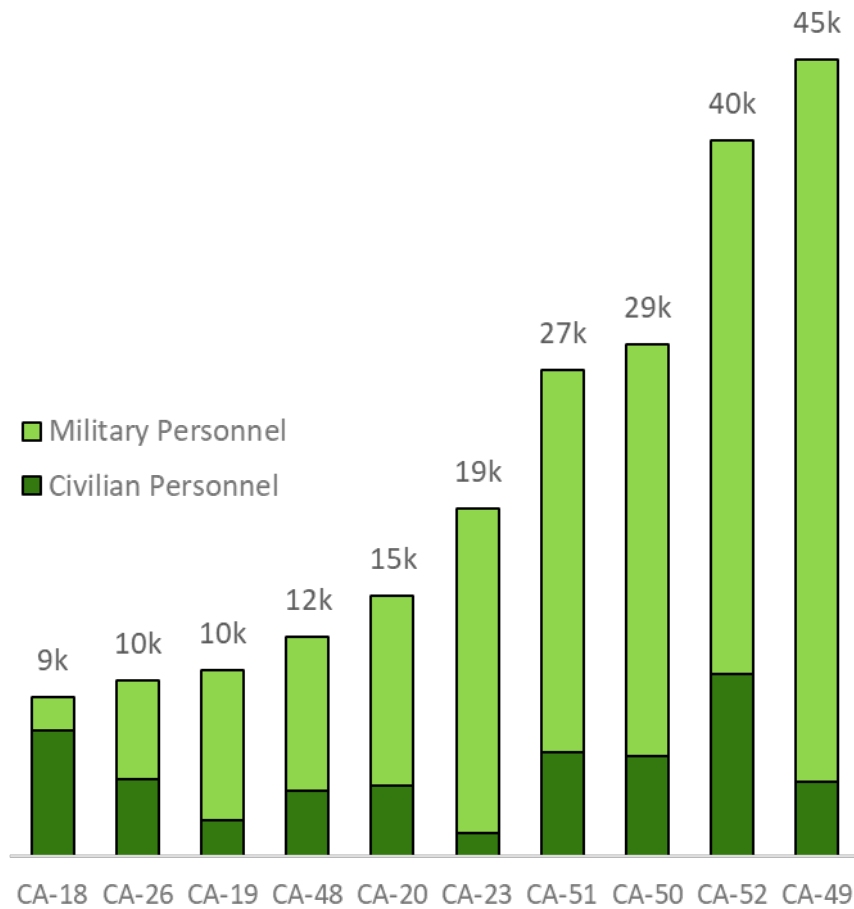
Figure 3: Direct Employment per 100k Residents



³ Regional estimates may not match the county supplement due to differences in regional composition as defined in each report.

Figure 4 displays the 10 congressional districts in the state with the most national security employees. California’s 23rd Congressional District, or CA-23, in the Inland Empire region, is the only district outside of the San Diego region in the Top 5. In addition to the Top 4 congressional districts, the San Diego region also has CA-48 with the seventh most employees among districts. CA-20 in the Valley region and CA-18, CA-19, and CA-26 in the Coastal region round out the Top 10.

Figure 4: Top 10 Districts in Direct Employment



Direct Spending

In fiscal year 2022, the U.S. Departments of Defense, Homeland Security, and Veterans Affairs collectively spent \$51.4 billion on national security activity, over \$130 million per 100,000 California residents. Southern California received \$30.5 billion in spending, roughly 60% of the state’s total. The largest share is in San Diego, which accounts for 26.3% of all national security spending in the state, totaling \$13.5 billion in fiscal year 2022. The Los Angeles and Northern regions received \$12.2 billion (23.9%) and \$8.6 billion (16.7%), respectively. The San Francisco Bay Area region received \$8.0 billion (15.6%).

Figure 5: Direct Spending by Region

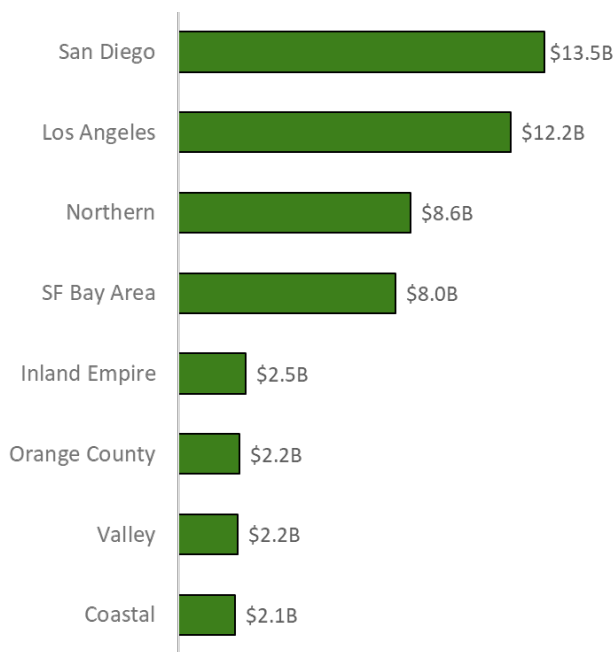


Figure 6: Direct Spending per 100k Residents

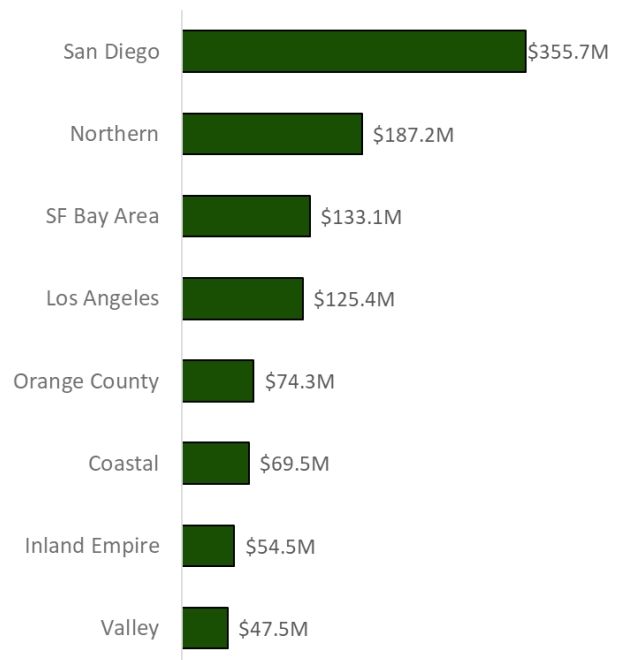
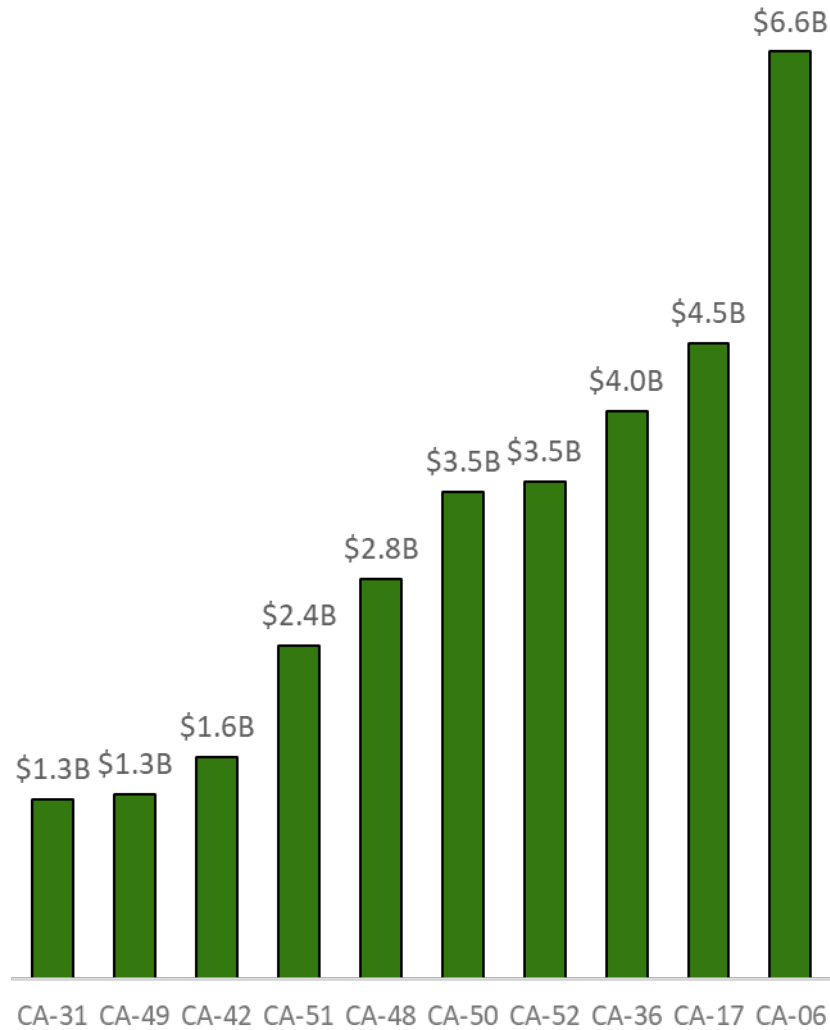


Figure 7 displays the 10 congressional districts that received the most direct spending. All five districts in the San Diego region fall within the Top 10. The Los Angeles region has three districts in the Top 10 (CA-36, CA-42, and CA-31). The remaining two districts have the highest spending – one in the Northern region (CA-06) and one in the San Francisco Bay Area region (CA-17).

Figure 7: Top 10 Districts in Direct Spending



Economic Impacts

This report used economic impact assessment software to develop standard input-output models to estimate the direct, indirect, and induced economic activity that typically results in a region from spending and employment within a given industry. Direct effects include the employment and economic output from the federal government as well as the employment and economic output of its direct contractors. Indirect effects include the output and employment of subcontractors. Induced effects include the employment and economic output generated because of spending created from earnings generated in the first two categories.

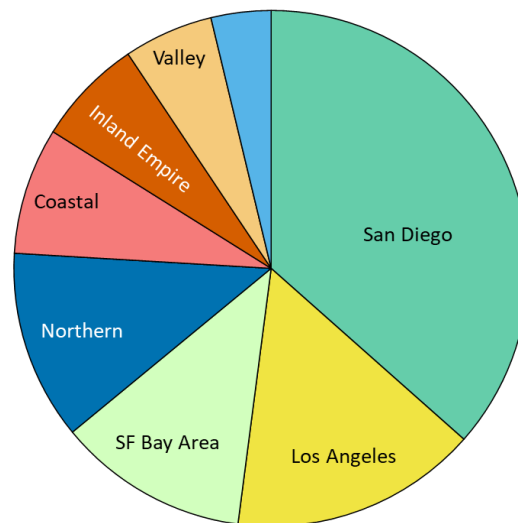
For more information about the methodology and software employed in this study, please refer to the methodology section in Appendix I of this report.

Total Output

Economic output follows a similar pattern to spending and employment. The San Diego region has the largest share, \$65.5 billion, accounting for over one-third of California's \$189.8 billion in total economic output generated by national security spending and employment. The Los Angeles region is second with \$27.9 billion, followed by the San Francisco Bay Area and Northern regions with \$21.5 and \$21.3 billion, respectively. In total, Southern California accounts for \$112.2 billion in economic output, almost 60% of the state's total, due to the concentration of military facilities, major contractors, and servicing industries in the area.

(Note that, throughout the report, local estimated outputs add up to a modestly smaller amount than the statewide figure. A small amount of leakage from congressional districts is unable to be accounted for within the software available for this project, resulting in this difference).

Figure 8: Share of Total Output by Region



The San Diego region is the only region with a larger proportion of total output than the state average of \$486.2 million. The Coastal and Northern regions are just below the state average.

Figure 9: Total Output by Region

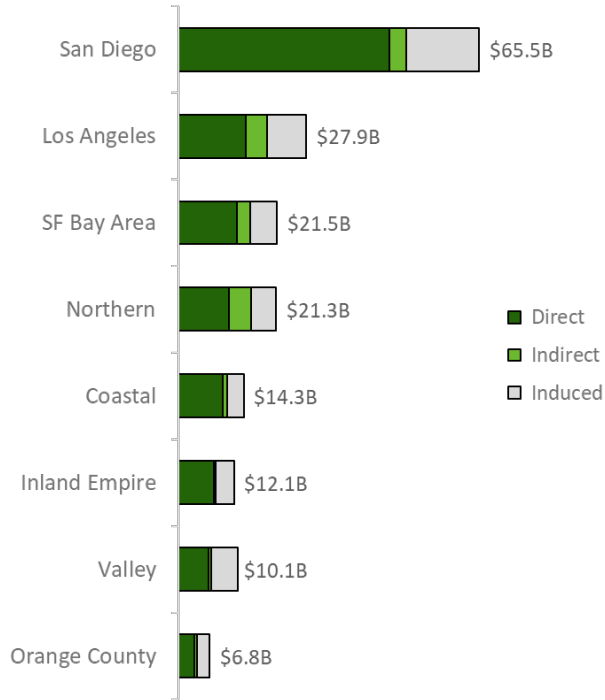


Figure 10: Total Output per 100k Residents

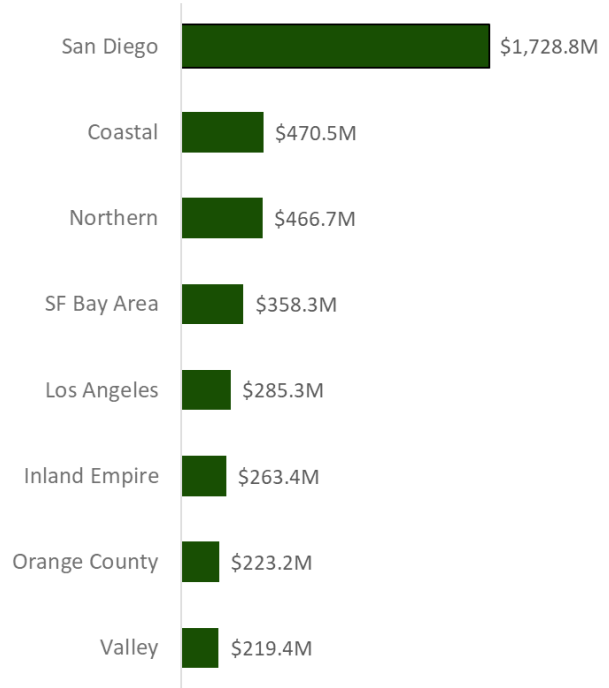
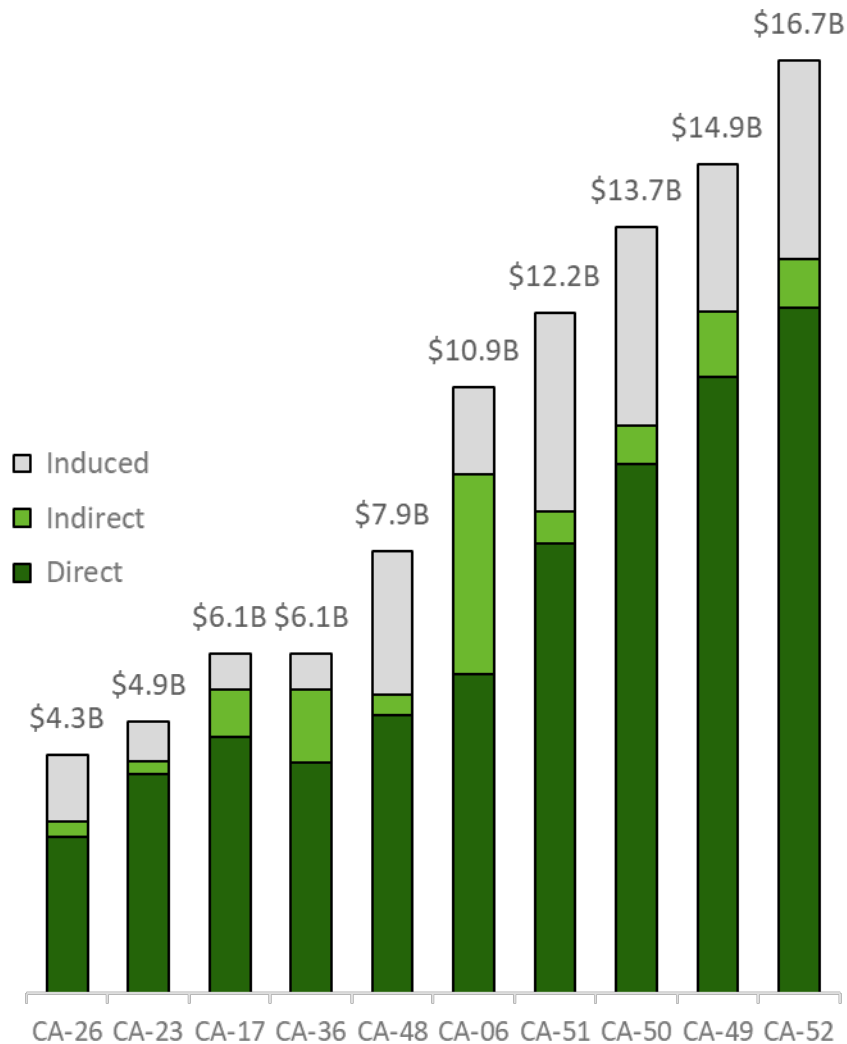


Figure 11 displays the 10 congressional districts that generated the most economic output. CA-06, in the Northern region, is the only district outside of the San Diego region to crack the Top 5. In addition to CA-06 and the five congressional districts in the San Diego region, CA-36 in the Los Angeles region, CA-17 in the San Francisco Bay Area region, CA-23 in the Inland Empire region, and CA-26 in the Coastal region comprise the Top 10.

Figure 11: Top 10 Districts in Total Output



Total Employment

Estimated total employment generated by national security activity follows a similar pattern to total output across the regions. The San Diego region supported 272,000 full-time equivalent (FTE) jobs, accounting for 36.3% of the 771,000 FTEs generated by national security activity in California in fiscal year 2022. Southern California accounts for over 60% of all employment with 479,000 FTEs. The Los Angeles region includes 115,000 FTEs (15.4%).

The San Diego region (14.3%) is the only region above the state average of 4.2% of employment being supported by national security activity. The Coastal and Northern regions are just below the state average with 4.1% and 4.0%, respectively.

Figure 12: Total Employment by Region (FTEs)

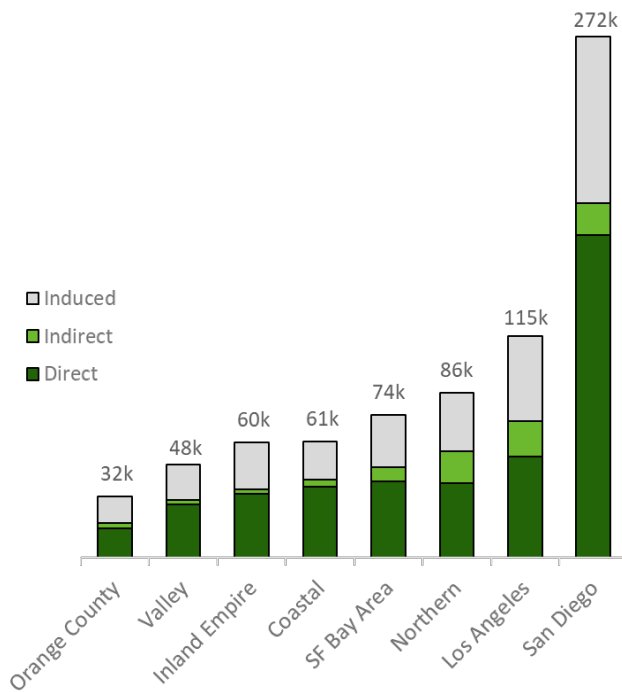


Figure 13: Total Employment as Percentage of Region’s Employment

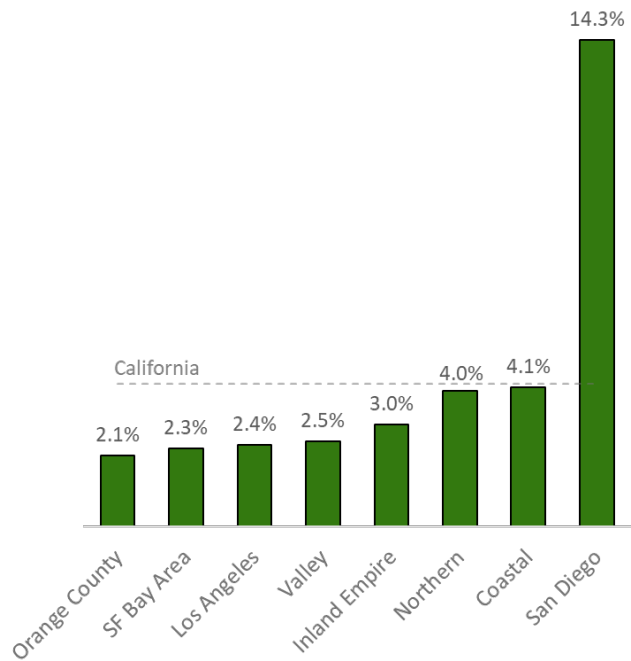
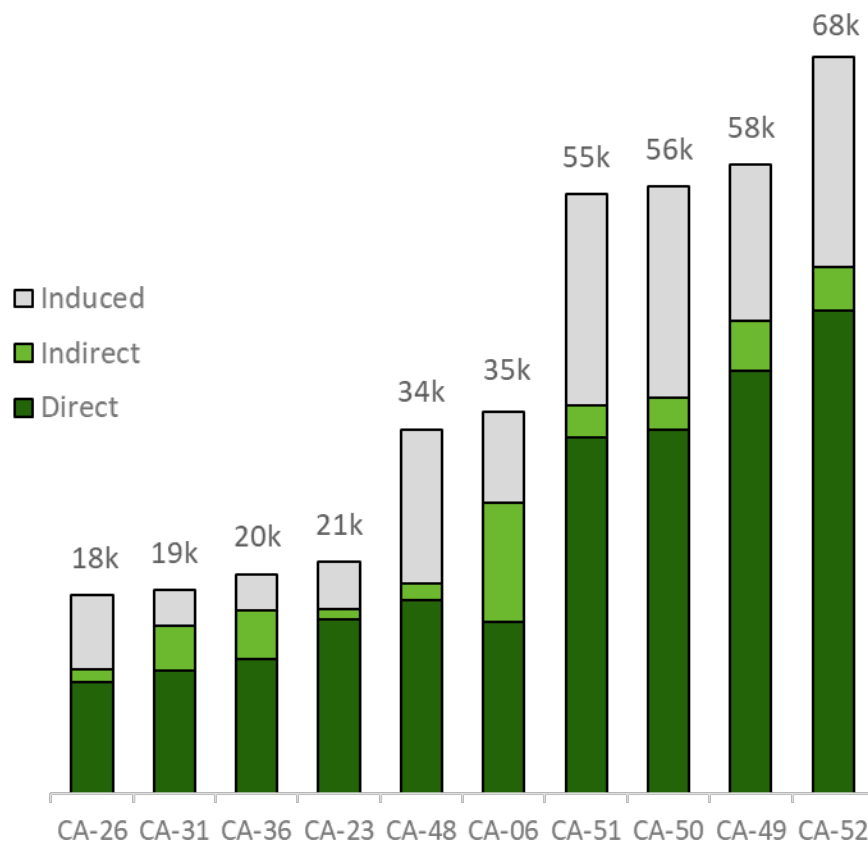


Figure 14 displays the 10 congressional districts with the most FTEs generated by national security activity. The five congressional districts within the San Diego region made up five of the top six regions, with CA-06 in the Northern region ranking fifth. The remaining districts in the Top 10 include CA-23 in the Inland Empire region, CA-36 and CA-31 in the Los Angeles region, and CA-26 in the Coastal region.

Figure 14: Top 10 Districts in Total Employment (FTEs)



U.S. Army Parachute Team lands on the U.S.S. Midway in San Diego.



Appendix I: Methodology – District Analysis

This report models economic impacts using IMPLAN software, based on standard input-output methodology. The purpose of the study is to estimate the impacts of existing spending, rather than modeling any policy changes or other counterfactuals. As a result, the analysis estimates gross benefits and does not account for alternate federal spending or other use of resources that might occur in California in the absence of national security spending and employment.

The IMPLAN (IMpact Analysis for PLANning) I-O economic model was selected for this analysis based on its reputation and the resources available. IMPLAN was developed by the U.S. Department of Agriculture Forest Service in the 1970s to fulfill the requirements of the Rural Development Act of 1972 to estimate the impacts of alternate uses for U.S. public forest resources.

For a full discussion of the overarching methodology and IMPLAN’s input-output model, refer to the Methodology and Data section in the 2023 Statewide National Security Economic Impacts Study. This supplement builds on the analysis in the aforementioned study.

As in prior versions of the report, this supplement analyzes the localized impacts. It follows the same methodology as the 2019 report,⁴ but provides expanded detail, estimating results for each of California’s 52 congressional districts. A separate supplement provides estimates for California’s 58 counties. These supplements use a two-model approach to estimate the impacts for local areas. This accounts for the fact that a traditional, single-model approach would understate the impacts occurring within a given geographic area, omitting spillover effects from spending in other districts.

Traditional models estimate the impacts that spending and employment within a given congressional district has within that same district. For example, it would capture most of the economic impacts associated with the employment of a government worker who both works and lives in CA-06. The large majority of the induced economic activity from their employment or spending on housing, shopping, healthcare, etc., would likely occur within the district because they both live and work there. While it would account for most of the economic activity resulting from their employment, it would miss some aspects. For example, if they went to a restaurant in neighboring CA-07 or went on vacation to San Diego in CA-52, the resulting economic activity would be omitted. The CA-06 model would miss the spending that occurs outside of CA-06, and the CA-07 and CA-52 models would miss the original employment data that led to that induced activity because it occurred outside those districts.

⁴ Lavelle, D.M. [“California Statewide National Security Economic Impacts, 2019 Update.”](#) California Research Bureau, California State Library, Oct. 2019.

Even more economic activity is missed when economic relationships occur across congressional districts. For example, if a Los Angeles company based in CA-28 contracted with an Orange County law firm based in CA-47, the resulting indirect and induced economic impact would be missed altogether. Because the contractor is outside Los Angeles, the CA-28 model would not include it while the CA-47 model would not account for the initial spending that occurred outside of CA-47. Moreover, simply including the Los Angeles data in the CA-47 model is not viable because it would then overcount economic activity associated with the spending that is actually occurring within CA-28.

Economic activity omitted from a traditional model approach is significant in aggregate. In this case, such a methodology would overlook approximately 8% of total state output, using the county models. This can also distort regional information significantly. For example, 61% of economic activity in Santa Cruz County would be excluded by a traditional model. These impacts appear most significant in areas with large tourist economies and districts that are home to a large number of commuters from nearby congressional districts.

This supplement uses the same two-model approach as the 2019 report. This is refined and streamlined from the original three-model approach used in the 2018 report with the assistance of IMPLAN's Multi-Regional Input-Output (MRIO) tool. This tool estimates the impacts that spending within a given geography has on other selected geographies. "MRIO expands backward supply linkages beyond the boundaries of a single-region Study Area. MRIO analyses utilize interregional commodity trade and commuting flows to quantify the demand changes across many regions stemming from a change in production and/or income in another region. This powerful analytical method allows analysts to go beyond a single study region, measuring the economic interdependence of regions. In an MRIO analysis, the Direct Effect in one region, Region A, can trigger Indirect and Induced Effects in linked regions, capturing some of what would have been a leakage in a traditional I-O model."⁵

Because of the complexity of these models, however, IMPLAN is only able to analyze seven geographies within the MRIO tool. This prevents us from simply running a single MRIO model for each district.

⁵ Clouse, C. (2023) [MRIO: Introduction to Multi-Regional Input-Output Analysis. IMPLAN.](#)

Instead of using the MRIO tool to estimate all of the spillover resulting from spending in a congressional district, we use it in reverse to calculate all of the spillover it receives resulting from spending in other districts. First, we run a standard model for each district using spending and employment within that district. We then set up a second MRIO-based model. This model uses a custom region that is composed of all of the congressional districts in the state, except the district⁶ from the first model. Similarly, the input data for the analysis is the spending and employment from those 51 districts, omitting the spending and employment that was included in the first model. The district from the first model is then used as the secondary region within the MRIO framework. By doing so, the MRIO tool estimates the indirect and induced activity that occurs within that district as a result of spending and employment that occurs within the other districts. These outputs are then added to the outputs from the first model to calculate the total outputs for that district. This approach, combining the economic activity resulting from direct inputs as well as spillover from outside the district, more fully accounts for the localized impacts within the state without impacting the statewide estimates.

Developing this report identified a limitation in the IMPLAN model. Most economic data is based on counties. As a result, the IMPLAN model is structured based on counties as well. Since congressional districts often do not align with county boundaries, IMPLAN builds these from zip code data that is estimated from the county data.⁷ Due to challenges in estimating this data, a large portion of indirect and induced effects estimated in the statewide and county models is omitted, which IMPLAN staff attribute to aggregation bias,⁸ omitted data sources, and lagged data.

While these problems are inherent to the model, it appears to be a particularly significant issue for California due to the state's large number of congressional districts and relatively small number of counties. The variation identified was much more significant in districts in dense urban areas than in rural areas, where some counties are wholly contained within a single congressional district.

In order to more accurately estimate the indirect and induced activity across congressional districts, we developed a workaround methodology based on induced and indirect activity detailed in the county supplement and distributed estimated impacts across each congressional district. Indirect impacts were distributed proportionately based on the estimated share of direct impacts. Induced impacts were distributed proportionately based on the share of population.

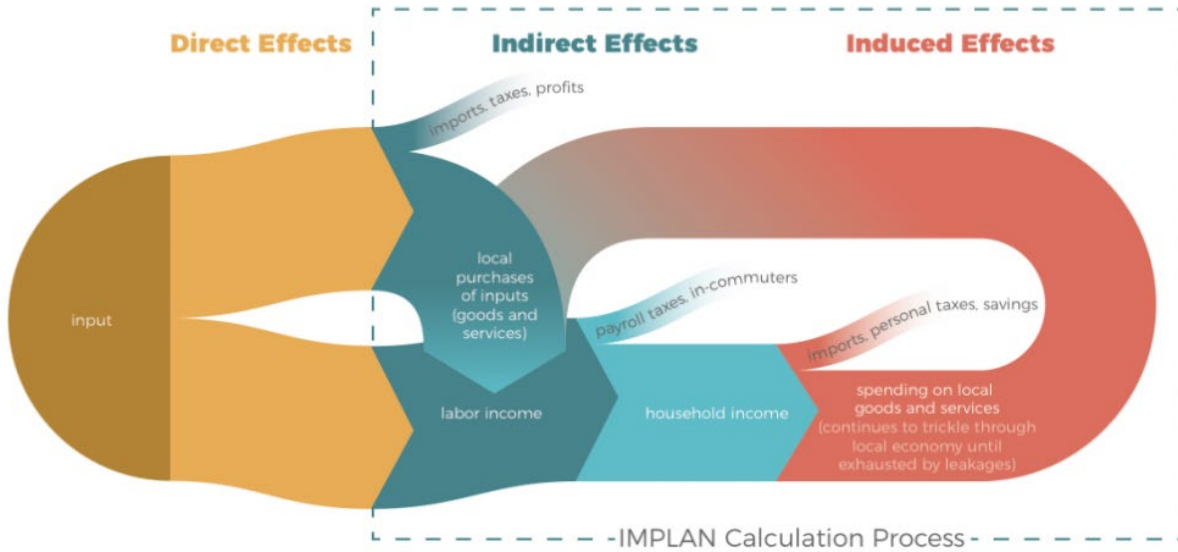
⁶ Due to limitations with IMPLAN's software, the MRIO-based models utilize the counties completely outside of the district under analysis.

⁷ For more information, refer to [IMPLAN's article on estimating Zip Code Data](#).

⁸ For more information, refer to [IMPLAN's article on aggregation bias](#).

While this methodology is expected to yield reliable results, estimated differences between neighboring districts should be understood to come with a lower level of precision than differences estimated between counties and regions.

Figure 15: IMPLAN Model⁹



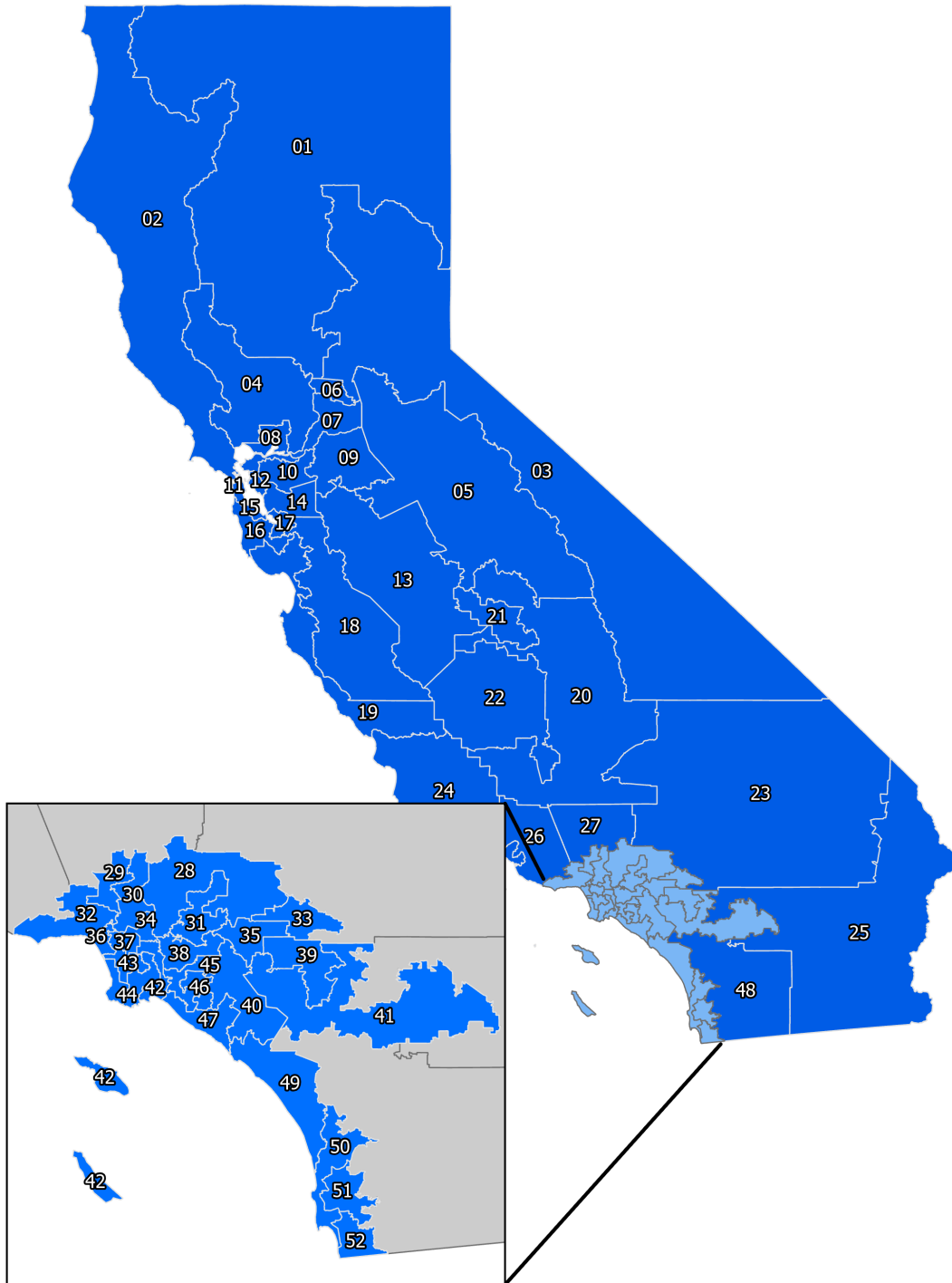
⁹ IMPLAN. [Assisted Economy](#). IMPLAN also has a link to [a larger version of this figure](#).

A combat dive team engaged in surf passage training at Camp Pendleton, California.



Appendix II: California Congressional Districts

Economic impacts are detailed for all 52 California congressional districts in a separate file that can be found on the Governor’s Military Council website at militarycouncil.ca.gov.





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