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FUELING TRANSITIONS

CALIFORNIA'S OIL AND GAS INDUSTRY DECLINE, AND ITS IMPLICATIONS FOR EMPLOYMENT, PROPERTY TAXES, AND COUNTY BUDGETS

UNIVERSITY OF CALIFORNIA MERCED | COMMUNITY AND LABOR CENTER

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EXECUTIVE SUMMARY

California has been a global leader in fossil fuel extraction, yet its state government has set goals to reduce greenhouse gas emissions 40 percent below 1990 levels by 2030 and to become carbon-neutral by 2045. Such ambitious goals have raised questions about the implications of such a massive energy transition on oil and gas workers, property tax revenues, and public services and jobs. This report examines various data points relevant to California oil and gas production, and challenges common assumptions about the relationship between production, revenue, jobs, property tax revenues and budgets that often drive policy debates. The study ends with a call to action for addressing the challenges facing oil and gas workers and community members in oil dependent communities.

The California Oil and Gas Study was funded by the State of California, with supplemental funding from the James Irvine Foundation, and conducted by the UC Merced Community and Labor Center. The study was carried out between July 2023 and June 2026, and relied upon the most relevant official government data sources. The analysis included California Oil, Gas, and Geothermal Annual Reports (2000-2022); IPUMS USA/ American Community Survey (2000-2023) public use microdata; California Board of Equalization assessed values; the California State Controller's Office's Counties Financial Data; Kern County, Los Angeles County, and Contra Costa County Annual Financial Reports; and Kern County Assessor's Office parcel-level data. This study also included consultation with a Community Advisory Board (CAB), comprised of leading labor unions and community organizations serving those most affected by the current energy transition.

This report examines oil and gas industry trends and their relevance for transition planning, including: California oil and gas production and revenue decline; the number of oil and gas workers and their "pay premium"[1] (earnings above that expected to be earned in any other industry); projections of expected decline by 2045 (based on current trends and recent policies); and implications for property tax revenues (a key tax, though note sales taxes and special assessments are not included), County budgets, services and jobs.[2] Findings in this report include:

I. California's Declining Oil and Gas Production and Revenue

- California's oil production has steadily and dramatically decreased across two decades at a rate of about 7 million barrels per year, from 271 million barrels in 2000 to 124 million barrels in 2022.
- If the pace of California's oil production decline this century were to continue, California's oil production would reach negligible levels between 2043 and 2053, around the State's 2045 goal of carbon neutrality.
- California oil and gas revenue has been highly unstable in the past two decades, driven much more by global market price fluctuations than state or domestic market conditions.
- California oil and gas revenue has declined in recent years, but the current level of revenue is comparable to what it was in 2000. This underscores the uncertainty, especially as it relates to the volatile price of oil, as to future declines.

[1] We use the term "pay premium" because it is a standard tem in the labor economics field. However, unionization plays a leading role in raising average industry wages (Fortin, Lemieux and Lloyd 2021), and California's oil and gas industry has higher union membership rates (22%) than the state's private sector (11%) (Gender Equity Policy Institute 2023, 4; Hunter et al. 2023).

[2] Hammerling, Toaspern and Schmahmann (2025) estimated the oil and gas industry's direct and indirect local tax contributions, including sales taxes, special assessments, and other taxes. This report focuses on property taxes, given its key interest among local government officials and industry (e.g. Natelson Dale Group 2020; Kern Economic Development Foundation 2021.)

II. California Oil and Gas Workforce Trends

- California's oil and gas employment has been declining since 2013, but also fluctuated (with oil prices) over time. Employment today is comparable to what it was in 2000.
- Geographically, most of California's oil and gas employment in 2021 was concentrated in four counties: Kern (18% of state's employment), Contra Costa and Solano (11%) and Los Angeles (24%).
- California's oil and gas sub-industry employment varies by county:
    - Kern's oil and gas workforce is concentrated with 71% in extraction
    - Contra Costa's and Solano's oil and gas workforce is concentrated in refining (67%)
    - Los Angeles' oil and gas workforce is relatively diversified, with 34% in natural gas distribution, 35% in refining, and 11% in extraction

III. California Oil and Gas Displaced Worker Implications

- California's oil and gas employment fluctuations make young (aged 18-35) and older (aged 51-65) workers much more vulnerable than those aged 36-50.
- California oil and gas workers have an annual pay premium of 27%, that is, they earn on average $26,500 more than their counterparts with similar education in all other industries.
- We estimate that current workers 44 and younger can expect to experience a premium of $67,000 across their careers.
- One in five (20%) of California's 58,831 oil and gas workers (or 11,745) are employed in any of fifteen occupational titles that concentrate in the oil and gas industry (in which the majority of workers work in the oil and gas industry, rather than other industries).

- Without economic support, and accounting for the current number and ages of workers (and current rate of industry decline), workers would collectively bear to lose millions of dollars in oil and gas pay premiums for the next twenty-two years. Those employed in oil and gas-concentrated occupations would lose $35 million per year in pay premiums.

IV. California Oil and Gas Property Tax Revenues

- Oil and gas wells will generate about $166 million in tax revenues in 2026.
- Refineries will account for around $105 million in tax revenues in 2026.
- Oil and gas property tax revenues comprise approximately 11% of Kern County's property tax revenues, 2% of Contra Costa County's property tax revenues, 1% of Solano County's property tax revenues, and 0.4% of Los Angeles County's property tax revenues.

V. Public Sector Implications

- The finances of California's focal oil and gas counties (Kern, Los Angeles, and Contra Costa) have been extremely resilient; their County general fund balances have grown nearly every year since 2000, despite steady and dramatic declines in the oil and gas industry.
- Not all public sector employment is equally vulnerable during economic downturns. In the most heavily dependent oil and gas region (Kern), during the sharpest oil and gas industry decline, public health workers experienced one of the greatest disruptions in public sector employment.
- Schools are much more insulated from declining oil and gas property tax revenues. A significant share of any local property tax revenues that counties could lose for schools would be made up by the State, under Article XVI, Section 8 of the California Constitution (Proposition 98).

This report challenges many assumptions regarding oil and gas industry dynamics and the public interest, finding that production, revenue, jobs, property taxes and budgets are not as closely tethered as has been assumed. While oil and gas decline is likely to continue in the coming years—due to rising concerns with climate change and increasing investment in renewable energy—California counties are hardly dependent on oil and gas property taxes for fiscal stability.

Yet the policy implications of this report suggest that, given the ongoing energy transition, the State must develop comprehensive, but locally-informed, plans to support workers and the public. As the report shows, workers are at risk of absorbing industry decline without any targeted support. In turn, for a major transition from fossil fuel to renewable energy sources to be considered "just," government will have to play a key role in safeguarding the economic wellbeing of workers and any public sector interests experiencing insecurity as a result of the transition.

In light of the challenges facing oil and gas industry workers and public sector interests, this report's final section outlines major recommendations identified by the study's Community Advisory Board. First, the State may provide social and economic support or programmatic support for displaced oil and gas workers, advance economic and workforce development by designing well and refinery remediation programs, or advance worker and community-driven economic diversification by prioritizing displaced oil and gas workers in state hiring or through procurement policies. Second, the State may also play an important role in mitigating economic risks to communities heavily dependent on the fossil fuel industry by creating a stabilization fund. Such a stabilization fund could be utilized during moments of economic disruption, and could support local jurisdictions to maintain a minimum level of spending on key budget areas, including public and social services, while protecting jobs in these areas.

INTRODUCTION

The State of California is a global leader in both fossil fuel extraction and in the effort to shift towards more sustainable forms of energy development. The United States ranks first in global oil and gas production, and within the US, California ranks seventh among states in oil and gas production. Yet, while these dynamics are all the more relevant given the recent war in Iran and disruptions in the global oil and gas supply (and rising prices), experts have nonetheless noted that "America depends less on oil than ever" (DePillis 2026). The State has set goals to reduce greenhouse gas emissions 40 percent below 1990 levels by 2030, and to become carbon-neutral by 2045. Such ambitious goals have raised questions about the implications of such a massive energy transition on oil and gas workers, property tax revenues, and public services and jobs.

The purpose of this report is to examine current trends in California's oil and gas production and revenue, and some of their significant ongoing economic implications. In 2023, with a funding allocation from the California State Legislature, the UC Merced Community and Labor Center initiated the California Oil and Gas Tax study, which was conducted between July 2023 and April 2026. The study analyzed official government data on oil and gas industry production, revenue, property taxes, and jobs, between 2020 and 2023. In the second year of the study, the Community and Labor Center formed a Community Advisory Board (CAB). The CAB included the active involvement of labor unions and environmental justice organizations from across the state.

Previous research on major energy transitions has emphasized the need for a "just transition." Tony Mazzochi, the long-time leader of the Oil, Chemical, and Atomic Workers Union, coined the "just transition" term in the 1970s to argue that workers should not have to sacrifice

their own jobs and living standards to improve environmental conditions (Smith 2017). Rather, government should invest in and support workers employed in jobs linked to environmental degradation.

California's climate goals and its declining oil and gas industry present one major, contemporary case of the need for a just transition. Scientific evidence indicates the production of fossil fuels, like oil and gas, are responsible for 75 percent of the world's greenhouse gas emissions linked to increasing heat waves, wildfires, droughts, sea level rises, floods, storms, and biodiversity loss (IPCC 2021; Pollin and Callaci 2019). As one of the leading oil producers in the nation, the State of California has been at the forefront of mitigating the resulting climate crisis.[3] More recently, between 2000 and 2022, the State significantly reduced greenhouse gases with its policies and incentives. However, questions remain about the potential impacts of California's energy transition on industry workers, and declining oil and gas property tax revenues on public budgets, services and workers.

The State of California's "high road" framework provides one approach for mitigating the risks of a major energy transition on workers and the public. In 2018, the California Workforce Development Board published "Putting California on the High Road: A Jobs and Climate Action Plan for 2030," a 600-page commissioned report with recommendations for advancing the State's climate and workforce development goals. The report conceptualized the "high road" framework, identifying demand-side levers that government could pull, such as billions of dollars in procurement power. Key to the high road framework are state-funded collaboratives that bring

[3] For example, in 2006, California passed AB32, the Global Warming Solutions Act.

together businesses, unions, and community groups to identify and advance shared interests in the State's climate objectives. In turn, insofar as it integrates labor unions and community organizations into economic development planning, a high road approach can facilitate just transition-type planning around California's declining oil and gas industry.

This report advances a high road approach towards the issue of California's declining oil and gas industry and its implications for workers and the public. The need to better understand the California oil and gas industry's declining production, and its implications on public services and jobs, first emerged during the Community and Labor Center's research for the Kern Strategic Workforce Development Report (Brostrom et al 2024). The report was funded by the Workforce Development Board's High Road Training Partnership program (which was informed by the Board's 2018 report). It was through convenings with labor and community partners at the time of the Kern report that questions were raised about the degree to which counties relied on oil and gas tax revenues to fund local public services and jobs. At the time, only an industry-related report existed, and partners articulated the need for academic research on the issue statewide.

The California Oil and Gas Tax study is the first major analysis of shifting trends in the state's oil and gas property tax revenues (a key tax, apart from sales tax and special assessments), and its implications for workers and the public. The study was developed through consultation with a Community Advisory Board, of public and private sector labor unions and community groups, and provides research and recommendations focused on oil and gas workers and the public. Its goal is to better understand the dynamics of California's oil and gas industry decline, identify issues related to workers and the public sector, and inform policy development that ensures ambitious climate goals do not leave the most affected workers and communities behind.

METHODS

The California Oil and Gas Study

The California Oil and Gas Tax study was conducted from July 2023 to June 2026 and led by UC Merced researchers. The study analyzed official government and publicly available data on the oil and gas industry and its broader economic impacts, particularly oil and gas production, prices, employment, property tax revenues, public budgets and public sector jobs. A study Community Advisory Board (CAB) was established in January 2025, comprised of labor and community groups, and was instrumental in the development of parts of the study design, methodology, data analysis, findings, recommendations, and plans for dissemination (see Appendix A).

This report organizes presentation of data and findings along four main areas: (1) oil and gas production and revenue, (2) labor market impacts, (3) property tax and fiscal implications, and (4) county general fund balances and public employment figures. The methods for each or briefly discussed below, and at greater length in subsequent sections and in the Appendices.

In the first part of the study, oil and gas production and revenue were examined to assess trends and the potential impacts of the transition on California's economy. Annual production data from the California State Oil and Gas Supervisor's Annual Reports and oil price data from the U.S. Energy Information Administration (2024) were used to estimate the oil and gas revenue in California. California State Oil and Gas Supervisor's Annual Reports are available beginning in 2000. Since production data for 2023 and 2024 were not yet released, future trends were estimated by fitting a straight-line decline to recent production levels. California's crude oil first purchase price (dollars per barrel) was multiplied by the annual production data to produce oil and gas revenues in California.

The second part of the study examined labor market impacts, following the methodology of the Kern Strategic Workforce Development Report (Brostrom et al. 2024). The analysis focused on California, as a whole, and on four counties where the oil and gas industry was concentrated: Contra Costa, Kern, Los Angeles, and Solano. This analysis focused on different aspects of labor impacts, including employment counts, demographics, industry pay premiums, and the long run value of jobs. In addition, we used multiple regression analysis to estimate the oil and gas pay premium relative to comparable workers, controlling for age, gender, county of residence, race, and ethnicity.[4] [5] We analyzed labor market impacts using data from the Decennial Census and the American Community Survey (ACS), for 2000 to 2023. This included the Decennial 5% Public Use Micro Sample for 2000; three-year ACS samples for the midpoints of 2005-2007 and 2006-2008; and midpoints for the five-year ACS samples, starting with the 2005-2009 sample. The last year of ACS was 2023, thus the last five-year sample spanned 2019-2023. The most recent ACS data available corresponded to a 2021 midpoint.

The third part of this study involved county-level analysis of California oil and gas property tax revenues associated with wells. We used the parcel-level property tax data from the California Board of Equalization (BOE), which provided assessed values for oil and gas mineral parcels across eleven counties. Property tax values in this dataset were divided into three categories: Land, Improvements, and Personal Property. The analysis focused on Land and Improvements,

[4] A statistical technique that allowed us to isolate the effect of particular worker characteristics on an outcome of interest.
[5] See Appendix B for labor market data sample construction, Appendix C for coding of the oil and gas industry, and Appendix D for oil and gas premiums, and potential future analysis.

excluding Personal Property. (To improve reliability, we also cross-checked the BOE data with parcel-level data from the Kern County Assessor's Office.)

The county-level property tax revenue analysis also included refineries. In California, thirteen refineries operated in 2025, though one closed in 2026 and another is scheduled to close by the end of 2026. The most recent assessed values were assembled from county sources and public bond-disclosure filings, then converted to April 2025 dollars and further adjusted using a 1% annual appreciation assumption; facilities slated for closure were treated separately to produce an operating-refinery total. The 2026 tax base for wells was projected by applying the 2% assessment growth cap to the 2024–2025 roll; refinery values were similarly projected.

In estimating fiscal impacts of property tax revenue, we derived the county revenue impacts by applying county-specific AB 8 factors (with Solano proxied by Contra Costa's shares) to the oil-and-gas assessed value, and expressed both as dollars and as shares of total property-tax and overall county budgets (Controller's data re-indexed to April 2025). State revenue effects were estimated via two channels: (1) personal income tax losses tied to the industry pay premium (by county and statewide), priced at 2025 brackets; and (2) sales-tax losses using the statewide base rate and local add-ons (illustrated for Kern).

The fourth part of this study analyzed county annual financial reports and public employment figures, for the four focal counties where oil and gas activity concentrate. For Kern, Los Angeles, and Contra Costa, we examined the County's general fund balance, all property tax revenues, oil and gas property tax revenues, and number of full-time County employees, for the years between 2000 and 2025. We also examined the number of full-time County employees by division, particularly during the sharpest period of post-2000 decline in oil price and revenue,

from 2011 to 2016, to better understand which public sector services and jobs would be most vulnerable to oil and gas industry decline.

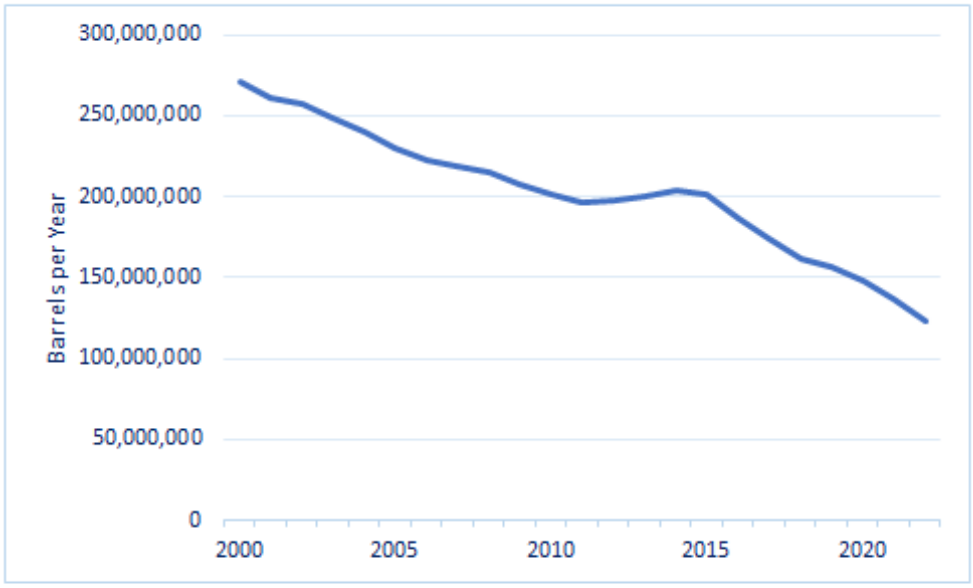
This report presents the basic findings of the study. The plans for dissemination of this study include presentations to state agencies and legislative committees of which these findings are relevant for, as well as labor unions and community organizations covering regions undergoing the energy transition. The UC Merced Community and Labor Center may also examine issue areas that are of greatest public interest, and produce any needed research products (e.g. fact sheets, policy briefs) to inform high road economic and workforce development approaches among workers and communities at the center of the energy transition.

CALIFORNIA OIL AND GAS PRODUCTION AND REVENUE

California is the nation's seventh largest supplier of oil, and the US is the world's leading supplier.[6] Yet oil production has steadily and dramatically decreased across two decades. According to annual reports from the California State Oil and Gas Supervisor, oil production has steadily declined at a rate of about 7 million barrels per year, from 272 million barrels in 2000 to 124 million barrels in 2022, (see Figure 1.1).[7] In 19 of the past 22 years, production has fallen—rising only briefly between 2011 and 2014. Overall, production has dropped by more than half, since 2000. Kern is a particularly relevant county to this industry, accounting for between 70% and 77% of California's oil production over the last two decades (see Appendix Figure H.1).

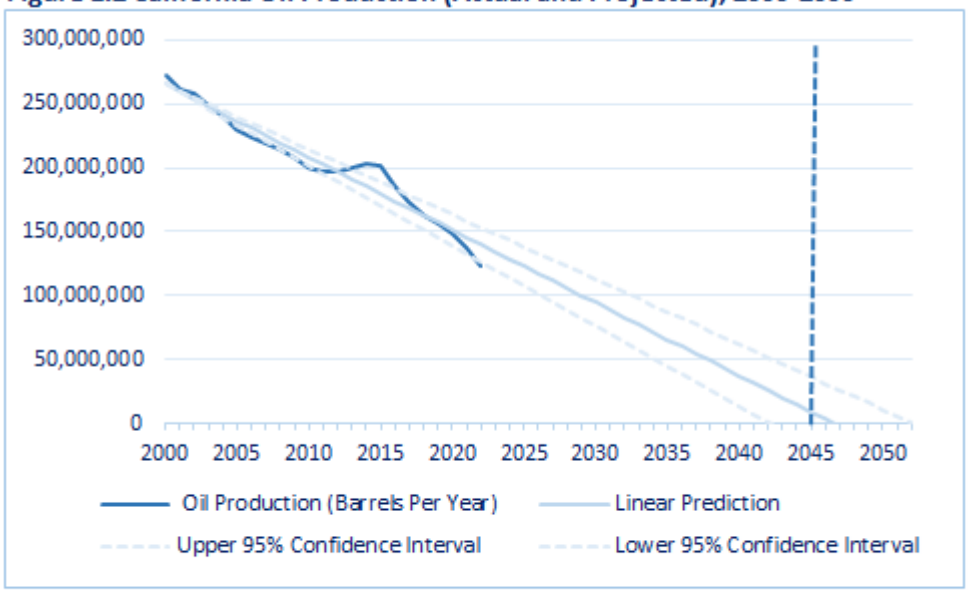
[6] https://www.eia.gov/energyexplained/oil-and-petroleum-products/where-our-oil-comes-from.php
[7] California State Oil and Gas Supervisor's Annual Reports are available starting in the year 2000. Data sources in this study include annual reports from 2000 through 2022. At the time of writing, reports for 2023 and 2024 had not yet been released.

Figure 1.1 California Oil Production



Source: UC Merced Community and Labor Center analysis of data from CalGEM Reports 2000-2022.

Figure 1.2 California Oil Production (Actual and Projected), 2000-2050



Source: UC Merced Community and Labor Center analysis of data from CalGEM Reports 2000-2022.

We take a closer look at the decline by drawing a straight line that best fits the recent data. This helps us estimate how quickly production is falling each year, while also accounting for some uncertainty in that pace. One very important caveat is in order before we discuss our results further. Namely, these trends should not be interpreted as predicting an exact year when oil production in California will reach zero. In reality, some level of production may continue. In the short run, production may even increase for a period of time. However, the long-term trend is clear: oil production has been declining at a steady pace throughout this century, and if that pattern continues, production may become negligible in the coming decades. Recognizing this trend is essential for planning ahead. In other words, while the past two decades show a steady decline in oil production, that does not guarantee the future will follow the same path. Still, it is useful to consider what might happen if the current rate of decline continues.

If the pace seen this century were to continue, California's oil production would reach negligible levels between 2043 and 2053, around the State's 2045 goal of carbon neutrality. Figure 1.2 highlights the clear downward trend in oil production. If the current pace continues, our baseline projection suggests production would reach zero by 2047. When we account for uncertainty—recognizing that the rate of decline could be slightly faster or slower—we estimate that production could reach zero as early as 2043 or as late as 2053. It is worth noting that the rate of decline has been noticeably steeper since 2015.[8]

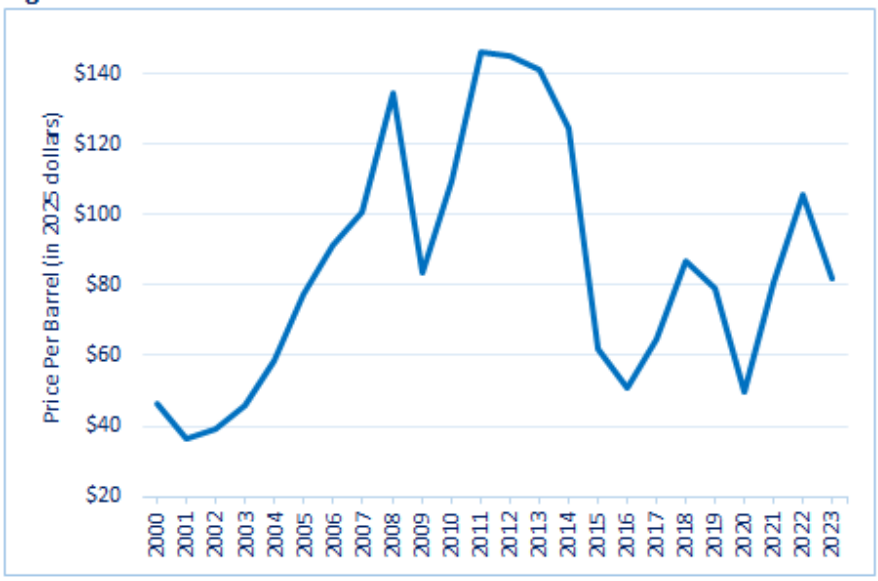
[8] If we focus only on the most recent years, the projected end of production comes much sooner—somewhere between 2031 and 2039. We present a figure highlighting this scenario in Appendix Figure H.2. See Appendix Figures A5- A7 for the total, associated, and non-associated gas production. Natural gas is categorized into two main types: associated gas (Figure A6) and non-associated gas (Figure A7). Associated gas is dissolved gas produced together with oil. Non-associated gas is dry gas that is not dissolved in oil and is produced directly as gas (CalGEM 2000). Figure H.3 presents the total natural gas output, combining both associated and non-associated gas. CalGEM reports cover only upstream activities such as well drilling, production, injection, and field operations.

While California's oil production has steadily declined over the past two decades, oil and gas revenue has been less smooth. The economic impact of oil and gas extraction depends not only on how much is produced, but also on the price for which it sells. Oil prices are highly volatile, shaped by global supply and demand, geopolitical events, and broader economic conditions. Notwithstanding policy changes in the U.S., increasing investments in renewable energy have had an impact on the global dynamics of the industry. It is in this context that California oil and gas revenue has been highly unstable in the past two decades, driven much more by global market price fluctuations than by state or domestic market conditions.

California experienced a steady rise in oil price through most of the early part of the century, with the price more than doubling between 2001 and 2008 (see Figure 1.3). The historical trend in California's crude oil first purchase price, adjusted to 2025 dollars, indicates that price swings play a major role in shaping revenue, even when production is falling. Prices decreased significantly during the Great Recession, but quickly recovered to a new high in 2010. After 2010, oil prices began a slow, and then sharp decline, reaching a low point in 2016. Oil prices have since generally trended upward, with the exception of 2020. In Appendix Figure H.6, we show similar patterns in the price of oil from data collected from U.S. Energy Information Administration (2024).

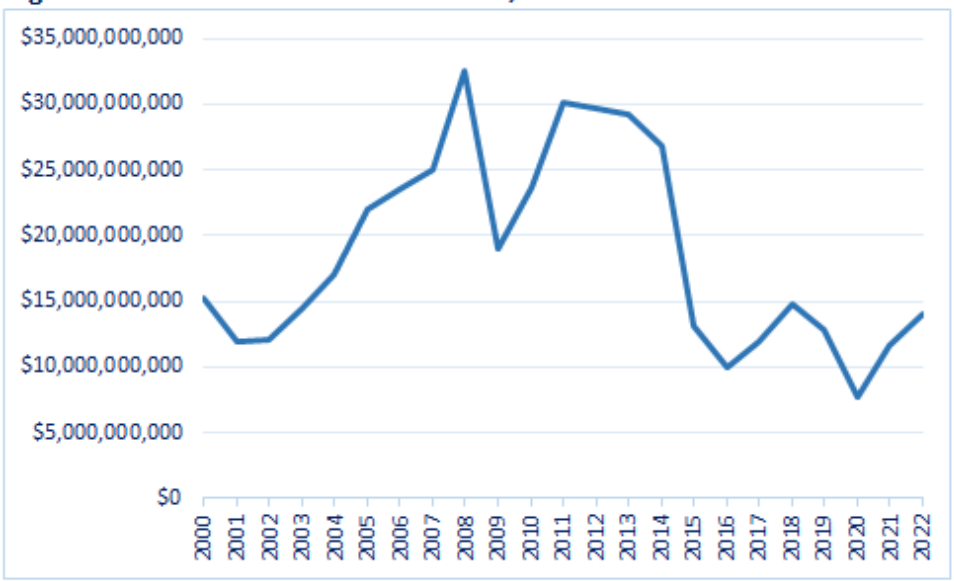
In terms of total revenue, the current level of California's annual oil and gas revenue is comparable to what it was in 2000. However, aligned with the steep drop in oil price, the industry experienced a sharp decline in oil and gas revenue between 2011 and 2016. The decline in oil revenue in recent years, despite the increase in price, underscores the uncertainty and volatility of the industry.

Figure 1.3 California's Crude Oil Purchase Price



Source: UC Merced Community and Labor Center analysis of analysis of U.S Energy Information Administration data on California Crude Oil First Purchase Price 2000-2023. Adjusted for 2025 dollars.

Figure 1.4 California Oil and Gas Revenue, 2000-2022



Source: UC Merced Community and Labor Center analysis of U.S Energy Information Administration data on California Crude Oil First Purchase Price and CalGEM Reports 2000-2023. Adjusted for 2025 dollars.

California has historically generated between roughly $10 billion and $30 billion per year (in inflation-adjusted April 2025 dollars). We obtain these figures by multiplying our production and price data for both oil and gas, and this time series is shown in Figure 1.4. Revenue reached its peak in the years just before the financial crisis, topping $30 billion, and dropped to just under $10 billion during the COVID-19 shutdowns in 2020 (see Figure 1.4). Revenue volatility closely mirrored changes in oil prices. When prices rose, revenue increased; when prices fell, revenue declined. This pattern highlights that while production has steadily declined, year-to-year changes in revenue have heavily been influenced by price fluctuations. Notwithstanding, since the price spikes of the mid-2000s, there has been a general downward trend in revenue—suggesting that even with short-term price movements, the broader economic footprint of the sector is shrinking. Nonetheless, revenues in the industry remain significant.[9]

CALIFORNIA OIL AND GAS INDUSTRY EMPLOYMENT

California's oil and gas industry jobs are declining, yet employment trends are volatile. In this section, we examine the current state of employment in California's Oil and Gas Industry. Our analysis includes overall yearly employment trends from 2000 to 2023, excluding 2001 through 2005.[10] We then focus our analysis on specific groups of workers that make up the industry in

[9] The figure above includes combined revenue from both oil and gas. In Appendix Figures H.7 and H.8, we break this out separately for the oil and gas sectors.12 Oil production has accounted for between 79% and 97% of total oil and gas revenue in California each year since 2000. This share has generally increased over time and has not fallen below 90% since 2009. Figures H.9 through H.11 focus on Kern County, presenting revenue from combined oil and gas, oil alone, and gas alone. These figures show that Kern County consistently contributes a large share of the State's total oil and gas revenue—typically between 70% and 75%. In fact, Kern County's oil revenue alone has always made up at least 61% of total statewide oil and gas revenue.

[10] Our 2000 data comes from the 5% Public Use Micro Sample of the 2000 Census. Our 2006 and 2007 data are from the 2005-2007 and 2006-2008 three-year American Community Survey (ACS) samples, respectively. Subsequent years are analyzed as the mid-point of five-year ACS samples, starting with the 2005-2009 sample, which provides information for 2007. As of the writing

four disproportionately impacted counties: Contra Costa and Solano Counties, Kern County, and Los Angeles County. We also examine how, while most (43%) of California's oil and gas jobs in 2021 were concentrated in these four counties, occupational concentration varied by county. Lastly, our analysis details oil and gas workers' age and educational attainment, and provides estimates for the number of workers in jobs concentrated in the oil and gas industry, to better understand the implications of ongoing industry decline for oil and gas workers and the need for state-funded economic support.

Employment Levels in California and Select Counties

California's oil and gas jobs have been decreasing since 2013, fluctuating with oil prices over time and recently declining to nearly the same number of jobs as in the year 2000. After a total employment peak of 32,263 in 2014, the number of oil and gas jobs in California sharply declined to 27,846 in 2021 (see Figure 2.1).[11] However, California's oil and gas employment in 2021 was concentrated in four counties: Kern (18% of state's employment), Los Angeles (24%), Contra Costa and Solano (11%). In 2021, while Los Angeles oil and gas jobs accounted for the largest share of oil and gas workers in the state (24%), Kern County had the largest percentage of workers in oil and gas jobs relative to their county's workforce.

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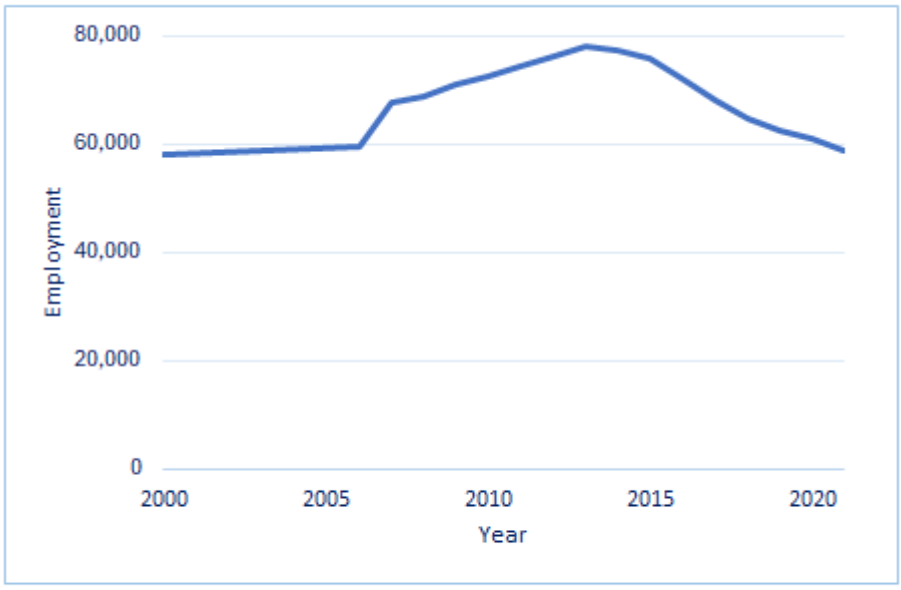
of this report, the last year of data available from the ACS was the 2023 sample year, thus the last five-year sample spans 2019-2023, allowing us to examine a labor market year centered around 2021.

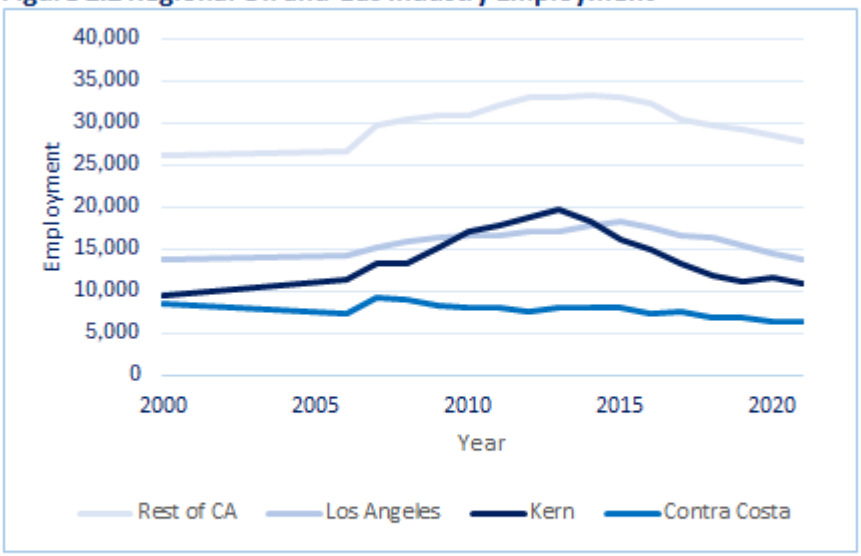
[11] We also present two alternatives to this figure in the Appendix. First, we have departed from the counts in the KCSWDR by excluding workers at gas stations; for employment trends including these workers please see Appendix Figure H.12. Second, in Figure H.13 we report trends when limiting our sample to workers in occupations concentrated in the oil and gas industry, as defined by the KCSWDR. See page 40 of the KCSWDR for more details on the 11 occupations that were classified as concentrated. These occupations were based on oil extraction jobs. Unsurprisingly, including gas station workers increases the employment count, while narrowing our focus to concentrated occupations decreases it.

Figure 2.1 California Oil and Gas Industry Employment



Source: UC Merced Community and Labor Center analysis of the Decennial Census 2000 5% file, and American Community Survey (ACS) 2005-2023 microdata.

Figure 2.2 Regional Oil and Gas Industry Employment



Source: UC Merced Community and Labor Center analysis of the Decennial Census 2000 5% file, and American Community Survey (ACS) 2005-2023 microdata.

Kern County's employment trend appeared to have followed that of the rest of California, though with more volatility. The number of Kern's oil and gas jobs was 9,540 in 2000, and this increased to a peak of 19,670 jobs in 2013 (see Figure 2.2).[12] Since 2013, however, the number of oil and gas jobs in Kern County has decreased to 10,850. Here, the pattern is very similar for Kern County as it was for California as a whole, but with even more volatility. Employment stood at 9,540 in 2000, and then increased every year in our data up to 2013, when it peaked at 19,670. It has since declined all but one year up to the last year in our sample, and stands at 10,850 (around 18% of total employment in this sector in California). Again, while it is important to note the declines in employment, it is also important to note that jobs were still at a level higher than in 2000.

Los Angeles County's oil and gas jobs have decreased to 13,862 since 2015 (see Figure 2.2). Employment in Los Angeles County stood at 13,718 in 2000. It peaked at 18,233 in 2015 after increasing between 2000 and 2015 for every year in our sample. This peak was two years later than in Kern County and for the state as a whole. By 2021, after six consecutive years of decline, employment had fallen to 13,862, but again still remains above the 2000 level. In 2021, Los Angeles County accounted for 24% of total oil and gas employment in California.

Contra Costa and Solano counties were the only counties to witness a decline in which the number of jobs in 2021 was lower than the number of jobs in 2000. For Contra Costa and Solano counties, employment stood at 8,451 in 2000, before peaking at around 9,220 workers in 2007.

[12] We also present figures that exclude gas station workers for each of the following four counties of focus; these are found in Appendix Figures H.14 through H. 16. We note that our counts, when including gas station employees, exactly match the figures in the KCSWDR for the 2017-2021 sample.

This was followed by a decline up until our most recent year of data, when employment stood at just under 6,300 workers, or 11% of all oil and gas workers in the state. In Contra Costa and Solano counties, the number of oil and gas jobs have declined to under 6,300 workers or 11% of all oil and gas jobs in the state in 2021 (see Figure 2.2).

Finally, for the rest of California, employment began at 26,199 oil and gas employees in 2000, before peaking at 33,263 in 2014. We then see a sharp decline to 27,846 in 2021, leaving employment slightly higher than where it started in 2000.[13]

Lessons for the future of regions specializing in oil and gas production may be learned from past experiences of negative labor demand shocks, such as the increase in Chinese exports to the United States over the last several decades, or declining coal production.[14] Findings from studies on this topic generally suggest that fossil fuel workers are at risk of absorbing job loss without an economic safety net or placement on a well-paying career path, highlighting the need for intentional programs. Two approaches that can be taken to support affected workers are direct assistance to displaced workers (Hyman 2018), as well as place-based programs (Austin et al. 2018).[15]

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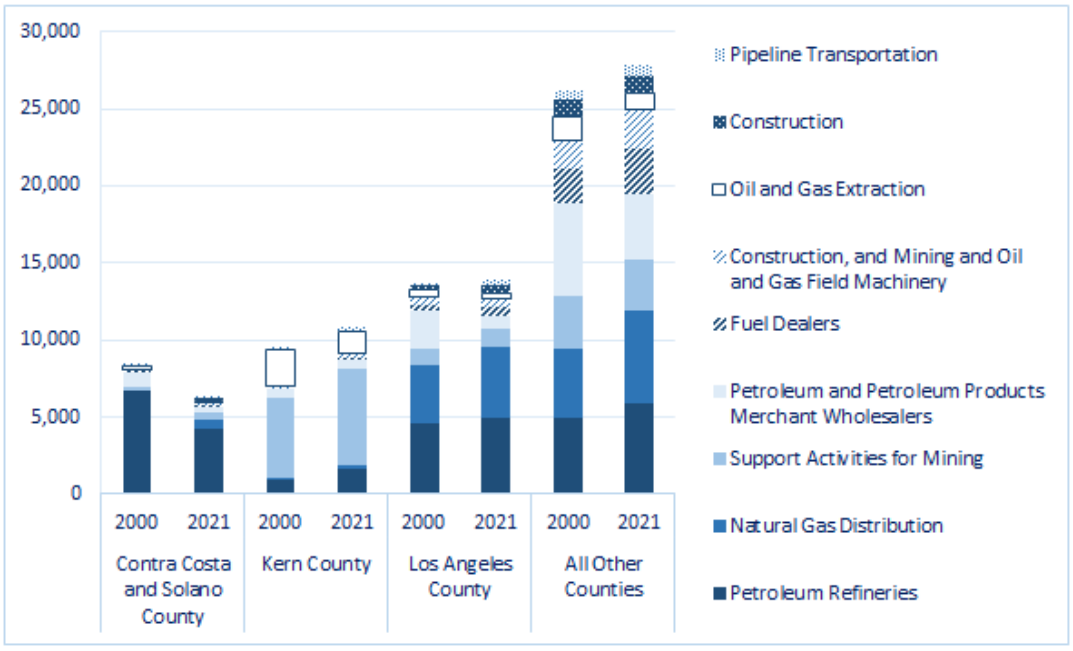
[13] Our numbers for Contra Costa County alone are comparable to the numbers in "Refining Transition: A Just Transition Economic Development Framework for Contra Costa County, California" (Hammerling et al. (2025), a recent report written by the UC Berkeley Labor Center. They report a count of 3,000 jobs directly attributable to refineries in Contra Costa. Their analysis is based on a slightly different source than ours, and centers around employment in the place, rather than the place of residence of the worker. In Appendix Table G.3 we show a count of around 5,300 oil and gas jobs based in Contra Costa County. In Table 1.1, we found that around two thirds of oil and gas jobs in Contra Costa and Solano Counties combined were refineries, thus implying between 3,000 and 4,000 refinery jobs in Contra Costa.

[14] Autor et al. (2013) showed that local labor markets most exposed to increased trade with China experienced significantly larger decreases in manufacturing employment. Follow-up work by Autor et al. (2021) finds persistence in these effects and also examines coal shocks, as does Black et al. (2005). See Blonz et al. (2023) for a more recent examination of the impact of declines in the coal industry on household finances.

[15] Hyman (2018) provides causal evidence that one such program, the Trade Adjustment Assistance (TAA) program, can help remediate negative shocks to workers whose jobs were disrupted by trade. However, these effects dissipate over a 10 year period, likely on account of the relatively short life of skills taught in vocational programs associated with TAA benefits. Austin et al. (2018) explores the efficacy of such programs, which may help to alleviate negative economic shocks to particular regions as a whole.

Figure 2.3 Industries Employing Oil and Gas Workers (Excluding Gas Station Workers)



Source: UC Merced Community and Labor Center analysis of the Decennial Census 2000 5% file, and American Community Survey (ACS) 2019-2023 microdata.

Employment Levels by Sub-Industry

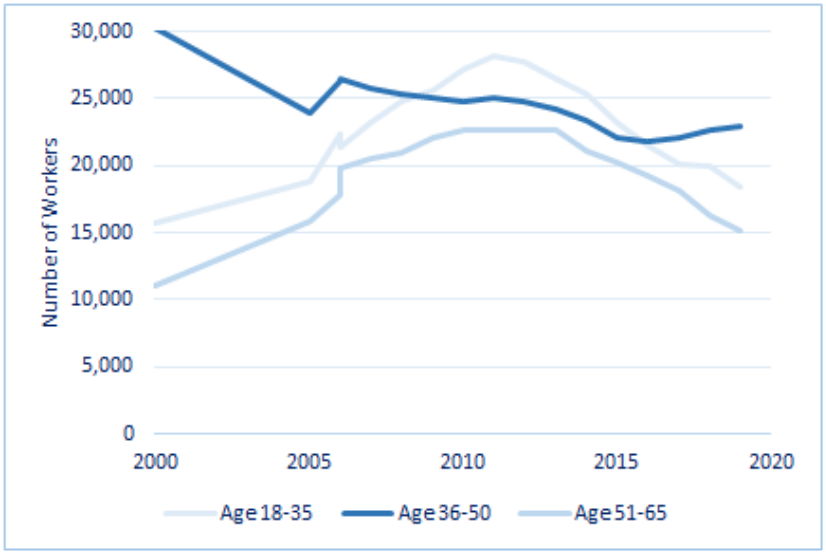
In Kern County, with the state's largest oil and gas workforce, the top oil and gas sub-industry is oil extraction. This sub-industry includes both the "Oil and Gas Extraction" and "Support Activities for Mining." Together, they account for 71% of all oil and gas jobs in Kern County (see Figure 2.3 and Table 1.1). In addition, over a quarter (16,567) of California's oil and gas jobs are concentrated in the Petroleum Refinery subindustry, of which Kern accounts for the majority (54%) in the state. Meanwhile, in Contra Costa and Solano counties (combined), two thirds (67%) of oil and gas jobs were concentrated in Petroleum Refineries (see Table 1.1). Lastly, Los Angeles' oil and gas workforce is relatively diversified, with 34% in Natural Gas Distribution, 35% in Refining, and 11% in Extraction. Altogether, these four counties represented nearly two thirds of both Refining (65%) and Extraction and Extraction Support (69%) jobs. Figure 2.3 and Table 1.1 illustrate the importance of these four counties to California's oil and gas labor market.

Table 1.1 Industries Employing California Oil and Gas Workers (Excluding Gas Stations), 2000 and 2006-2021

	Industry	2000	2006	2007	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
California	Petroleum Refineries	17,108	16,574	19,505	20,943	20,387	19,725	19,211	18,391	18,434	18,586	18,099	17,404	18,054	17,475	16,300	16,567
	Support Activities for Mining	9,947	10,944	13,903	14,679	18,475	19,475	20,293	21,378	20,953	19,032	17,816	15,830	13,569	12,724	12,822	11,212
	Petroleum Wholesalers	9,908	8,413	8,645	8,047	8,169	8,226	8,442	8,577	8,406	8,261	7,920	7,436	7,077	7,204	6,858	6,190
	Natural Gas Distribution	8,437	7,617	8,555	8,732	8,801	9,156	9,805	10,629	11,490	12,398	12,126	11,952	12,232	11,724	11,708	11,487
	Oil and Gas Extraction	4,946	5,563	5,091	4,296	4,296	4,865	5,726	6,281	5,827	5,629	4,902	4,372	3,549	3,341	3,234	2,951
	Fuel Dealers	2,743	5,254	5,717	5,935	6,007	5,854	4,820	4,673	4,311	3,963	4,025	4,316	4,118	4,101	4,052	3,674
	Construction/Field Machinery	2,479	2,769	3,492	3,405	3,872	4,094	4,400	4,523	4,316	3,976	3,310	2,993	2,577	2,507	2,915	3,659
	Construction	1,366	1,394	1,437	1,703	1,458	1,675	2,175	1,983	1,898	1,999	2,112	1,794	1,716	1,755	1,775	1,812
	Pipeline Transportation	974	1,163	1,192	1,003	1,140	1,335	1,467	1,605	1,639	1,850	1,781	1,799	1,820	1,608	1,331	1,279
	Total	57,908	59,691	67,537	68,743	72,605	74,405	76,339	78,040	77,274	75,694	72,091	67,896	64,712	62,439	60,995	58,831
Contra Costa and Solano Counties	Petroleum Refineries	6,654	5,506	6,784	6,829	6,016	5,659	5,157	4,917	4,848	5,099	4,780	4,924	4,793	4,669	4,256	4,217
	Petroleum Wholesalers	920	867	1,068	875	869	911	929	1,010	980	913	699	678	465	364	357	391
	Oil and Gas Extraction	337	220	244	212	249	518	687	1,067	1,030	1,049	854	693	370	317	295	143
	Support Activities for Mining	276	447	709	547	401	308	337	329	382	320	347	343	332	386	403	502
	Pipeline Transportation	91	79	50	74	55	143	106	125	125	176	121	122	103	144	92	73
	Fuel Dealers	72	52	116	162	139	100	100	124	69	67	152	187	177	170	187	132
	Natural Gas Distribution	61	66	77	72	62	134	126	165	154	184	170	299	405	476	491	558
	Construction/Field Machinery	27	72	135	89	88	143	132	175	178	185	88	111	81	147	117	173
	Construction	13		37	51	74	101	73	173	178	143	130	179	81	82	119	84
	Total	8,451	7,309	9,220	8,911	7,953	8,017	7,647	8,085	7,944	8,136	7,341	7,536	6,807	6,755	6,317	6,273
Kern County	Support Activities for Mining	5,231	6,106	7,921	8,421	11,404	11,919	12,462	13,369	12,745	11,442	10,641	9,296	7,520	7,011	7,265	6,289
	Oil and Gas Extraction	2,445	3,060	2,556	1,969	1,864	1,885	2,080	2,201	1,951	1,690	1,485	1,529	1,422	1,314	1,392	1,374
	Petroleum Refineries	909	812	993	1,189	1,475	1,597	1,563	1,570	1,286	1,070	917	884	948	1,033	1,383	1,613
	Petroleum Wholesalers	511	821	711	613	1,105	946	1,275	1,242	910	866	881	497	793	865	693	615
	Construction/Field Machinery	147	328	562	536	451	421	425	403	441	354	286	255	262	198	316	329
	Natural Gas Distribution	124	141	207	192	209	185	198	199	160	199	237	281	364	341	317	238
	Pipeline Transportation	94	97	107	109	177	189	188	199	188	216	227	231	281	177	144	202
	Construction	50		18	82	86	144	141	146	177	213	163	205	157	102	84	93
	Fuel Dealers	29	97	174	264	439	460	386	341	314	181	121	144	152	139	128	97
	Total	9,540	11,462	13,249	13,375	17,210	17,746	18,718	19,670	18,172	16,231	14,958	13,322	11,899	11,180	11,722	10,850
Los Angeles County	Petroleum Refineries	4,615	5,223	6,156	6,515	6,492	6,185	6,068	5,959	6,308	6,360	6,174	5,617	5,702	5,212	4,884	4,893
	Natural Gas Distribution	3,721	3,896	4,117	4,017	4,018	4,375	4,680	5,009	5,315	5,488	4,936	4,802	5,086	4,767	4,721	4,665
	Petroleum Wholesalers	2,498	1,109	1,281	1,525	1,921	1,897	1,870	1,924	1,759	1,729	1,815	1,565	1,462	1,423	1,153	897
	Support Activities for Mining	1,042	1,160	1,146	1,426	1,660	1,589	1,657	1,683	1,897	1,749	1,889	1,750	1,521	1,364	1,291	1,111
	Oil and Gas Extraction	563	733	562	583	506	625	749	690	758	918	766	614	541	530	391	359
	Construction/Field Machinery	453	525	729	629	678	645	711	871	848	892	817	812	556	531	538	573
	Fuel Dealers	421	1,091	900	869	945	969	858	629	512	428	472	552	535	516	605	534
	Pipeline Transportation	204	319	247	204	174	234	257	257	325	482	453	474	552	459	242	302
	Construction	201	195	159	192	108	135	138	140	173	187	238	344	378	524	574	528
	Total	13,718	14,251	15,297	15,960	16,502	16,654	16,988	17,162	17,895	18,233	17,560	16,530	16,333	15,326	14,399	13,862

Source: UC Merced Community and Labor Center analysis of American Community Survey (ACS) microdata, 2000 and 2005–2023.

Figure 2.4 Oil and Gas Industry Employment, by Age

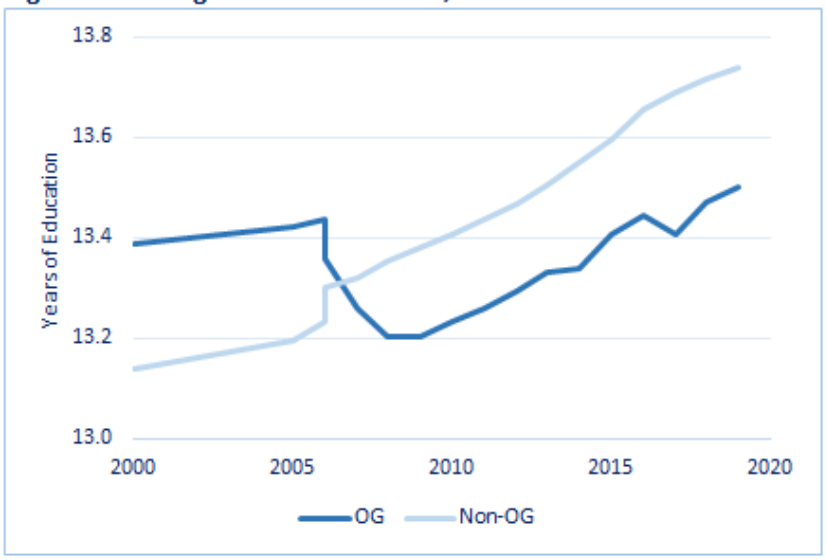


Source: UC Merced Community and Labor Center analysis of Decennial Census 2000 5% file, and American Community Survey (ACS) 2005-2023 microdata.

Selected Demographic Information on Employment in the Oil and Gas Industry

California's oil and gas employment fluctuations make young (aged 18-35) and older (aged 51-65) workers much more vulnerable to displacement than mid-career workers (aged 36-50). The number of young workers (aged 18-35), and older workers (aged 51-65), increased from 2000 to 2013 (see Figure 2.4). In addition, between 2010 and 2017, most workers in the oil and gas industry were young workers. However, over the last ten years, the greatest decline has been among workers aged 18-35 and 51-65. In recent years mid-career workers (aged 36-50), have made up the majority of oil and gas workers, signaling an aging workforce (see Figure 2.4). These findings highlight how younger and older workers are susceptible to labor market fluctuations. Lastly, since 2006, educational attainment among oil and gas workers has been lower than workers outside the industry (see Figure 2.5). These dynamics should should inform state-driven efforts to provide economic support to displaced workers, such as Unemployment Insurance,

Figure 2.5 Average Years of Education, Oil and Gas vs Non-Oil and Gas



Source: UC Merced Community and Labor Center analysis of Decennial Census 2000 5% file, and American Community Survey (ACS) 2005-2023 microdata.

worker retraining and skill upgrades, assistance for job placement in comparable jobs for younger workers, and bridges to retirement with fully funded pensions and health care for older workers.

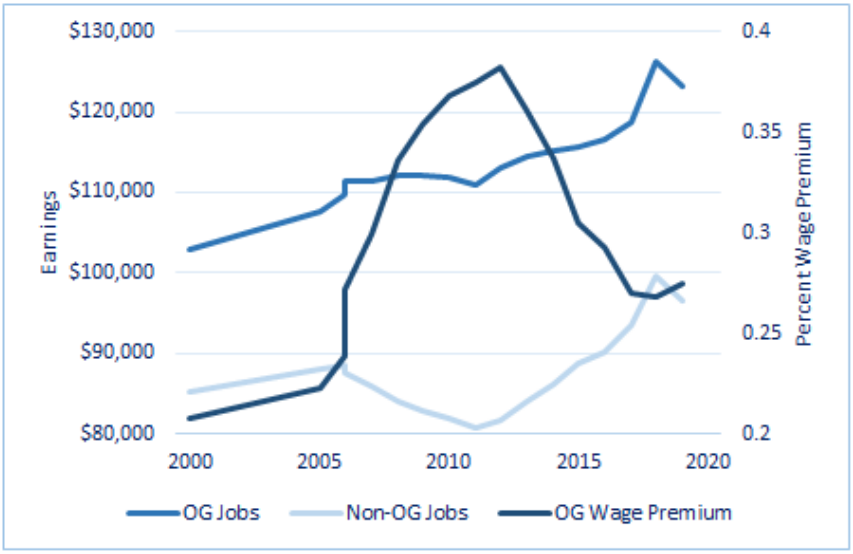
Worker Income Advantage and Foregone Lifetime Income

We examine oil and gas workers' income between 2000 and 2023 in comparison to non-oil and gas workers in California. To better understand and prepare for job loss in the oil and gas industry, we estimate the income advantage of working in oil and gas across a worker's lifetime and present various scenarios to illustrate foregone income for workers exiting the industry.

The Oil and Gas Industry Annual Pay Premium. On average, oil and gas workers earn more than workers with similar characteristics in other industries. This income advantage is driven by factors such as the high skills and risk involved in their work, volatility of the industry, and the influence of labor unions that have secured higher income and benefits.[16]

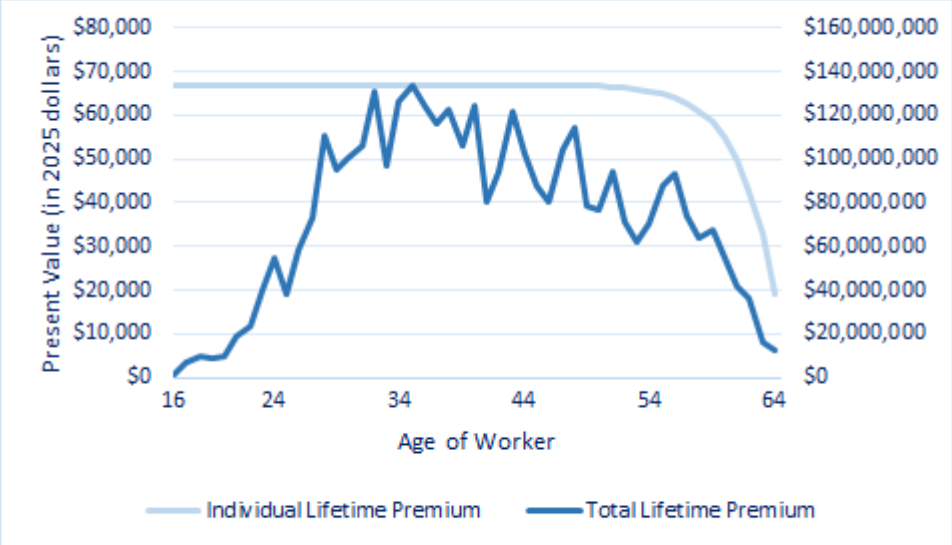
[16] For example, see Green and Amah (2024), Bassier (2022), Knepper (2020), and Rosenfeld and Denice (2019).

Figure 2.6 Earnings and Pay Differences, Oil and Gas vs Non-Oil and Gas



Source: UC Merced Community and Labor Center analysis of Decennial Census 2000 5% file, and American Community Survey (ACS) 2005-2023 microdata.

Figure 2.7 California Oil and Gas Worker Lifetime Wage Premium, by Age



Source: UC Merced Community and Labor Center analysis of American Community Survey (ACS) 2019-2023 microdata.

Table 1.2 Expected Lifetime Premiums

Age of Worker	Phase-Out 22 years	Phase-Out 0 years
30 Year Old Worker		
25% Annual Worker Exit Rate	$66,997	$67,042
No Worker Exit	$328,675	$402,119
44 Year Old Worker		
25% Annual Worker Exit Rate	$66,997	$66,997
No Worker Exit	$328,675	$328,675
58 Year Old Worker		
25% Annual Worker Exit Rate	$60,927	$60,927
No Worker Exit	$156,203	$156,203

Source: UC Merced Community and Labor Center analysis of Decennial Census 2000 microdata, and American Community Survey (ACS) 2005-2023 microdata.

We used multiple regression analysis to estimate a "pay premium" for oil and gas workers, or how much extra pay they receive compared to non-oil and gas workers with similar characteristics (including age, gender, county of residence, race, and ethnicity) over time and adjusted for inflation.[17] As shown in Figure 2.6, California's oil and gas workers have a clear income advantage over workers in other industries with similar characteristics. On average, they earn $26,500 more per year—a 27% higher income compared to comparable workers in other industries. This income gap has remained consistent and grown over time.

[17] Inflation was adjusted to April 2025 prices using the Consumer Price Index. It is also important to note that our data asks about earnings in the previous year, so our results are over a time period that is slightly different than our population counts (i.e. the first year in our data is 2000, and this informs us about earnings in 1999). The last dataset that we use is a 5-year ACS dataset that spans 2019-2023, given earnings for 2018-2022; we report results from this sample as our 2020 number.

Table 1.3 California Oil and Gas Workers' Projected Wage Premium Loss, Across 22 Years

Workers (in oil and gas-concentrated occupations* only)	11,745
Average annual wage premium	$26,500
Estimated lifetime wage premium	$66,250
Average lifetime wage premium loss, per year (phased in over 22 years)	$35,368,466

*See definition of "oil and gas-concentrated occupations" in Appendix C

Source: UC Merced Community and Labor Center analysis of American Community Survey (ACS) 2019-2023 microdata.

Estimating Loss of Oil and Gas Pay Premiums. To better understand the potential long-term impact of an estimated $26,500 in annual pay premium, we calculated the total pay premium over a worker's remaining career (see Figure 2.7). Our analysis estimated the pay premium as the present value for all workers at various ages, and under the scenario of a twenty-two-year phase out of oil and gas jobs (see Table 1.2). We estimated this scenario for three age groups (at ages 30, 44, and 58), and assumed that the natural turnover rate (with no industry decline) is 25% and that no worker earns a premium more than twenty-two years in the future.[18] (A twenty—two year phase-out would reduce the pay premium for young workers only, and a 25% turnover rate would lower premiums across all age groups.) Across a twenty-two-year decline, the present value of lost industry pay premiums for California's 58,831 oil and gas industry workers (excluding gas station workers) would amount to approximately $177 million per

[18] We also present three alternative assumptions in Appendix Figures H.20-H.22, including the implausible "no phase-out" scenario in which all oil and gas activity ceases immediately. Figure H.20 is our "No Phase-Out, With Separations" scenario. This scenario does not account for an industry that is declining into phase out over 22 years, but it does account for the fact that about one in four workers exit the industry each year due to natural turnover. Figure H.21 is our "Phase-Out, No Separation" scenario. Here, we account for the industry declining steadily until it disappears after 22 years, but we do not account for the natural worker turnover that we have measured. Finally, Figure H.22 is the scenario that accounts for neither the phase out of the industry nor natural worker turnover.

year (see Table 1.3). Yet most occupational titles in the oil and gas industry have transferrable skills outside of the industry. In the next section, we turn to a more focused analysis examining the loss of pay premium among those titles that concentrate in the industry.

Foregone Premiums Among Workers in Oil and Gas-Concentrated Jobs. We also applied our estimates of lost oil and gas premiums to those workers employed in occupations concentrated in the oil and gas industry (in 2019-2023, there were 136 occupational titles with any California workers in the oil and gas industry, but only fifteen that met this criteria, see Appendix C), and projected those costs across multiple years (see Table 1.3).[19] We find that, over a twenty-two-year decline, if those 11,745 oil and gas industry workers employed in occupations that are concentrated in the oil and gas industry moved into jobs with an average income for similar workers outside the industry, the present value of the total foregone premiums would amount to approximately $35 million per year (see Table 1.3).

Need for Planning and Economic Support. Findings in this section indicate the importance of state intervention and economic support for workers across the life course. Without economic support, oil and gas workers will absorb the entire shock of an energy transition on their own. Yet workers of different ages will absorb the shock differently. Younger (aged 18-35) and older workers (aged 51-65) are most vulnerable to the volatility of oil and gas production and employment (see Figures H.17 and H.19), though younger workers will lose more of the oil and gas lifetime premium. Workers aged 36-50, though seemingly more stable (see Figure H.18), may

[19] We defined oil and gas concentrated occupations as those in which at least ten percent of California workers worked in the oil and gas industry; or those in which at least fifty percent of workers in a focal oil and gas region were employed in oil and gas (See Appendix G.1).

require the most extensive and complex forms of social and economic support (e.g., workforce development, safety net resources) to sustain themselves and their families (See Appendix D for potential future analysis on premiums). Workers in oil and gas concentrated occupations are most vulnerable, though they comprise a minority (20%) of the industry workforce.

TAX IMPLICATIONS OF DECLINE IN THE OIL AND GAS INDUSTRY

California Public Budgets and Property Taxes

California's oil and gas industry decline has implications for the finances of local municipalities reliant on the industry and its property tax revenues. However, the steady decline of California's oil and gas industry, and its impact on local tax revenues and public sector employment and services, is an issue complicated by California's state and local responsibilities for public revenue and expenditures. The State of California's 2024-2025 annual revenue was estimated at $288.2 billion, of which the State's three big taxes—personal income tax, sales and use tax, and corporation tax—were estimated to generate $211.7 billion, or 74%, of state revenue (California Budget & Policy Center 2024). State-assessed property taxes comprised only less than one percent of the State's budget, or $2.6 billion.

California's property tax assessments and revenues are in large part county-assessed and go to local government. In fiscal year 2023-2024, California county-assessed properties comprised $8.6 trillion of the State's $8.7 trillion in total assessed property values, while state-assessed properties comprised $152.2 billion of value (California Board of Equalization 2025, 12). In turn, county-assessed property taxes generated $95.3 billion in local revenues, while state-assessed

property taxes generated only $2.6 billion, for a total of $97.9 billion (California Board of Equalization 2025, p. 16).

As a result, California's oil and gas industry decline will have greater impact on the finances of counties reliant on the industry, and its property tax revenues, than counties with little reliance.

Proposition 13 and Local Allocations

California's current system of public finance is a patchwork of overlapping rules built up over time—none more consequential yet complex than the State's Proposition 13, adopted in 1978. In 1978, California Proposition 13 capped the total property tax rate at 1% and also limited the rate at which assessed value can be increased—2% for real properties that have not changed owners.[20] Proposition 13's cap of 1% on property taxes was substantially lower than the previous state average of 2.5%.

At the time of Proposition 13's passage, the average combined property tax rate across California jurisdictions was about 2.5%. Yet most counties had three major types of overlapping local jurisdictions with the authority to levy property taxes: counties, cities, and school districts. Each of these entities had set and levied its own property tax rate. (For example, 2.5% property tax rate could be divided as follows: counties, 0.5%; cities, 0.5%; schools 1.5%.) As a result, to determine each entities' allocation of the Proposition 13's 1% property tax cap, the California Legislature passed Assembly Bill 8. AB 8 froze in place counties', cities', and schools' respective share of the 2.5% property taxes, and applied those shares to the new 1% cap on property taxes.[21]

[20] Cal. Constit. Art. XIIIA, Sec. 1(a).
[21] Common Claims about Proposition 13, September 19, 2016: https://lao.ca.gov/publications/report/3497.

Oil and gas property tax assessments and revenues consist of land, improvements, and personal property. In our next analyses we estimate the size of the two major types of oil and gas properties: wells and refineries. We also examine the implications of declines in tax assessments and revenues, drawing upon the four counties with greatest reliance on the oil and gas industry.

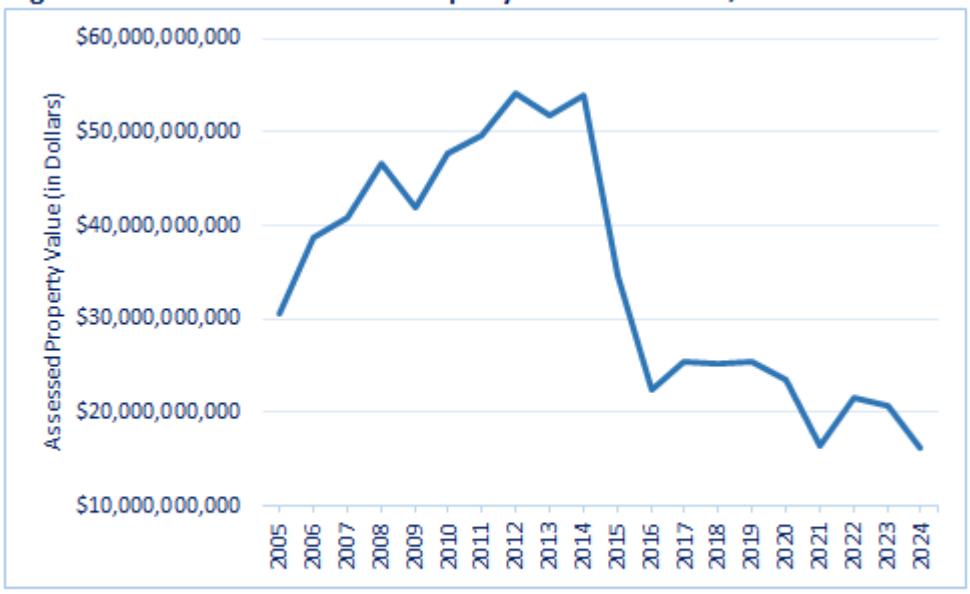
Wells as Real Property

We identify a close relationship between assessed land values and revenue from oil and gas production in California and estimate oil and gas wells will contribute around $16.6 billion to property tax assessments and generate $166 million in tax revenue in 2026. California has a complex process for assessing the property tax value of parcels with mineral resources, such as oil wells.[22] However, while the process of assessing land whose value is based on mineral resources is opaque and highly technical, the fundamental principle behind assessment is simple: valuations should reflect the market value of the land. In the case of oil and gas parcels, this is closely tied to A) the quantity of extractable resources and B) prevailing market prices.

This section's analysis utilizes California Board of Equalization (BOE) data on assessed values for oil and gas mineral parcels in 11 counties—which together account for the vast majority of oil production in California.[23] While property tax values in this dataset are divided into three categories (land, improvements, and personal property), we focus on land and improvements while excluding personal property.[24] We cross-checked the BOE data with Kern County Assessor's

[22] See California State Board of Equalization (1996) for details.
[23] We obtained a spreadsheet from the California State Board of Equalization (BOE) providing tax assessment data on mineral rights for 11 counties—Tehama, Sutter, Solano, Sacramento, San Joaquin, Monterey, Los Angeles, Glenn, Fresno, Colusa, and Kern—for the years 2005 to 2024. The data includes the assessed value of mineral rights as reported on the property tax roll.
[24] Some BOE parcels do not have a check mark ("X") for either gas or oil value. In these cases, we treat the missing values as NA (Not Available).

Figure 3.1 California Oil and Gas Property Tax Assessments, 2005-2024



Source: UC Merced Community and Labor Center analysis of California Board of Equalization data, 2005-2024.

Office parcel-level data. The breakdown of land value categories differed slightly but we were able to match exact figures between the two sources.

Our dataset of 11 counties indicates a rise in assessed land values earlier in the century, from roughly $30 billion in 2005 to $54 billion in 2014 (see Figure 3.1).[25] However, a large decline from $54 billion to $22 billion occurred between 2014 to 2023, with the most dramatic shift occurring between 2014 and 2016. Between 2014 and 2016, assessed values across these counties fell by approximately 60%, dropping from $54 billion to $22 billion. A substantial share of this $32 billion decrease came from Kern County alone, where assessed parcel values declined by around $26 billion (see Appendix Figure H.26).

[25] We present county-level data in Appendix Figures H.23 through H.33.

The steady decline in oil and gas property tax assessment values closely mirrors a similar decline in oil production and prices. However, while oil production and oil prices are both key drivers of land value, the sharp decrease in property values was likely due to the declining price of oil between 2014 and 2016. Oil prices declined nearly 60%, from $125 to $51 per barrel (in 2025 dollars), from 2014 to 2016, and total oil and gas revenue (which reflects both production and prices) exhibited a similar pattern: revenue fell by approximately 62% over the same period. Production declined only 8% over the same period, falling from approximately 184 million barrels to 170 million barrels, and this 8% drop in output alone is far too small to explain the 60% decline in assessed land values.[26]

While future changes in oil and gas revenue are difficult to predict—especially given the volatility of oil prices—it is valuable to establish a clear relationship between these revenues and property tax assessments. In turn, these results offer a simple approximation for anticipating the fiscal impact of changes in the oil and gas sector. The close relationship we observe between assessed land values and revenue from oil and gas production can be understood through the economic concept of elasticity, which measures the percentage change in one variable (assessment) in response to a percentage change in another (taxes) (See Appendix E).

We estimate that, in 2026, California oil and gas wells will contribute around $16.6 billion to property tax assessments and generate $166 million in tax revenue. We calculate this figure based on the 2024-2025 assessment year, in which counties accounted for around $16.3 billion in assessed value (2025 dollars), and grow this by 2% to arrive at a 2026 tax base of $16.6 billion.

[26] These estimates of tax revenues could be increased by scaling up the state as a whole based on the share of production of these 11 counties, which we believe is somewhere between 80% and 90% of the total.

Table 2.1 California Oil Refineries: Tax Assessments by County

County	Refinery Name	Assessed Value (not adjusted)	Assessment Year	Assessed Value (in 2025 dollars)
Los Angeles	Marathon Los Angeles	$1,441,189,482	2019-2020	$1,655,473,664
	Chevron El Segundo	$2,001,626,034	2022-2023	$2,166,624,512
	PBF Torrance	$792,979,690	2024-2025	$825,016,064
	Phillips 66, Los Angeles	$614,274,400	2024-2025	$705,608,192
	Valero Wilmington	NA	NA	$538,290,880
	Lunday Thagard South	NA	NA	$53,829,092
	Valero Wilmington (Asphalt)	NA	NA	$39,896,856
	Los Angeles Total			$5,984,739,260
Kern	Kern Energy Bakersfield	NA	NA	$164,653,696
	San Joaquin Bakersfield Refinery	$5,372,087	2024-2025	$5,589,120
	Talley Kern Refinery	$4,490,624	2024-2025	$4,672,045
	Kern Total			$174,914,860
Contra Costa	Chevron Richmond	$3,349,598,934	2024-2025	$3,484,922,624
	PBF Martinez	$1,505,481,543	2023-2024	$1,597,629,056
	Contra Costa Total			$5,082,551,680
Solano	Valero Benicia	$905,707,764	2023-2024	$961,144,320
	Solano Total			$961,144,320
	California Total			$12,203,350,120

Source: UC Merced Community and Labor Center analysis of California Oil Refineries, based on data from the Electronic Municipal Market Access (EMMA) database (municipal bond disclosure statements for Chevron El Segundo, PBF Torrance, Chevron Richmond, PBF Martinez, and Valero Benicia refineries).

Refineries as Real Property

California's process for assessing the property tax value of parcels with refineries is much more straight-forward than assessing those with oil wells. As of the writing of this report, California had thirteen oil and gas refineries with an estimated 2025 value of $12.2 billion, based on the most

recent assessed values we have located for several refineries (see Table 2.1).[27] However, one California refinery shut down in 2026, with another set to shut down by the end of 2026.[28] We calculate $10.5 billion in assessed value, excluding those two refineries.[29] In 2026, at a 1% tax rate, this implies $105 million in property tax revenues from the eleven operating refineries.

PROPERTY TAX REVENUES AND FISCAL IMPACTS

In this section, we further examine the oil and gas industry decline's impacts on County finances. We review property tax allocation formulas for Kern, Contra Costa and Los Angeles—the three counties accounting for most of California's oil and gas industry economic activity and tax revenues. We also examine fluctuations in their total annual revenue, property tax revenue, oil and gas property tax revenue (with the exception of Contra Costa), and county employment.

Local Property Tax Allocation Formulas

As previously discussed, most of the oil and gas industry's economic activity and property tax revenues are concentrated in Kern, Los Angeles, and Contra Costa counties. As such, declines

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[27] Broadly speaking, federal securities law requires adequate disclosure in connection with municipal bond offerings. 17 C.F.R. § 240.15c2–12 (2020). These statements are publicly available in a searchable database at https://www.gfoa.org/materials/primary-market-disclosure. Further, guidelines as to proper disclosure will typically require disclosure of major property taxpayers, especially for property tax secured borrowings. These disclosure documents are collected on a public website called EMMA, https://emma.msrb.org/Home/Index. The good news is that this means that much information about property value (and other economic factors) has already been collected. The bad news is that not every jurisdiction we are interested in has issued debt recently and further not every piece of data we might like to know has been disclosed. We use this source to find information on the Chevron El Segundo Refinery (Electronic Municipal Market Access, EMMA), the PBF, Torrance Refinery (Electronic Municipal Market Access, EMMA), Chevron Richmond Re- finery (Electronic Municipal Market Access, EMMA), PBF Energy, Martinez Refinery (Electronic Municipal Market Access, EMMA), and Valero Energy, Benicia Refinery (Electronic Municipal Market Access, EMMA).

[28] See https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/californias-oil-refineries for a list of refineries and a note on the closing of the Phillips refinery in Los Angeles. See https://investorvalero.com/news/news-details/2025/ Valero-Announces-Notice-to-the-California-Energy-Commission-Regarding-its-Benicia-California-Refinery/default.aspx for an announcement about the closing of the Valero refinery in Benicia. For a discussion of the level and implications of the concentration of the refining industry in CA, see Appendix F.

[29] We do this by both adjusting for inflation between January of the beginning of the assessment year and April of 2025 using the Consumer Price Index, and also by assuming a 1% annual increase in value.

Table 3.1 AB 8 Allocation Factors by Government Entity for Three California Counties (2021)

Government Entity	Kern	Los Angeles	Contra Costa
Schools	59%	40%	48%
County Government	17%	24%	13%
County Fire	11%	NA	NA
Municipal entities	7%	15%	8%
Special Districts	6%	7%	19%
Redevelopment Agencies	NA	14%	12%

Source: UC Merced Community and Labor Center analysis of county auditor data: Kern County Auditor-Controller, Los Angeles County Auditor-Controller and Contra Costa County Auditor-Controller, 2021.

in oil and gas property tax revenues would disproportionately affect those four counties (and cities within those counties). As previously discussed, Proposition 13 decreased property taxes from an average of 2.5% to 1.0% and AB 8 set local allocation formulas that remained largely unchanged (see page 31). As a result, the overall tax base is now effectively approximately 60% smaller and local municipal entities' shares of that now-smaller tax base are essentially fixed.[30]

For the three counties in our analysis, the largest property tax allocations go to public education, while less go to county government, municipal governments (e.g. cities) and other special districts. Los Angeles County's property taxes are allocated as follows: public education (40%), county government (24%), municipal governments (15%), redevelopment agencies (14%), and special districts (7%) (see Table 3.1). Kern County's property taxes are allocated to public education (59%), county government (17%), county fire (11%), municipal governments (7%), and special districts (6%). Contra Costa's property taxes are allocated to public education (48%),

[30] Sources: https://www.auditor.co.kern.ca.us/GenLevy/GenLevySummary.aspx,https://auditor.lacounty.gov/ revenue-allocation-summary/, https://www.contracosta.ca.gov/6581/Where-Your-Taxes-Go.

special districts (19%), county government (13%), redevelopment agencies (12%), and municipalities (8%). These property tax allocations still reflect the relative shares from 1977.[31]

California school districts in the three counties and elsewhere may appear to be most vulnerable to a shrinking property tax base. For example, Kern County's public schools account for 59% of the allocation of property tax revenues—more than any other entity. But this is not the case. Since the passage of Proposition 13, local and state education funding are now closely integrated. The State of California has taken on the responsibility of supplementing local school district funding, and a significant share of the local property tax revenues that counties stand to lose for schools would be made up by the State under Article XVI, Section 8 of the California Constitution (Proposition 98). In practice, this means that the State "tops off" per-student funding to ensure a minimum threshold for most districts and for the vast majority of students.[32] Given the size of the State's overall tax revenues, the decline of the oil and gas industry—and the associated reduction in property tax revenue—is unlikely to directly affect local school finance.

These findings indicate that declines in oil and gas property tax revenues would most affect general-purpose governments, such as counties and cities. We estimate that for Kern, the California county most reliant on the oil and gas industry, 17% percent of 2023's $161 million in oil and gas property tax revenues ($27 million) went to county government. For Kern, losing the entire oil and gas property tax revenue would mean a loss of $27 million for County general funds.

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[31] https://lao.ca.gov/LAOEconTax/Article/Detail/166

[32] The State guarantees funding for K-14 education in the state and this funding requires about 40% of the State budget go towards education. Article XVI, Sec. 8 (Prop 98). The actual distribution to school districts is based on the Local Control Funding Formula (LCFF), https://www.cde.ca.gov/fg/aa/lc/lcffoverview.asp. Crucially, this formula allocates funding based on number of students and need. There is no relationship to the local property tax base. Indeed, if difficult economic conditions create more student needs in the district, then the LCFF might allocate more revenues for Kern County students.

It is unclear how challenging the complete loss of property tax revenue for general-purpose public entities (e.g. counties and cities) could be for those areas most reliant on the oil and gas industry in California. Proposition 13 prohibits local governments from increasing property tax rates, leaving them with little fiscal flexibility to adjust to a shrinking tax base, whereas in other parts of the country, the ability to raise property tax rates slightly in response to falling assessed values is one way in which the property tax base can remain more stable. [33]

In the next section we examine how reliant Kern, Los Angeles, and Contra Costa county governments appear to be on oil and gas property tax revenues.

KERN, CONTRA COSTA, AND LOS ANGELES COUNTIES

Revenues on County Budgets

Oil and gas industry property tax revenues comprise a small but significant share of county budgets for California's three counties with the greatest number of oil and gas workers, particularly in Kern. [34]

We estimate the relative importance of oil and gas property tax revenues on county budgets. We build upon our analysis of refineries (see Table 2.1) and our analysis of county-level property tax revenues from wells (see Appendix H.34 to H.44).[35] We further combine this

[33] See Lutz et al.

[34] All information in the table is presented in April 2026 dollars. For the property tax revenue, we use a base of January 2023. Specifically, for wells we use data from CalGEM for the 2024-2025 tax year, and roll back two years of 2% growth in assessment to make it comparable with the budget data; for the refineries we computed values for the 2025-2026 assessment year, and thus roll back three years of 2% growth.

[35] Specifically, for wells we use data from CalGEM for the 2024-2025 tax year, and roll back two years of 2% growth in assessment to make it comparable with the budget data; for the refineries we had computed values for the 2025-2026 assessment year, and thus roll back three years of 2% growth.

Table 4.1 Relative Importance of Oil and Gas Property Tax Revenues on County Budgets

	Oil and Gas Property Tax Revenues		Total Property Tax Revenues		
	Refineries	Wells	Oil & Gas Total	Oil & Gas %	All Prop. Taxes
County					
Kern	$300,000	$21,900,000	$22,200,000	10.5%	$211,100,000
Contra Costa	$6,200,000	$0	$6,200,000	2.0%	$309,600,000
Solano	$1,200,000	$100,000	$1,300,000	1.1%	$114,700,000
Los Angeles	$13,600,000	$5,100,000	$18,600,000	0.4%	$4,941,000,000

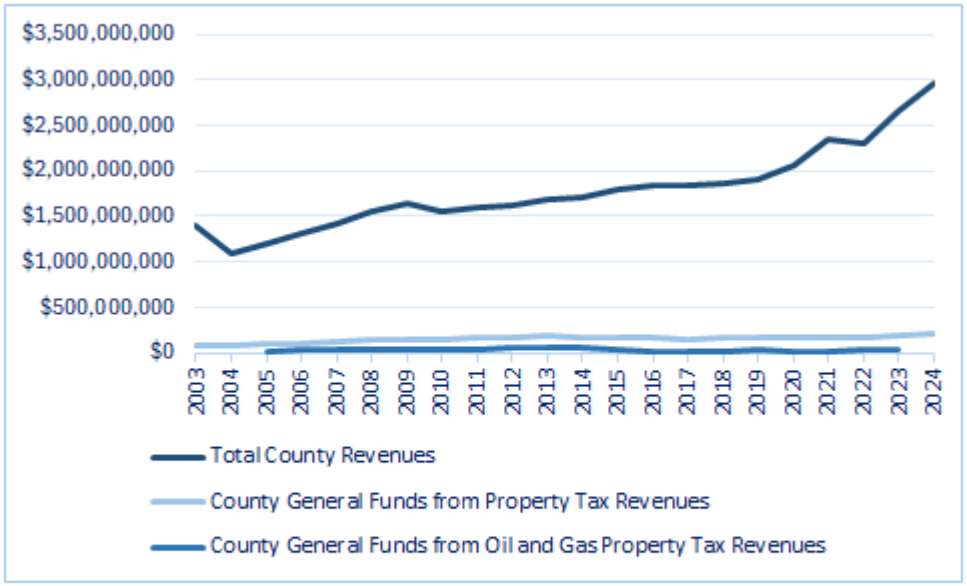
Source: UC Merced Community and Labor Center analysis of data from the California State Controller's Office; and County Auditor-Controller Offices (Kern, Los Angeles, and Contra Costa

information with data from the State Controller's Office on county budgets.[36] Lastly, we find the share of the revenue going to the county using the numbers in Table 3.1.[37]

Our findings suggest that oil and gas property tax revenues comprise the greatest share of county property tax revenues (among all California counties) for the following four counties: Kern County (10.5%), Contra Costa County (2.0%), Solano County (1.1%), and Los Angeles County (0.4%) (see Table 4.1). While these numbers, outside of Kern County, may be small as percentages, they may also represent substantial amounts of dollars that, if cut, could disproportionally affect certain areas of the budget. To more closely examine the relationship between oil and gas property taxes and county finances and jobs, in the next sections we turn to a more detailed examination of these dynamics in the counties with the state's greatest share of oil and gas industry activity: Kern, Contra Costa and Los Angeles.[38]

[36] See https://counties.bythenumbers.sco.ca.gov/#!/year/2023/revenue/0/entity_name for information on revenues by county. Specifically, we look at Property Taxes—General—Countywide Secured and Unsecured General.
[37] We apply the Contra Costa number to Solano.
[38] Note that the numbers on the next page are derived from the most recent budgets for each county, while the numbers on this page came from the most recent year available from the State Controller's Office.

Figure 4.1 Kern County Revenues, including Property Taxes, 2003-2024



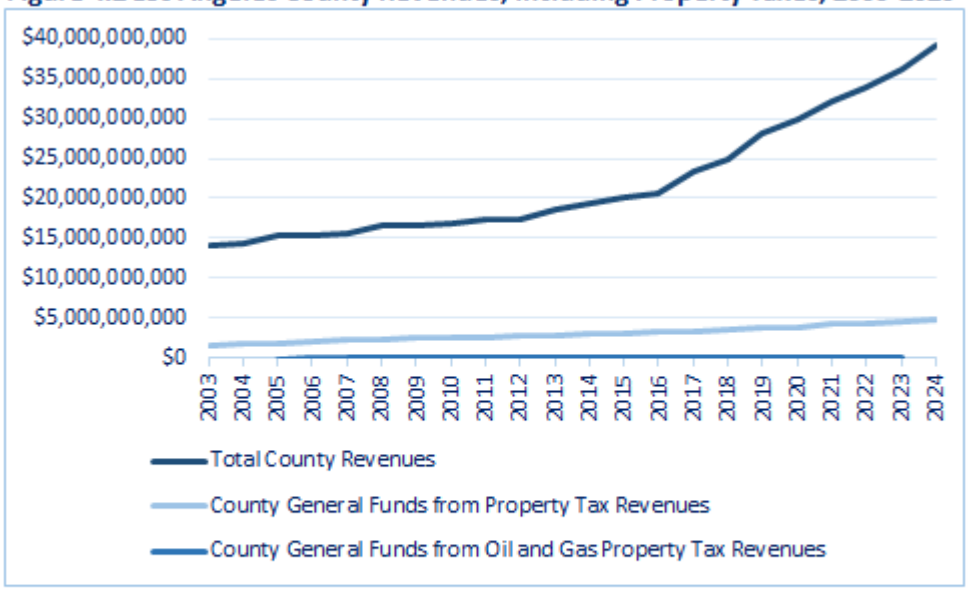
Source: UC Merced Community and Labor Center analysis of California State Controller's Office- Local Government Financial Data 2003-2024; California Board of Equalization 2005-2023 data.

Property Tax Revenue

Kern County's revenues have become more stable despite the long, steady decline of the oil and gas industry and its effects on local public taxes. Unsurprisingly, as Kern County's oil and gas tax revenue declined, so too did the overall Kern County property tax revenue decline (see Figure 4.1). In particular, during an acute downturn between 2014 and 2016, the amount of Kern County's general funds that came from annual oil and gas tax revenue decreased from $53 million to $33 million, although annual total revenues increased from $1.698 billion to $1.832 billion. Yet, despite generally steady decline in oil and gas property tax revenues between the 2000s and 2024, Kern County's total annual revenue has increased by $1.5 billion.

Los Angeles County, less reliant on oil and gas property tax revenues than Kern, has been even more resilient to the shocks of the industry. Los Angeles County's property tax revenue has

Figure 4.2 Los Angeles County Revenues, including Property Taxes, 2003-2023

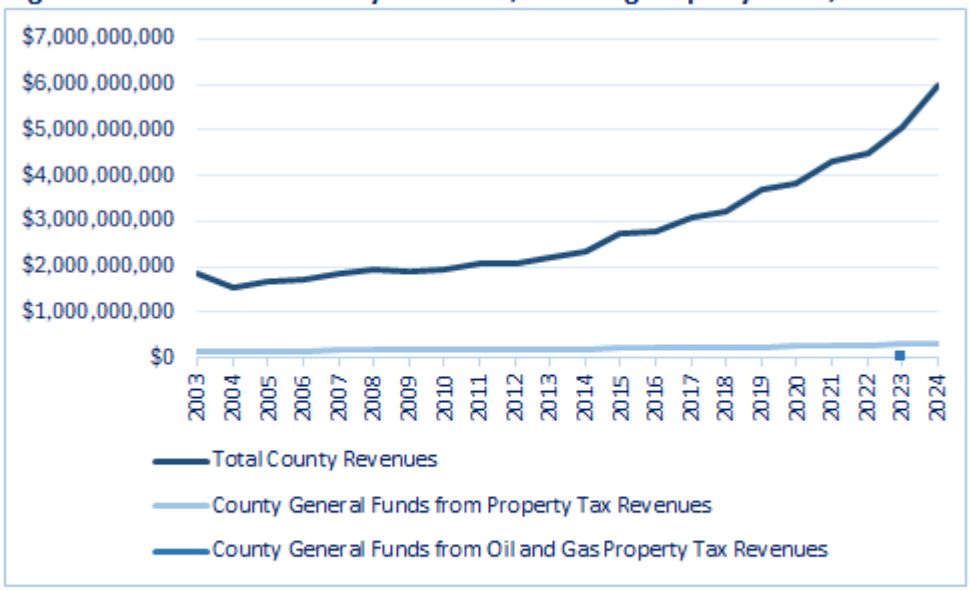


Source: UC Merced Community and Labor Center analysis of California State Controller's Office- Local Government Financial Data 2003-2024; California Board of Equalization 2005-2023 data.

continued to increase despite temporary decreases in its oil and gas property tax revenues. Between 2014 and 2016, the County's annual general funds from oil and gas tax revenues decreased by about $5.5 million, yet the County's annual total revenues increased during those same years from $19.4 billion to $20.6 billion (see Figure 4.2). Despite its oil and gas tax revenue declining since 2014, Los Angeles County's total revenue has continued to increase. From 2003 to 2024, the County's total annual revenue has increased by more than $25 billion.

Contra Costa County's revenues have also become more stable despite the oil and gas industry's general decline. Contra Costa's oil refineries have been assessed at worth of about $5 billion in recent years; adjusted for 2026 dollars, Chevron Richmond would be worth $3.485 billion, and PBF Martinez would be worth $1.598 billion. Assuming these amounts remain constant we would estimate $50.8 million in property tax revenue in Contra Costa County in 2026

Figure 4.3 Contra Costa County Revenues, including Property Taxes, 2003-2023



Source: UC Merced Community and Labor Center analysis of California State Controller's Office- Local Government Financial Data 2003-2024; California Board of Equalization 2005-2023 data.

(see Table 2.1). Notwithstanding all other forms of taxes (e.g. sales taxes, special revenues), this means that oil and gas property tax revenues accounted for about $24 million for schools (which under Proposition 98 would be funded by the State in the absence of local taxes); $6.6 million for county government; $4.1 million for municipal entities; $9.7 million for special districts; and $6.1 million for redevelopment agencies.[39] Our analysis further finds that, during California's long decline in oil production, Contra Costa County's general funds from (all) property taxes grew during the same period from $120 million to $308 million (see Figure 4.3). Annual county revenues increased from $1.9 billion in 2003, to $6.0 billion in 2023.

[39] While this study focuses on oil and gas property tax revenues, a UC Berkeley Labor Center study indicated that—including sales taxes, special assessments, and other taxes—oil and gas direct tax revenues totaled $136 million in Contra Costa County in 2022 (Hammerling, Toaspern and Schmahmann 2025).

Indirect Impacts on State Finances

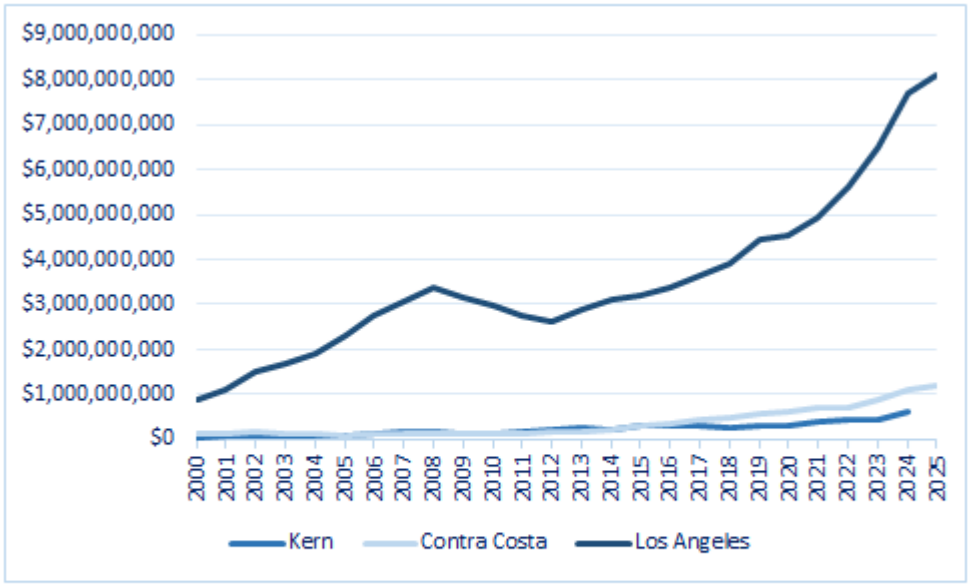
We share two final notes on the implications of declining property tax revenues. First, further declines might lead to losses in local government revenues through a shrinking local tax base. However, to the extent that these declines do reduce property tax allocations to schools, it would then increase the State's financial responsibility to replace those schools' displaced allocations under Proposition 13 and AB 8. Second, there is an additional indirect effect of a declining oil and gas industry on local economic conditions and local public budgets. California's income tax system is progressive, and to the extent that workers in the oil and gas industry earn a pay premium, they pay more in state income taxes. The State, in turn, draws from those taxes to provide funding to general-purpose governments in Kern County and elsewhere. As a result, if oil and gas employment declines with no pathway for good jobs for those workers, then the State would stand to receive less in income tax revenue. Conversely, if the State implements a pathway to good jobs for workers transitioning out of the oil and gas industry, then the region will prosper and generate more property and income tax revenues for both the county and state.

General Fund Balance

While Kern, Los Angeles and Contra Costa have county budgets with varying amounts of oil and gas property tax revenues, trends in general fund balances provide context about the degree to which these counties' fiscal health depends upon oil and gas tax revenues. To begin to assess this question, in this section we examine each county's oil and gas property tax revenues in relation to their general fund balance.

Kern County, which receives the greatest share of California's oil and gas property taxes—roughly half of the state's total—receives 10.5% of its County general funds from oil and gas

Figure 4.4 General Fund Balance (Kern, Contra Costa and Los Angeles)



Source: UC Merced Community and Labor Center analysis of Kern County Annual Financial Reports 2000-2024, Contra Costa County Annual Financial Reports 2000-2025, and Los Angeles County Annual Financial Reports 2000-2025.

property taxes (see Figure 4.4). Yet, Kern has accumulated a significant general fund balance during the time the oil and gas industry has been in decline. In 2000, Kern County had a general fund balance of $62 million, and by the following year it increased by $6 million more. Since 2000, Kern has experienced an increase in its general fund in 16 of 24 years. Across those 24 years, Kern's general fund has increased by $536 million. Added together with the county general fund's initial $62 million balance in 2000, Kern's general fund balance by 2024 was $598 million.

Kern County's oil and gas property tax revenues have contributed a small share of the county's increasing general fund balance over the same period. From 2005 (when our data begin), the share of Kern's County general funds that came by way of oil and gas property tax revenues were $26.3 million. In 2022, this figure was $27.0 million. These figures pale in comparison to growth of the County's general fund balance over the same period, from $79.3 million to $441.8 million. The county's current $598 million general fund balance indicates that if it maintained

similar spending without any oil and gas industry property tax revenues then the county would have about twenty-two years before reaching a negative general fund balance.

Contra Costa, after Kern, the California county with the next largest share of County general funds that derive from oil and gas property tax revenues, only received 3.0% of its 2023 County general funds revenues ($8.6 million out of $288.7 million) from the oil and gas industry (see Table 4.1). Contra Costa's annual oil and gas property tax revenues pale in comparison with its steadily increasing general fund balance. In 2000, Contra Costa had a general fund balance of $113 million, and by the following year it increased by $32 million more. Since 2000, Contra Costa has experienced an increase in its general fund in 19 of 25 years. Across those 25 years, the total increase in Contra Costa's general fund balance has been $1.1 billion. Added together with the county general fund's initial $113 million in 2000, Contra Costa's general fund balance by 2025 was $1.2 billion.

Our analysis indicates that Contra Costa's average annual increase in its general fund has been $44 million from 2000 to 2025. This is more than five times larger than its annual oil and gas property tax revenues ($44 million versus $8.6 million). Not accounting for direct oil and gas industry property tax revenues, the County's $1.2 billion general fund balance would appear to increase by $35.4 million each year moving forward.

Los Angeles, after Kern, the California county with the next largest amount of oil and gas tax revenues, only receives 0.1% of its County general funds from oil and gas property tax revenues (See Table 4.1). Los Angeles, like Kern and Contra Costa, has accumulated a significant general fund balance during the time that the oil and gas industry has been in decline. In 2000, Los Angeles County had a general fund balance of $907 million, and by the following year it

increased by $219 million more. Since 2000, Los Angeles County has experienced an increase in its general fund in 21 of 25 years. Across those 25 years, the total increase in Los Angeles' general fund has been $7.2 billion—an average of $288 million per year. Added together with the County general fund's initial $907 million balance in 2000, Los Angeles's general fund balance by 2025 was $8.1 billion.

Los Angeles County's oil and gas property tax revenues have been a very small share of the County's increasing general fund balance over the same period of time. From 2005 (when our data begin) to 2022, Los Angeles County's general funds that derived from oil and gas property tax revenues were $100 million—an average of $5.6 million per year. Our analysis indicates that Los Angeles' average annual increase in its general fund was over 52 times larger than its annual oil and gas property tax revenues ($288 million versus $5.5 million). Thus, if Los Angeles maintained similar spending without any oil and gas industry property tax revenues then the County's current $8.1 billion general fund balance might still expect to increase by about $282 million every year moving forward.

County Employment

In this section, our analysis explores the implications of oil and gas industry decline not just for property tax revenues and local budgets, but also for services and jobs. We document recent trends in employment for the examined counties, including the number of total employees and full-time employees for Kern, Los Angeles and Contra Costa counties. We find that, with the exception of Kern in 2014 to 2016, County employment in counties with the most oil and gas activity does not appear to be negatively affected by industry decline.

As mentioned previously, the counties in our analysis have generally experienced decline in oil and gas property tax revenues since 2000—and an acute decline between 2014 and 2016. For Kern, this period of acute decline in oil and gas property taxes corresponds with its most acute decline in county employment since 2000. Between 2011 and 2017, Kern's County employment declined by over 1,000 employees and reached its lowest point since 2000. The most recent data in 2022 indicated that employment was near its lowest point reached in 2017, and lower than in 2000. In the past two decades, between 2000 and 2023, the total number of Kern County employees decreased by 1,605. Next, we examine available data on the number of Kern County's full-time employees which differs from the analysis of total employment numbers.[40]

Kern's full-time County employment was more stable than for all employees. From 2000 to 2010, employment for full-time employees slightly increased to a peak of 8,468 employees. After 2010, Kern experienced a decline in full-time employees. While full-time employment has increased since, full-time employees are only slightly higher than in 2000 (see Figure 4.5).

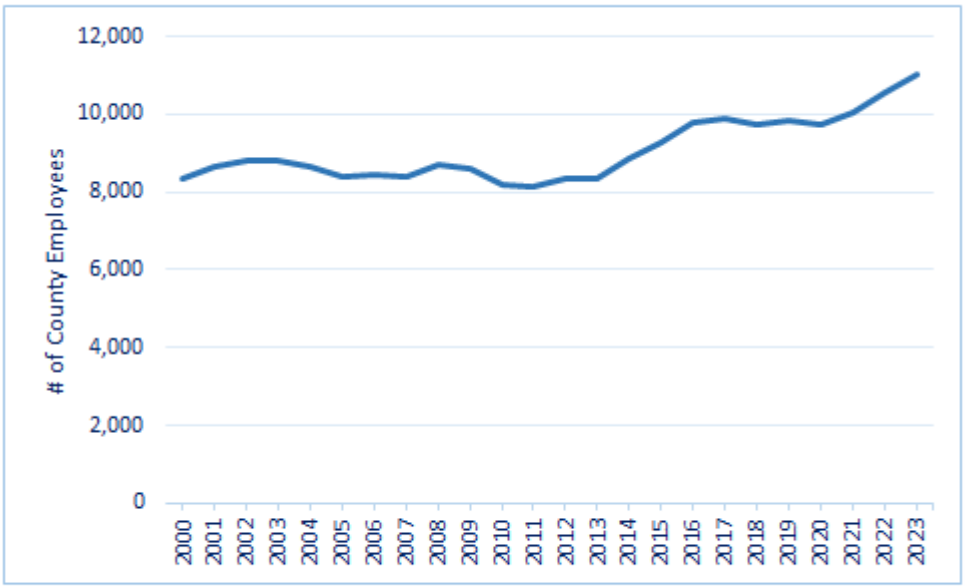
In contrast, Los Angeles and Contra Costa counties both experienced an increase in the number of County full-time employees between 2000 and 2023 (see Figures 4.5 and 4.6). Contra Costa County, despite depending on declining revenues from oil and gas, increased in its number of full-time employees between 2000 and 2023. Contra Costa County experienced the greatest loss of employees between 2009 and 2013, during the years following the Great Recession. Yet it rebounded during the oil and gas industry's 2014-2016 decline, and during subsequent years (see Figure 4.6).

[40] Data on the total number of Los Angeles and Contra Costa's County employees was unavailable.

Figure 4.5 Kern County Employment (Full-Time and Total), 2000-2023

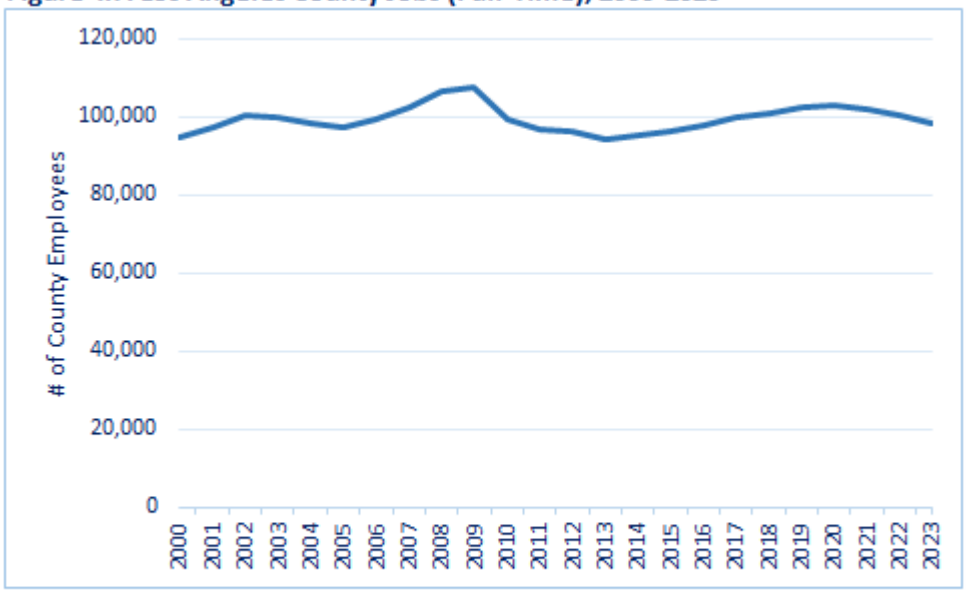
Source: UC Merced Community and Labor Center analysis of data from Kern County's Comprehensive Annual Financial Reports, 2000-2023.

Figure 4.6 Contra Costa County Employment (Full-Time), 2000-2023



Source: UC Merced Community and Labor Center analysis of data from Contra Costa County's Comprehensive Annual Financial Reports, 2000-2023.

Figure 4.7. Los Angeles County Jobs (Full-Time), 2000-2023



Source: UC Merced Community and Labor Center analysis of data from Contra Costa County's Comprehensive Annual Financial Reports, 2000-2023.

While this section focused on three focal counties, analysis of the closure of oil and gas refineries in other geographies may further inform our understanding of the relationship between oil and gas activity and County finances. In particular, it is worth noting that in 2023, the Phillips 66 Santa Maria Refinery in Nipomo Mesa, San Luis Obispo County, permanently shut down its crude oil operations. This stands as a contrasting case to the Rodeo Phillips and Marathon Martinez refinery closures, both in Contra Costa County, in which both facilities were converted to renewable fuel facilities (processing vegetable oils and animal fats rather than crude oil). It serves as a contrasting case study because, while the Marathon Martinez refinery was idled between 2020 and 2023 and converted to a renewable fuels facility, the Phillips 66 Santa Maria was permanently closed in January 2023—ostensibly with greater negative economic implications (as it lacked conversion to a renewable fuels facility). Yet, just as Contra Costa

County's net position and general fund balance substantially increased following the idling of the Marathon Martinez refinery (and its subsequent conversion), San Luis Obispo County's net position and general fund balance also increased during and following the closure of the Phillips 66 Santa Maria refinery. In 2022 (the year before the Phillips 66 Santa Maria refinery closure), San Luis Obispo County's general fund balance was $437 million, but by 2025 it had increased to $574 million.

These findings challenge prominent assumptions in oil and gas industry policy discussions—that production, revenue, jobs, oil and gas property tax revenues, local budgets, and local public sector services and employment are closely tethered. Instead, our findings call into question the idea that declining oil and gas property tax revenues pose a fundamental threat to the financial wellbeing of California's Counties.

County Employment by Program

To better understand the implications of the oil and gas industry decline on local governments, we examined employment trends by general function and programs for each county, finding that while all counties experienced fluctuations in jobs during financial crisis, some were more disproportionately impacted than others. A financial crisis, such as the decline of the oil and gas industry, may have impacts on particular county programs.

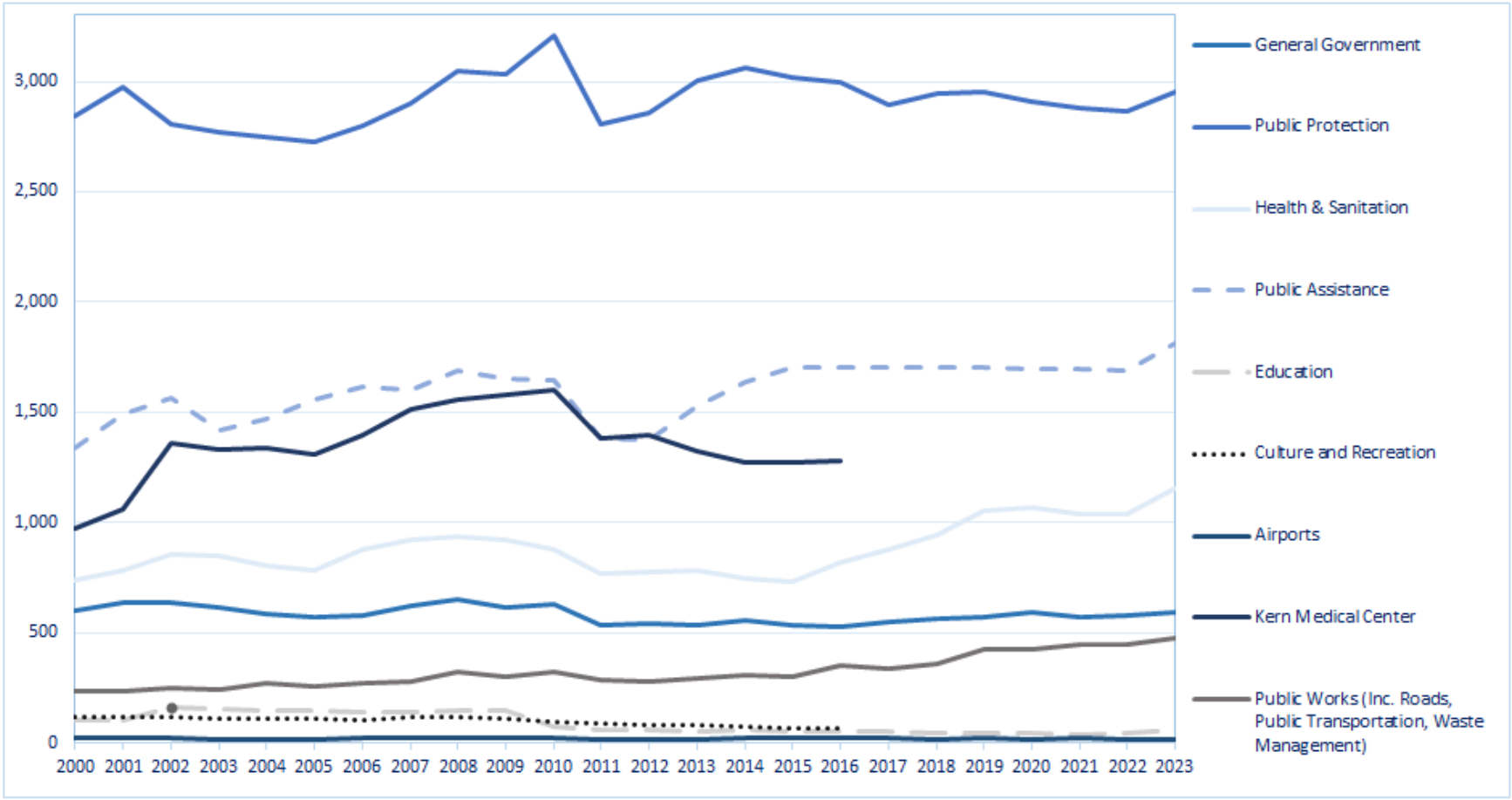
For Kern County, our analysis focuses on the years following the Great Recession, 2011 through 2017. Between 2011 and 2017, among all functions and programs, the Public Assistance program experienced the greatest gain of employees (322), followed by Health and Sanitation (111), and the Public Protection program (91) (see Figure 4.8). However, when it transitioned to becoming a hospital authority in 2016, Kern Medical Center's 106 employees moved out of the

public sector. Public health jobs, under the Health and Sanitation program, was one of the only programs to lose workers; public health declined the most among all categories, from 229 public employees in 2011 to 180 in 2017 (analysis not shown). This analysis demonstrates how most local government jobs in Kern County were generally not impacted during the County's greatest financial crisis of the past two decades—although public health was an exception.

For Contra Costa County, the analysis focused on the years between 2009 and 2013, when the greatest loss of County full-time employees occurred. The programs with the greatest loss in jobs were Public Protection (237 employees), General Government (113 employees), and Public Assistance programs (69 employees) (see Figure 4.9). (Public Protection typically includes occupations related to the criminal justice system, as well as the fire department.) However, the Health and Sanitation program has dramatically increased in the last two decades, and particularly between 2011 and 2017. These findings indicate that Contra Costa County was less impacted by declines in the oil and gas industry than broader economic factors, such as the Great Recession.

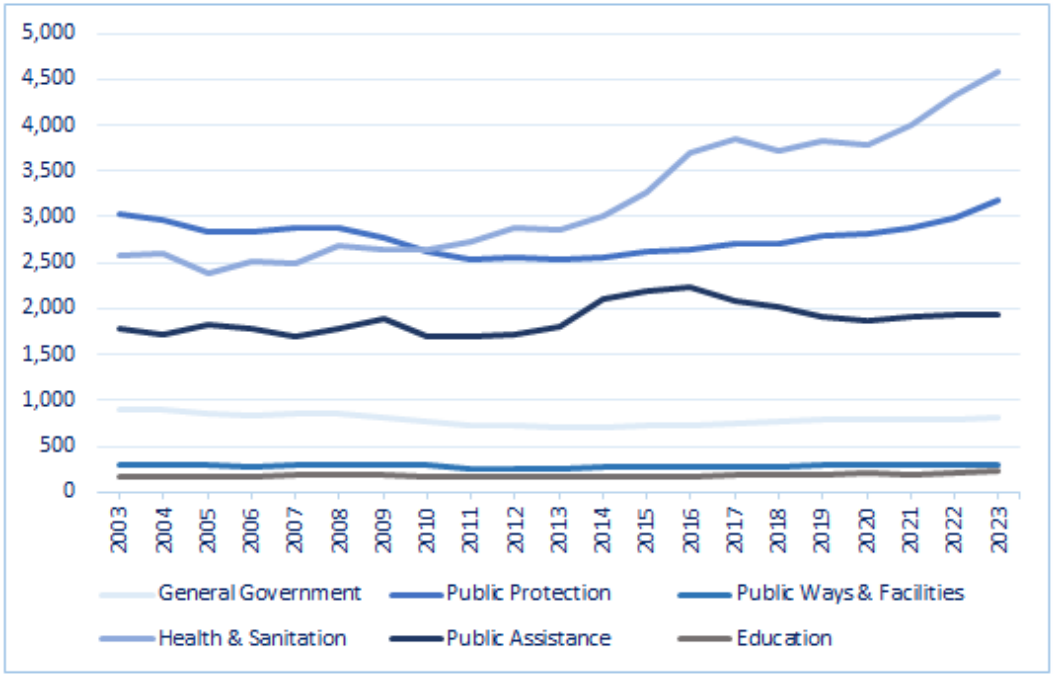
Lastly, we examine Los Angeles County from 2014 through 2016 and find an increase in jobs in all programs and functions. Health and Sanitation experienced the greatest increase of 1,272 employees among all functions and programs (see Figure 4.9). The Public Assistance program followed closely with an increase of 1,030 employees. General Government and Public Protection programs also increased by 236 and 108 employees, respectively (see Figure 4.10). These findings demonstrate that Los Angeles County does not heavily depend upon oil and gas property tax revenue and that the decline in the industry has had a lesser impact on employment.

Figure 4.8 Kern County Jobs, by General Function/ Program, 2000-2023



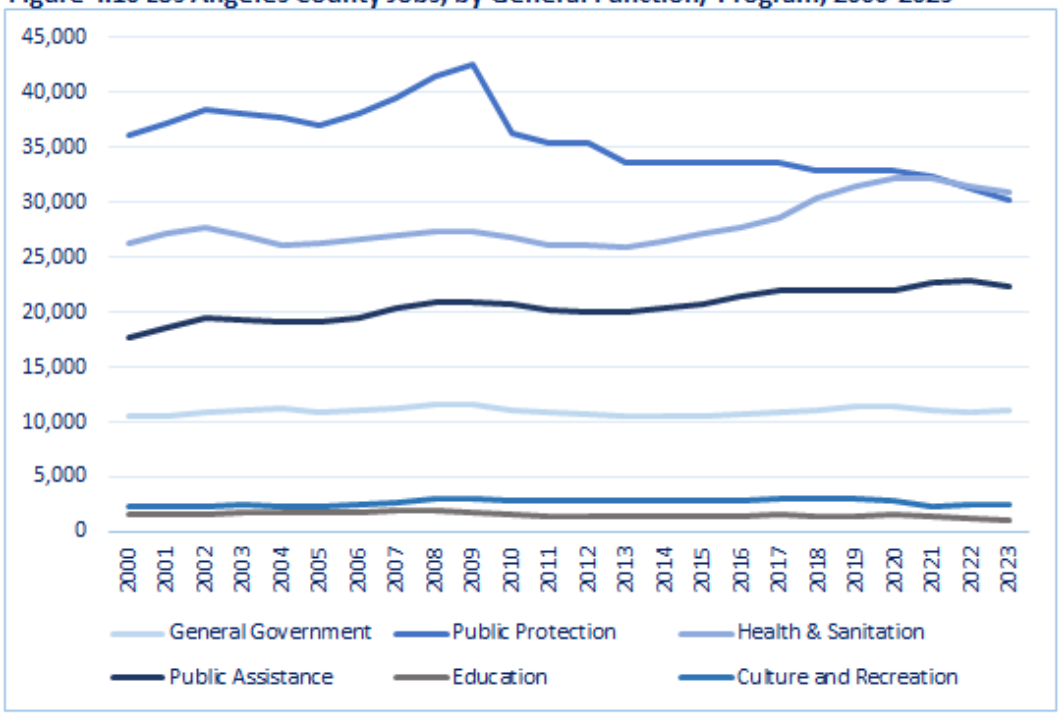
Source: UC Merced Community and Labor Center analysis of data from Kern County's Comprehensive Annual Financial Reports, 2000-2023.

Figure 4.9 Contra Costa County Jobs, by General Function/ Program, 2003-2023



Source: UC Merced Community and Labor Center analysis of data from Contra Costa County's Comprehensive Annual Financial Reports, 2003-2023.

Figure 4.10 Los Angeles County Jobs, by General Function/ Program, 2000-2023



Source: UC Merced Community and Labor Center analysis of data from Los Angeles County's Comprehensive Annual Financial Reports, 2000-2023.

CONCLUSION

The findings from the California Oil and Gas Tax Study are a call to action for state intervention to mitigate the risks of California's declining oil and gas industry. We outline the study's implications and provide recommendations for supporting oil and gas workers and the communities most affected.

The most critical fact for understanding California's oil and gas industry is that it is already underway a major decline. Since 2000, California's oil production has steadily and dramatically decreased at a rate of about 7 million barrels per year, from 271 million barrels in 2000 to 124 million barrels in 2022. At the same time, employment in the industry has been declining since 2013. Our research finds that if current trends continue, California's oil production could reach negligible levels between 2043 and 2053, highlighting an urgent need for state planning and investment around displaced workers.

California oil and gas industry workers would stand to lose millions of dollars in annual pay premiums over the next twenty-two years. Workers in the fifteen occupations that concentrate in the oil and gas industry (e.g. an occupation in which most jobs are in the oil and gas industry, not outside of it) would stand to collectively lose $35 million annually over the next twenty-two years. This is because workers in the California oil and gas industry earn an average of 27% more (a "premium" of $26,500 per year) than workers with similar educational levels in other industries, despite having an exit rate of about 25% per year. Without any state intervention, oil and gas workers would absorb the shock of the energy transition all on their own. This loss also has implications not only on the workers themselves but on state revenue through income taxes, and state and local revenue through decreases in retail sales, due to lower purchasing power.

Counties that disproportionately rely on oil and gas property taxes have, by and large, not faced significant property tax losses from past reductions in oil and gas production and refining activities. Our analysis of Kern, Los Angeles and Contra Costa County finances find that County full-time employment has increased, even during times of industry decline—with the exception of Kern between 2014 and 2016 (which experienced slight losses in full time County employment, disproportionately affected public health jobs). Instead, Kern, Los Angeles and Contra Costa have amassed significant general fund surpluses that would mitigate property tax losses anticipated due to the decline in oil and gas production.

It remains an open question how much oil and gas industry decline will affect sales and other tax revenues. Yet, declines in oil and gas property tax revenue may have an impact on state revenue, due to the State's mitigation of property tax losses to school districts (through increased state funding). In addition, research also indicates that declining oil and gas activity has indirect effects on tax revenues, public sector services and employment—particularly in those places where activity ends abruptly (e.g. Hammerling, Toaspern, and Schmahmann 2025). Strategies to mitigate the risk of oil and gas industry declines should therefore focus on displaced oil and gas workers, as well as public sector employment services to the local community.

In light of the economic challenges facing oil and gas industry workers and the communities where they are located, we recommend public engagement and policy development aimed at providing economic support for workers displaced from the public sector workforce, and the loss of public sector employment and services to the local community. Our recommendations are as follow:

1. Provide social and economic support for displaced oil and gas workers. The State can play a central role in providing economic support for displaced oil and gas industry workers, such as Unemployment Insurance for job loss, wage replacement for lost premiums, and bridges to retirement with fully funded pensions and health care for older workers. The State may also provide various programmatic supports, such as workforce development and job placement, including worker retraining and skill upgrades, and assistance for job placement in comparable jobs for younger workers. Such efforts should take into account the key role that unions play in ensuring higher wages and working standards.

One potential program could be the Employment Development Department (EDD) Displaced Oil and Gas Worker Fund, to support workers to transition to other industries with good, high-paying jobs. The fund currently sits in the Employment Development Department (EDD) and is set to expire in 2027, though the length of the program can be extended and an assessment could identify the best location for the fund. While other sources of funding could include the Greenhouse Gas Reduction Fund (GGRF), a more sustainable program for displaced oil and gas workers should be created within the Labor & Workforce Development Agency (LWDA). Currently, GGRF funds could support efforts for displaced oil and gas workers, but ideally this would be for the initial phase of an active crisis. A sustainable program within the LWDA would better provide dedicated, ongoing support that more adequately addresses unmet needs.

The State can also advance workforce and economic development by designing state-run well and refinery remediation programs. The Hazardous and Idle-Deserted Well Abandonment Fund, through the Department of Conservation (DOC), aims to prevent leaking wells, groundwater contamination and environmental risks from idle wells. While California Assembly

Bill 1167 advances financial support (through indemnity bonds) so that an oil well or production facility will fund the costs of plugging and abandonment, decommissioning of the facility, and site restoration; widely publicized and ongoing issues have indicated the need for additional rule-making to close loopholes for remediation work and to fully remediate all sites. The State could also tax industry firms or associations for additional revenue contributions for remediation work. However, the work would best be carried out by public sector/ union employees whose labor standards are higher.

In addition, the State can also advance worker and community-driven economic diversification by prioritizing displaced oil and gas workers for state hiring, developing procurement policies that prioritize contractors that hire displaced oil and gas workers, and working closely with unions for workforce and economic development planning (e.g. oil and gas remediation work mentioned above). All else being equal, California workers in union-represented positions earn 13 percent more than their non-union counterparts. Insofar as there is concern over oil and gas workers losing wage premiums by working in other industries, such concerns and solutions must take into account the key role that unions play in establishing higher wages. Lastly, the State might also consider offering educational guarantees to affected workers and their children (e.g. free tuition at state schools for the children of displaced workers).

2. Create a stabilization fund to protect public services and jobs. The State may also play an important role in mitigating economic risks to communities heavily dependent on the fossil fuel industry. The State could create a stabilization fund that would only be needed for the moment of economic disruption before economic diversification is underway. While this study found that declining oil and gas property tax revenues do not pose a threat to the near-term

financial position of California's counties, previous research has indicated that declining oil and gas activity has direct and indirect effects (e.g. Hammerling, Toaspern, and Schmahmann 2025). In the absence of a stabilization fund, refinery closures have immediate and significant consequences to the tax base, and public sector employment and services of the cities they are located in—apart from broader, downstream economic effects (e.g. Hammerling, Toaspern, and Schmahmann 2025). In this context, planning could include long-term assistance to help diversify the local economy, such as providing support for worker and community-driven economic development based on regional assets. It is anticipated that as the economy diversifies, direct and indirect economic (and tax) losses would be recovered--and that in the long run a diversified economy would be more resilient than the oil and gas-related economic and employment volatility captured in this report.

A spending stabilization fund, in particular, would help local jurisdictions maintain minimum level of spendings on key budget areas, including public and social services, while protecting jobs in these areas. This study suggested that in an oil dependent region, during peak industry decline, public sector jobs at greatest risk of loss were in public protection (i.e. law enforcement and fire) and public health. The State could provide a stabilization fund to benefit impacted local municipalities, by providing fiscal stability to avoid abrupt cuts to public services and mitigating sudden public job losses. The stabilization fund would maintain a minimum level of spending on key budget areas, such as public and social services, and require municipalities to do the same. Planning could include identifying revenue streams to guarantee provision of services, for example counties setting aside a portion of revenue increases in reassessed properties.

REFERENCES

Attorney General's Task Force on California Gasoline Prices. 2000. "Report on Gasoline Pricing in California," Technical Report, California Department of Justice, Office of the Attorney General, Sacramento, CA May. Prepared under the direction of Attorney General Bill Lockyer.

Austin, Benjamin A, Edward L Glaeser, and Lawrence H Summers. 2018. "Jobs for the Heartland: Place-based Policies in 21st Century America." Technical Report. National Bureau of Economic Research.

Autor, David H, David Dorn, and Gordon H Hanson. 2013. "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." *American Economic Review* 103 (6): 2121–2168.

Autor, David, David Dorn, and Gordon H. Hanson. 2021. "On the persistence of the China shock." No. w29401. National Bureau of Economic Research.

Bassier, Ihsaan. 2022. "Collective Bargaining and Spillovers in Local Labor Markets." December 2022. Centre for Economic Performance.

Bergant, Katharina, Rui C. Mano, and Ippei Shibata. 2022. "Supporting Affected Workers through Transfers, Tax Breaks, and Training Would Ease the Shift in the Labor Force." December 13. Accessed September 10, 2025 from: https://www.imf.org/en/News/Articles/2022/12/12/cf-how-the-green-transition-will-impact-us-jobs

Biven, Megan Milliken, and Leo Lindner. 2023. "The Future of Energy and Work in the United States: The American Oil & Gas Worker Survey." March 2023. True Transition. Accessed December 18, 2025 from: https://www.truetransition.org/_files/ugd/0ad80c_069ea867b3f044afba4dae2a1da8d737.pdf?index=true

Brostrom, Ingrid, Edward Flores, Rodrigo Alatriste-Diaz, Keila Luna, Eliana Fonsah, Karina Juarez, Jacqueline Guerrero, Andres Arias Murillo, Evelyn Arana and Paul Almeida. 2024. "Kern Strategic Workforce Development Report." UC Merced Community and Labor Center. Accessed September 17, 2025 from: https://clc.ucmerced.edu/sites/g/files/ufvvjh626/f/page/documents/kern_hrtp_report.pdf

Black, Dan, Terra McKinnish, and Seth Sanders. 2005. "The Economic Impact of the Coal Boom and Bust." *The Economic Journal* 115(503): 449–476.

Blonz, Josh, Brigitte Roth Tran, and Erin E. Troland. 2023. "The Canary in the Coal Decline: Appalachian Household Finance and the Transition from Fossil Fuels." No. w31072. National Bureau of Economic Research.

CalGEM. 2000. “California State Oil and Gas Supervisor Annual Report: 2000.” Prepared pursuant to Public Resources Code section 3108. Accessed September 22, 2025 from: https://filerequest.conservation.ca.gov/?q=annual_reports%202000%20Annnual_Report_2000.pdf

CalGEM. 2025. “Annual Reports of the Supervisor of Oil and Gas.” Prepared pursuant to Public Resources Code section 3108. Accessed September 22, 2025 from: https://www.conservation.ca.gov/calgem/pubs_stats/annual_reports/Pages/annual_reports.aspx

California Budget & Policy Center 2024. “Guide to the California State Budget Process.” Accessed September 17, 2025 from: https://calbudgetcenter.org/resources/a-guide-to-the-california-state-budget-process/

California State Board of Equalization (BOE). 2025. “California Property Tax: An Overview.” Accessed September 17, 2025 from: https://www.boe.ca.gov/proptaxes/pdf/pub29.pdf

California State Board of Equalization. 1996. “Assessors’ Handbook Section 566: Assessment of Petroleum.” Adopted August 22.

DePillis, Lydia. 2026. “America Depends Less on Oil Than Ever.” New York Times. March 14, 2026. Accessed March 29, 2026 from: https://www.nytimes.com/2026/03/14/business/economy/america-oil-gas-energy.html

Electronic Municipal Market Access (EMMA). 2025. “Benecia Unified School District.” Technical Report, Municipal Securities Rulemaking Board (MSRB). Accessed March 29, 2026 from: https://emma.msrb.org/P11775184-P11363201-P11800547.pdf

Electronic Municipal Market Access (EMMA). 2023. “El Segundo Unified School District Disclosure.” Technical Report, Municipal Securities Rulemaking Board (MSRB). Accessed March 29, 2026 from: https://emma.msrb.org/P21714907-P21317088-P21749670.pdf

Electronic Municipal Market Access (EMMA). 2025. “Martinez Unified School District.” Technical Report, Municipal Securities Rulemaking Board (MSRB). Accessed March 29, 2026 from: https://emma.msrb.org/P11866616- P11428271-P11872647.pdf

Electronic Municipal Market Access (EMMA). 2024. “Torrance Unified School District.” Technical Report, Municipal Securities Rulemaking Board (MSRB). Accessed March 29, 2026 from: https://emma.msrb.org/P11797675- P11378634-P11817198.pdf

Electronic Municipal Market Access (EMMA). 2025. “West Contra Costa Unified School District.” Technical Report, Municipal Securities Rulemaking Board (MSRB). Accessed March 29, 2026 from: https://emma.msrb.org/P11855661-P11420830-P11864465.pdf

Federal Trade Commission 1998. In the Matter of Shell Oil Company and Texaco Inc. Consent Order C-3803. Final order issued April 22.

Fitz-Henry, Erin, and Elise Klein. 2024. "From Just Transitions to Reparative Transformations." *Political Geography* 108.

Fortin, Nicole M., Thomas Lemieux, and Neil Lloyd. 2021. "Labor Market Institutions and the Distribution of Wages: The Role of Spillover Effects." *Journal of Labor Economics* 39(S2): S369-412.

Gender Equity Policy Institute. 2023. California's Oil and Gas Workers. January 2023. Gender Equity Policy Institute. Accessed March 29, 2026 from: https://thegepi.org/california-oil-gas-workers/

Gipe, Paul. 2004. *Wind Power, Revised Edition: Renewable Energy for Home, Farm, and Business.* Chelsea Green Publishing.

Green, Pearl Elei and Edwinah Amah. 2024. "The Effects of Labour Unions on the Wages of Non-Union Workers." *International Journal of Social Sciences and Management Research* 10(1): 120–133.

Hammerling, Jessie HF, Will Toaspern, and Laura Schmahmann. 2025. "Refining Transition: A Just Transition Economic Development Framework for Contra Costa County, California." January 2025. UC Berkeley Labor Center.

Hess, David J. *Good Green Jobs In A Global Economy: Making and Keeping New industries in the United States*. Mit Press, 2012.

Hunter, Savannah, Annette Gailliot, Enrique Lopez-Lira, and Ken Jacobs. 2023. California Union Membership and Coverage: 2023 Chartbook. August 2023. UC Berkeley Labor Center.

Hyman, Benjamin G. 2018. "Can Displaced Labor be Retrained? Evidence from Quasi-Random Assignment to Trade Adjustment Assistance." *Proceedings: Annual Conference on Taxation and Minutes of the Annual Meeting Of The National Tax Association* 111: 1–70.

Intergovernmental Panel on Climate Change (IPCC). 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L.Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 3–32. Accessed September 12, 2025 from: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf

Knepper, Matthew. 2020. “From The Fringe to The Fore: Labor Unions and Employee Compensation.” *Review of Economics and Statistics* 102(1): 98–112.

Levine, David I. 2025. “Promote Ownership by Workers for Economic Recovery (POWER) Act: Research Analysis and Final Report.” University of California Berkeley Haas School of Business and Rutgers Institute for the Study of Employee Ownership and Profit Sharing. Accessed December 3, 2025 from: https://drive.google.com/file/d/1trKfD1jJJ5melp1_tusOaYZg8kgdHB21/view

Lutz, Byron, Raven Molloy, and Hui Shan. 2010. “The Housing Crisis and State and Local Government Tax Revenue: Five Channels.” Finance and Economics Discussion Series: 2010-21. Accessed September 17, 2025 from: https://www.federalreserve.gov/pubs/feds/2010/201049/index.html.

Kern Economic Development Foundation. 2021. The Economic Contribution of the Oil and Gas Industry in Kern County. January 2021. Accessed May 10, 2026 from: https://kernedc.com/wp-content/uploads/2021/04/KEDF-Economic-Contribution-of-the-Oil-and-Gas-Industry-in-Kern-County_-2021.pdf

McDonough, William. 2010. *Cradle to Cradle: Remaking the Way We Make Things*. NY: Vintage.

McNerney, Jerry 2011. *Clean Energy Nation: Freeing America from the Tyranny of Fossil Fuel.* New York, NY: Amacom Books.

Meyer, Theresa K, Carol Hunsberger, and Joshua M. Pearce. 2023. “Retraining Investment For Alberta’s Oil And Gas Workers For Green Jobs In The Solar Industry.” *Carbon Neutrality* 2(1): 28.

Moss, Diana L. 2008. “The Petroleum Industry, Merger Enforcement, and the Federal Trade Commission.” *The Antitrust Bulletin* 53(1): 203–231.

Natelson Dale Group, Inc. 2020. Kern County Oil and Gas Property Tax Revenue (2018-2019) Analysis: County, Cities, Schools and Special Districts. Prepared for Kern County Planning and Natural Resources Department, and Kern County Administrative Office. Accesed on May 10, 2026 from: https://psbweb.kerncounty.com/planning/pdfs/kc_oil_gas_prop_tax_revenue_report.pdf

Pollin, Robert and Callaci, Brian. 2019. “The Economics of Just Transition: A Framework for Supporting Fossil Fuel–Dependent Workers and Communities in the United States.” *Labor Studies Journal* 44(2): 93-138.

Rosenfeld, Jake and Patrick Denice. 2019. “What Do Government Unions Do? Public Sector Unions and Nonunion Wages, 1977–2015,” *Social Science Research*, 78, 41–56.

State of California Executive Department. 2018. "Executive Order B-55-18: To Achieve Carbon Neutrality." September. Accessed August 5, 2025 from: https://archive.gov.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf

Stevis, Dimitris, and Romain Felli. 2020. "Planetary Just Transition? How Inclusive and How Just?" *Earth System Governance* 6: 100065.

U.S. Department of Justice and Federal Trade Commission. 2023. "The 2023 Merger Guidelines." Accessed September 29, 2025 from: https://www.ftc.gov/system/files/ftc_gov/pdf/2023_merger_guidelines_final_12.18.2023.pdf

Zabin, Carol. 2020. "Putting California on The High Road: A Jobs and Climate Action Plan for 2030." Berkeley, CA: University of California, Berkeley Labor Center. Accessed March 29, 2026 from: https://laborcenter.berkeley.edu/wp-content/uploads/2020/09/Putting-California-on-the-High-Road.pdf

APPENDIX A. COMMUNITY ADVISORY BOARD ORGANIZATIONS

American Federation of State, County & Municipal Employees, AFL-CIO

Asian Pacific Environmental Network

California Labor Federation

Center on Race, Poverty & the Environment

Central California Environmental Justice Alliance

Communities for a Better Environment

Fresno, Madera, Tulare and Kings, Central Labor Council

International Federation of Professional and Technical Engineers, Local 21

Jobs with Justice San Francisco

Physicians for Social Responsibility - Los Angeles

Service Employees International Union, Local 1021

Service Employees International Union, Local 521

Service Employees International Union California

United Domestic Workers

United Steelworkers, Local 675

APPENDIX B. LABOR MARKET DATA SAMPLE CONSTRUCTION

We first construct a worker variable using the classwkrd variable. Steps detailed below:

1. We initialize the value of the variable worker to 2
2. Set worker to 0 if classwkrd is 13 (self-employed).
3. Set worker to 1 if classwkrd is one of the following values:
   (a) 22 “Wage/salary, private”
   (b) 23 “Wage/salary at non-profit”
   (c) 24 “Wage/salary, government”
   (d) 25 “Federal government employee”
   (e) 27 “State government employee, including Puerto Rico/Commonwealth”
   (f) 28 “Local government employee”

We then construct a binary variable called farmworker using the occ (occupation) and ind (industry) variables. Although this study is focused on Oil and Gas workers, and not farmworkers, we nonetheless used the same definitions as in the Kern Strategic Workforce Development Report (2024). Steps detailed below:

1. We initialize farmworker to 0 for all observations.
2. Set farmworker to 1 if:
   (a) Occ variable was coded as 6040 “Graders and Sorters, Agricultural Products” 6050 “Miscellaneous agricultural workers including animal breeders”
   (b) For workers whose occ code was 6005 “First-Line Supervisors of Farming, Fishing, and Forestry Workers” and whose ind coded was 170 “Crop production”

Next, we construct a binary variable called employee using the worker, empstat, and farmworker variables. Steps detailed below:

1. We initialize employee to 0 for all observations.
2. We Set employee to 1 if:
   (a) Worker variable was coded as 1 and empstat was coded as 1 (employed)
   (b) Worker variable was coded as 1 and empstat was coded as 2 (unemployed) and farmworker was coded as 1

Our analysis focuses only on individuals whose employee variable was coded as 1. We also limit our sample to individuals whose gq ("group quarters") was coded as either 1 ("Households under 1970 definition") or 2 ("Additional households under 1990 definition").

APPENDIX C. CODING OF "OIL AND GAS INDUSTRY"

The Kern Strategic Workforce Development Report (KSWDR) coded workers as employed in the Oil and Gas industry if any of the following three criteria were met:

1. If their IND variable was coded as
    a. 370: "Oil and Gas Extraction"
    b. 490: "Support Activities for Mining"
2. If their INDNAICS variable was coded with any of the following
    a. 211: "Oil and Gas Extraction"
    b. 213: "Support Activities for Mining"
    c. 2212P: "Natural Gas Distribution"
    d. 32411: "Petroleum Refineries"
    e. 3331M: "Construction, and Mining and Oil & Gas Field Machinery"
    f. 4247: "Petroleum and Petroleum Products Merchant Wholesalers"
    g. 4571: "Gasoline Stations (2023)"
    h. 447: "Gasoline Stations" (Earlier Years)
    i. 4572: "Fuel Dealers (2023)"
    j. 454310: "Fuel Dealers" (Earlier Years)
    k. 486: "Pipeline Transportation"
3. Finally, workers whose NAICS code was 23: "Construction", and whose OCC coded was what we term "Extraction-Related Occupations":
    a. 6800: "Derrick, Rotary Drill, and Service Unit Operators, and Roustabouts (Oil, Gas, and Mining)"

b. 6825: “Surface Mining Machine Operators and Earth Drillers”

c. 6835: “Explosives Workers, Ordnance Handling Experts, and Blasters”

d. 6850: “Underground Mining Machine Operators”

e. 6950: “Other Extraction Workers”

In this study, we defined occupational titles concentrated in the oil and gas industry slightly differently from the KSWDR (given that this was a statewide study, some different titles concentrated in regions outside of Kern). The criteria we used were as follows. First, in each of the following six occupations, over 48% of California workers (employed or unemployed) were in the oil and gas industry (versus all other titles at or below 27.3%) according to ACS 2019-2023 data:

6800: Derrick, rotary drill & service unit operators; roustabouts, oil, gas & mining

6825: Surface mining machine operators and earth drillers

1520: Petroleum, mining and geological engineers, incl. mining safety engineers

8630: Miscellaneous plant and system operators

6950: Other extraction workers

6850: Underground mining machine operators

Second, in each of the following nine occupations, between 6-28% of California workers were in the oil and gas industry, and in at least one region (LA, Contra Costa and Solano, or Kern) over 44% and over 130 workers were in the oil and gas industry:

9650: Pumping Station Operators

1350: Chemical engineers

7300: Control and valve installers and repairers

1935: Environmental science and geoscience technicians, and nuclear technicians

7560: Riggers

9570: Conveyor, dredge, and hoist and winch operators

6835: Explosives workers, ordnance handling experts, and blasters

9510: Crane and tower operators

1750: Geoscientists and hydrologists, except geographers

APPENDIX D. OIL AND GAS PREMIUMS, AND POTENTIAL FUTURE ANALYSIS

The premium was estimated annually from 2000 through the most recent five-year sample (2019-2023) to observe how it fluctuated over time. All earnings were adjusted for inflation. We then calculated a measure of the value of these jobs in the oil and gas industry and the present value of future declines in this industry.

There are a variety of additional dimensions of analysis that we could pursue to more precisely estimate these lost premiums in the future. First, our analysis could account for the nature of work being done by those employed in the oil and gas industry. It could be the case that a substantial part of the $26,500 premium that we estimated is what labor economists call a compensating differential, or a bonus employers have to pay to compensate workers for doing less pleasant or more dangerous work. In other words, oil and gas workers who transition to the "average job" might lose $26,500 in earnings per year, but not be $26,500 per year worse off, as their new job might involve work they would be willing to do for a lower wage.

Our analysis assumes that workers who would leave the oil and gas industry would land in the average job, i.e. what workers with similar characteristics outside the oil and gas industry make. However, as noted in our discussion of shocks to the local labor market, there can be substantial disemployment effects, i.e. workers who leave shrinking industries may find no jobs at all in the future. Future analysis could explore various scenarios of disemployment.

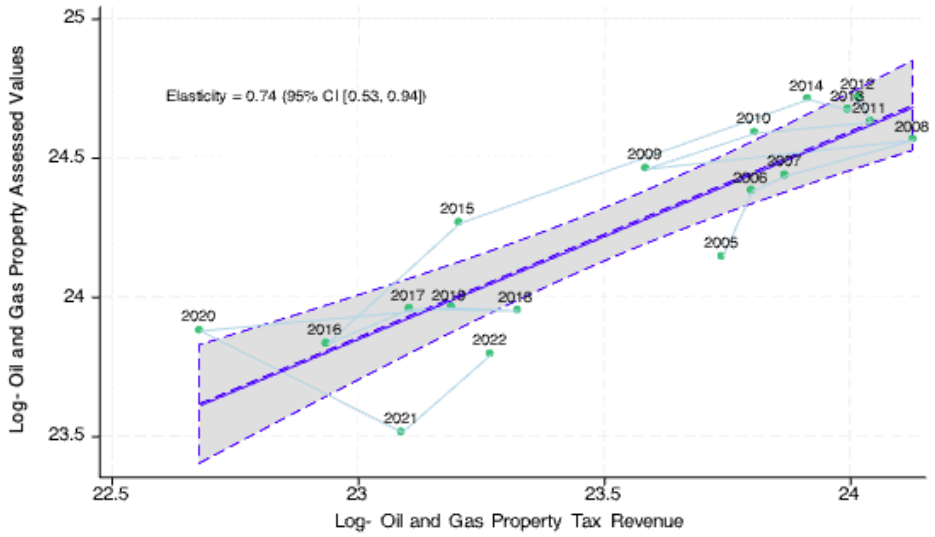
Additionally, our analysis could be further expanded by exploring how the results change under different assumptions about which workers are affected. First, numbers could change if we were to limit our analysis to only workers in occupations that we have defined as concentrated in this industry. However, it seems unlikely that the premium that we have estimated is driven

entirely by this smaller set of workers. If it were, this would suggest a much bigger loss to these workers, but not necessarily any overall change in the total loss to workers that we have estimated.

As discussed above, we could allow the expected loss each year to vary with a changing age profile of workers in this industry. Our premium could also be estimated in a way that would allow the annual premium to vary with age. It could be that younger workers earn a smaller premium to working in this industry, but older workers who have gained industry specific experience are the ones driving earnings above workers outside of the industry.

APPENDIX E. PROPERTY TAX REVENUES

Figure E. 1 Oil and Gas Property Tax Assessments and Revenues in 11 California Counties



We now discuss how the assessed values we have found will translate into property tax revenues, and how these changes in tax revenues will affect different local governments. We will briefly discuss impacts on other sources of local revenue as well.

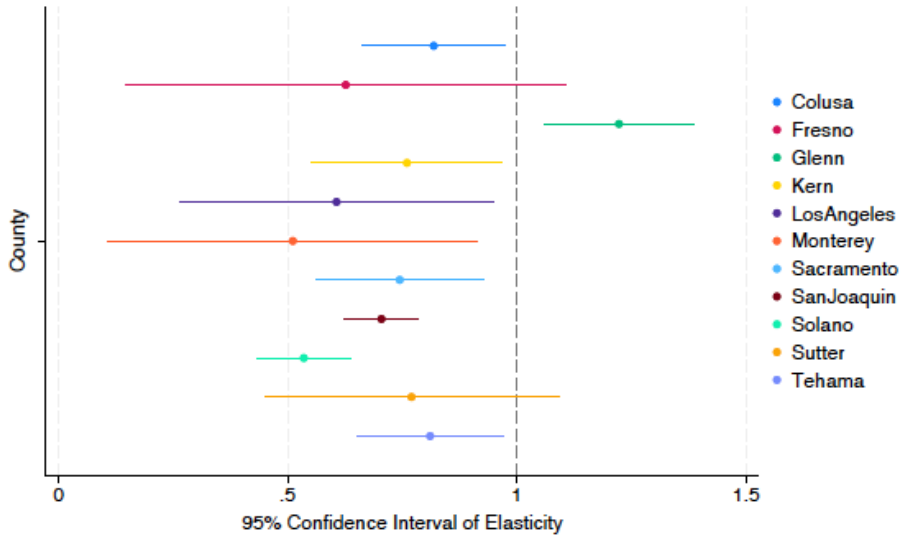
Relationship between Assessment and Property Tax Revenue.

We match our data on tax assessments for 11 California counties to production and revenue data spanning 18 years.[41] We begin our analysis by aggregating all matched data across counties and presenting the results in Figure E.1 The figure shows the relationship between oil and gas revenues and property tax assessment values, plotted on a log scale for each year.

The advantage of presenting the data on a log-log scale is that the slope of a fitted line can be interpreted as a percentage-on-percentage relationship. For example, if log revenue increases

[41] We exclude county-year observations where either revenue or tax data is missing: Sutter County in 2006, Tehama County in 2011, and Colusa, Glenn, San Joaquin, Sutter, and Tehama Counties in 2020. Sutter and Tehama are also excluded in 2021.

Figure E. 2 Elasticity Estimates for Each County



from 23 to 24 and log assessed value increases from 24 to 25, this implies that a 10% increase in revenue corresponds to a 10% increase in the assessed value of oil and gas properties.

In our data, the estimated slope—or elasticity—is 0.74. This means that for every 10% change in revenue to the oil and gas sector, there is approximately a 7.4% change in the assessed value of the associated land parcels.[42] The 95% confidence interval for this elasticity ranges from 0.53 to 0.94—suggesting that a 10% decrease in revenue is associated with somewhere between a 5.3% and 9.4% decrease in assessed property values.[43] A version of Figure E.1—showing log revenue and log assessed value over time—is presented for each of the 11 counties in our sample in Appendix Figures H.23 through H.33.

[42] Our time series regression suggests no issues with non-stationarity. The Dickey-Fuller test rejects the null hypothesis of a unit root, with a p-value less than 0.05.
[43] We also estimated this elasticity using a panel data framework. These models produced similar results and no apparent precision gains.

We now turn to examining this relationship at the individual county level. Figure E.2 summarizes the elasticity estimates obtained by analyzing each county separately (See Figures H.34-H.44 for county level estimates of the relationship between assessed value and tax revenue).

In Figure E.2, we observe some variability in the relationship between oil and gas revenue and assessed property values across counties. However, a common pattern emerges: the estimated elasticity typically falls between 0.5 and 1.0. Glenn County stands out as a higher outlier, while Solano County appears as a lower one. Kern County—central to the analysis and the most significant in terms of both production and revenue—is unsurprisingly close to the overall mean elasticity observed when aggregating across all 11 counties. It should be noted that we failed to reject a null of a unit root for three counties: Fresno with a Dickey-Fuller p-value of 0.143, Los Angeles with a Dickey-Fuller p-value of 0.056, and finally Sutter, with a Dickey-Fuller p-value of 0.344.

APPENDIX F. CONCENTRATION IN CALIFORNIA'S REFINING SECTOR

The California Energy Commission reports the capacity of each refinery, which is summarized in Appendix Table F.1. The table also shows each refinery's share of capacity by assigned region.

It is important to note the economic context of the refinery industry in California. Economists summarize how concentrated a market is with the Herfindahl-Hirschman Index (HHI), calculated by summing the square of each firm's share in a market. HHI is used by antitrust authorities to classify how competitive a market is, which can be used to determine whether regulators will scrutinize a merger. The 2023 Merger Guidelines, (U.S. Department of Justice and Federal Trade Commission 2023), refers to markets as "concentrated" when HHI exceeds 1000, "moderately concentrated" at 1800, and "highly concentrated" at 1800.[44] Concentrated production reduces consumer options and can allow firms to exercise market power, raising prices and harming consumers. Indeed, previous work has studied the effects of concentration in oil and gas refining in California, providing evidence of increased firm concentration increasing wholesale prices by 65% in Los Angeles (Moss 2008), motivating a report by the office of the California Attorney General (Attorney General's Task Force on California Gasoline Prices 2000). This increased concentration was caused by a joint venture between Texaco and Shell, which attracted the scrutiny of the Federal Trade Commission, ultimately leading to a settlement that included a onsent order requiring some divestiture (Federal Trade Commission 1998).

[44] Footnote 15 in the document states: "These guidelines referred to mergers with HHI above 1,000 as concentrated markets, with HHI between 1,000 and 1,800 as "moderately concentrated" and above 1,800 as "highly concentrated," while they referred to an increase in HHI of 100 as a "significant increase."

Table F.1 California Oil Refineries: Capacity and Concentration by Region

Refinery Name	Barrels/Day	Percentage of Region	Percentage Squared/ HHI
Southern California			
Marathon Petroleum Corp., Los Angeles Refinery	365,000	33.94%	1,151.77
Chevron U.S.A. Inc., El Segundo Refinery	269,000	25.01%	625.58
PBF Energy, Torrance Refinery	160,000	14.88%	221.46
Phillips 66, Los Angeles Refinery	139,000	12.93%	167.27
Valero Energy, Wilmington Refinery	85,000	7.90%	62.42
Kern Energy, Bakersfield Refinery	26,000	2.42%	5.86
San Joaquin Refining Co., Bakersfield Refinery	15,000	1.39%	1.94
Lunday Thagard, South Gate Refinery	8,500	0.79%	0.62
Valero Wilmington Asphalt Refinery	6,300	0.59%	0.35
Talley Asphalt Inc., Kern Refinery	1,700	0.16%	0.03
Total	1,075,500	100%	HHI=2237.30
Northern California			
Chevron U.S.A. Inc., Richmond Refinery	245,271	44.87%	2012.98
PBF Energy, Martinez Refinery	156,400	28.61%	818.51
Valero Energy, Benicia Refinery	145,000	26.52%	703.53
Total	546,671	100%	HHI=3534.99

Source: UC Merced Community and Labor Center analysis of refinery capacity and location data from the California Energy Commission (CEC).

By the same logic, when there are fewer options for workers, firms may possess the power to pay lower wages than they would in a competitive market. The 2023 Merger Guidelines also provide direction in this dimension: "The Agencies will consider whether workers face a risk that the merger may substantially lessen competition for their labor" (U.S. Department of Justice and Federal Trade Commission 2023).

During 2025 and 2026 there are two expected refinery closures: the Phillips Refinery in Southern California and the Valero Refinery in Northern California. These two closures will increase the HHI by almost 500 to around 2730 Southern California and by around 1700 points 5243 in Northern California.

APPENDIX G. OIL AND GAS EMPLOYMENT

Table G.1 Workers in Occupational Titles Concentrated in the Oil and Gas Industry

Occupational Title	Kern County	LA County	CC & Solano	Rest of CA	Total
Miscellaneous plant and system operators	213	904	614	692	2,423
Surface mining machine operators and earth drillers	152	269	84	1,043	1,548
Other extraction workers	803	94		413	1,310
Chemical engineers	53	447	276	434	1,210
Derrick, rotary, & service operators; & roustabouts, oil/gas/mining	566	150	116	275	1,107
Petroleum, mining and geological engineers	396	162	39	223	820
Underground mining machine operators	254	87		240	581
Pumping station operators	203	16	37	238	494
Control and valve installers and repairers		209	10	236	455
Crane and tower operators	247			205	452
Geoscientists and hydrologists, except geographers	188	70	17	124	399
Environmental science, geoscience, and nuclear technicians	87	126	38	71	322
Explosives workers, ordnance handling experts, and blasters		240		23	263
Conveyor, dredge, and hoist and winch operators	205			26	231
Riggers	130			0	130
Total	3,497	2,774	1,231	4,243	11,745

Source: UC Merced Community and Labor Center analysis of American Community Survey (ACS) 2019-2023 microdata.

APPENDIX H. OIL AND GAS PRODUCTION, REVENUE, EMPLOYMENT, & TAX ASSESSMENTS

Oil and Gas Production

Figure H. 1 Oil and Gas Production

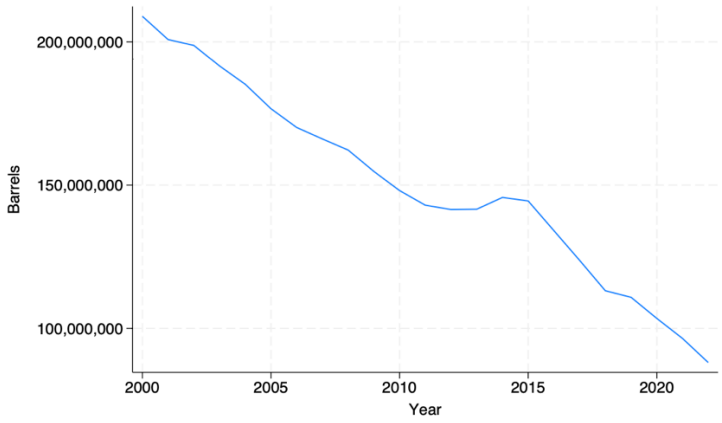


Figure H. 2 Projected Oil Production in California

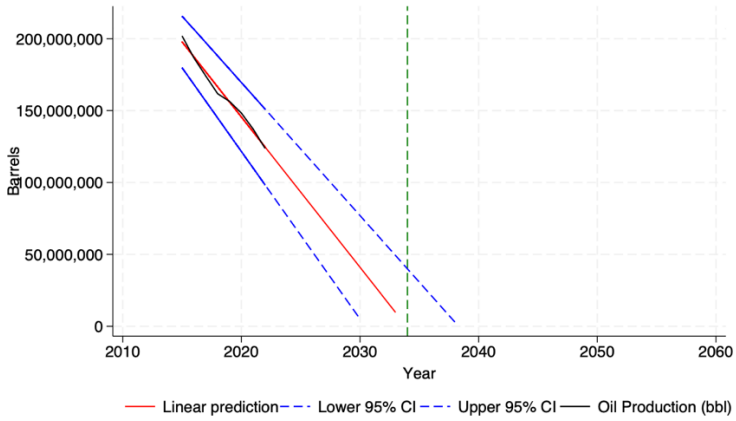


Figure H. 3 Gas Production (Total)

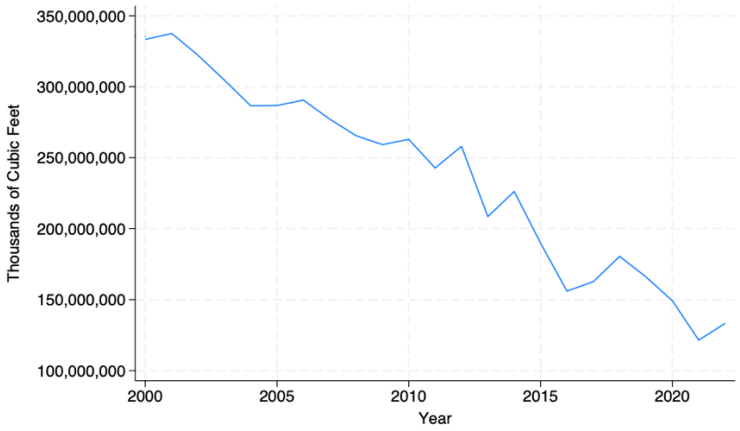


Figure H. 4 Gas Production (Associated)

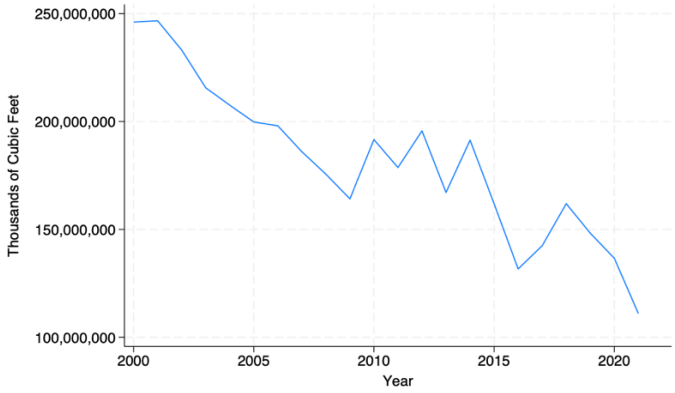
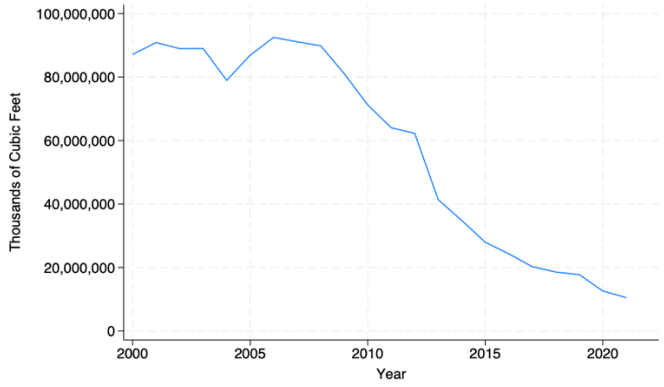


Figure H. 5 Gas Production (Non-Associated)



Oil and Gas Prices and Revenue

Figure H. 6 Gas Price

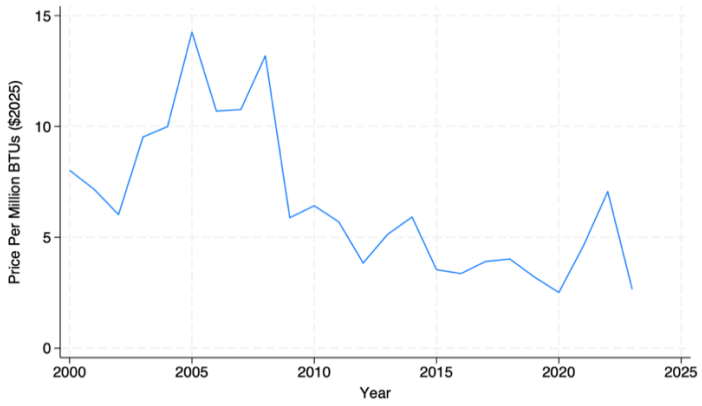


Figure H. 7 Oil Revenue in California

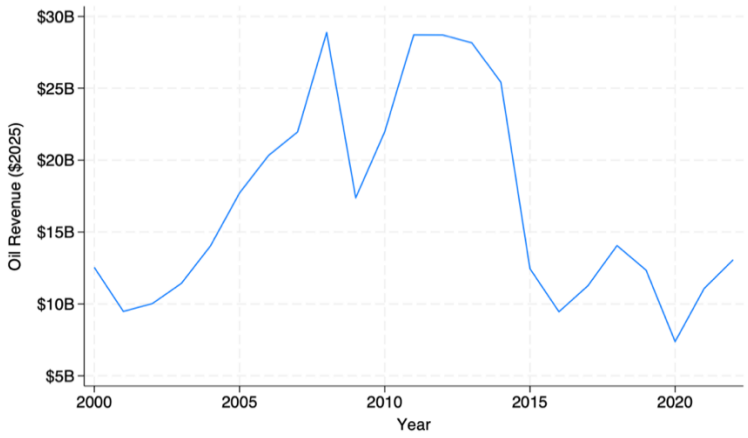


Figure H. 8 Gas Revenue in California

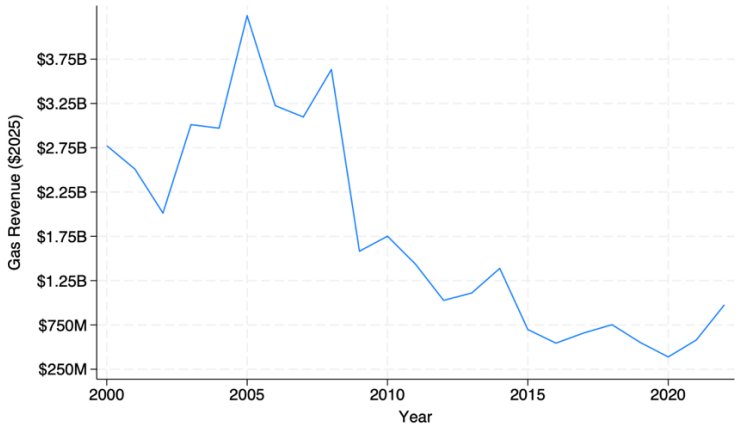


Figure H. 9 Oil and Gas Revenue in Kern County

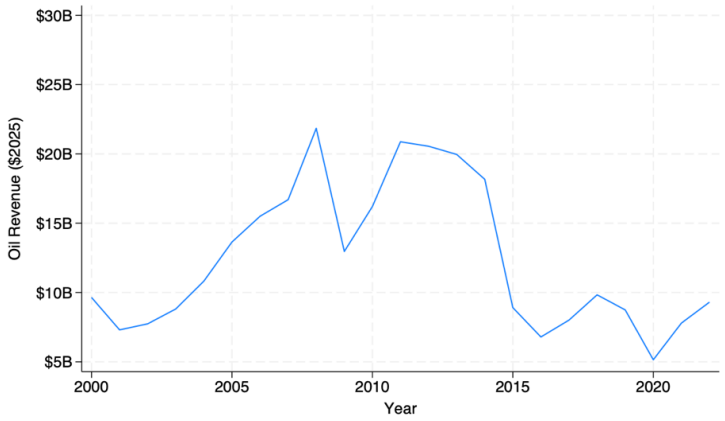


Figure H. 10 Oil Revenue in Kern County

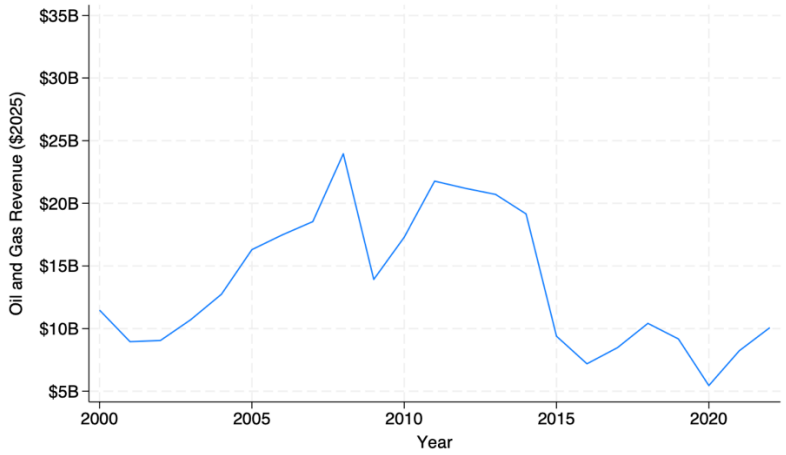
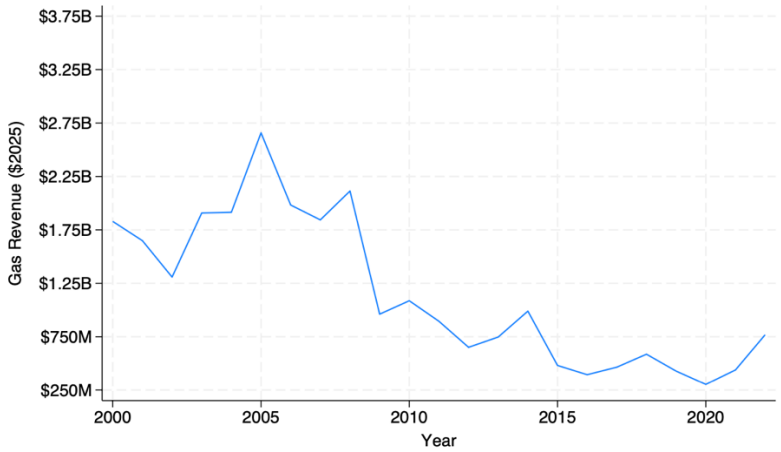


Figure H. 11 Gas Revenue in Kern County



Oil and Gas Employment

Figure H. 12 California Oil and Gas Industry Employment (Including Gas Station Workers)

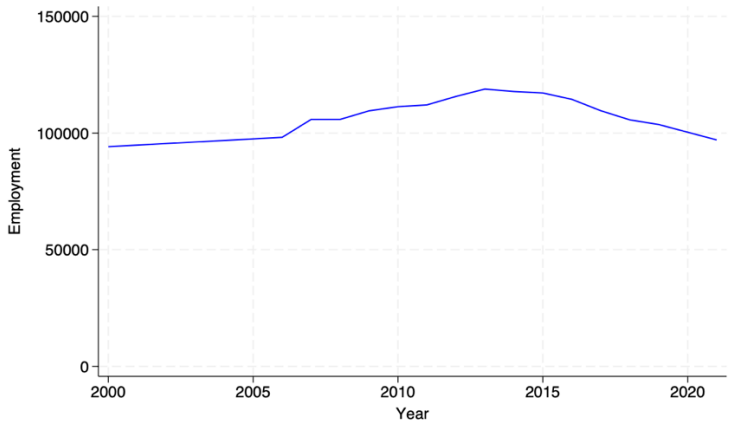


Figure H. 13 Concentrated Employment in California's Oil and Gas Industry

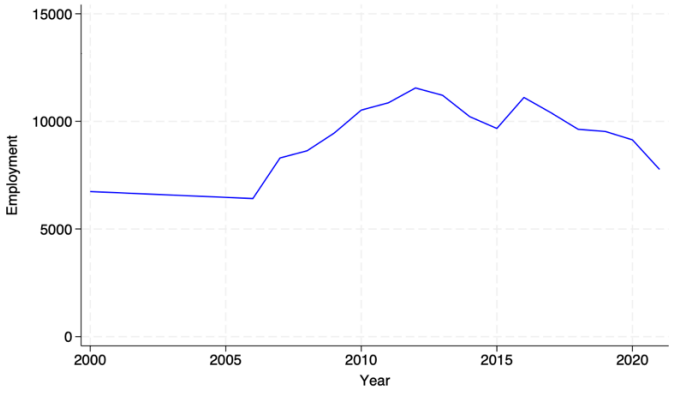


Figure H. 14 Kern County Oil and Gas Industry Employment (Including Gas Station Workers)

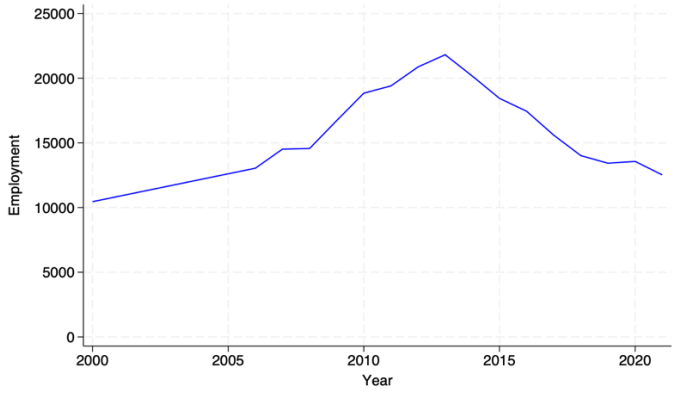


Figure H. 15 Los Angeles County Oil and Gas Industry Employment (Including Gas Station Workers)

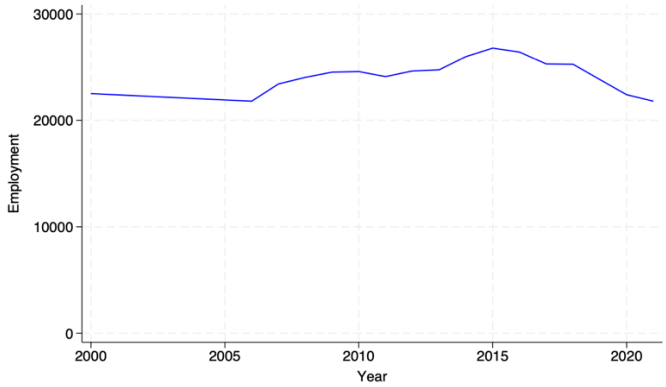


Figure H. 16 Contra Costa County and Solano County Oil and Gas Industry Employment (Including Gas Station Workers)

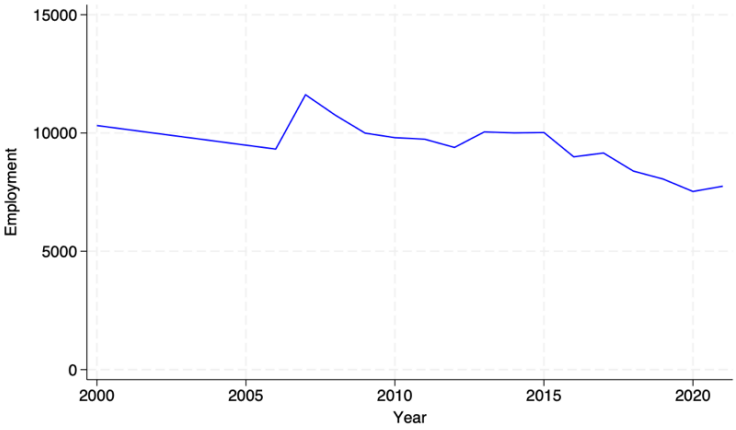


Figure H. 17 Employment in California by Sector, Ages 18-35

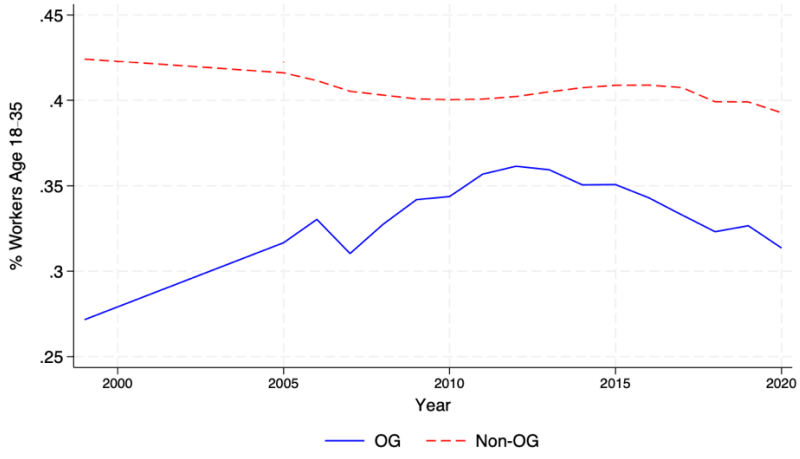


Figure H. 18 Employment in California by Sector, Ages 36-50

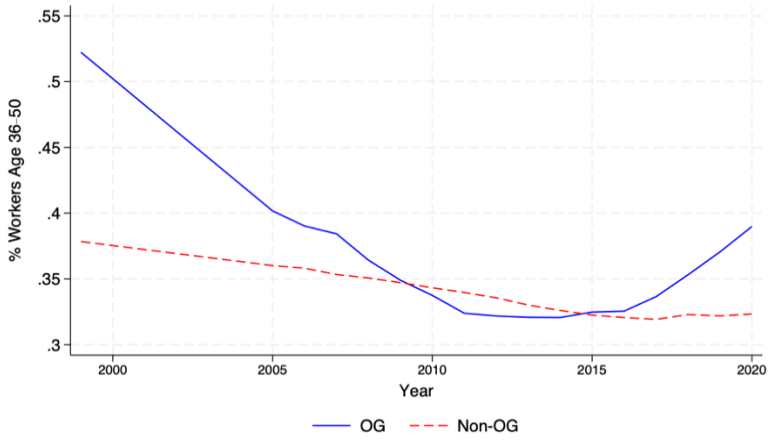


Figure H. 19 Employment in California by Sector, Ages 51-65

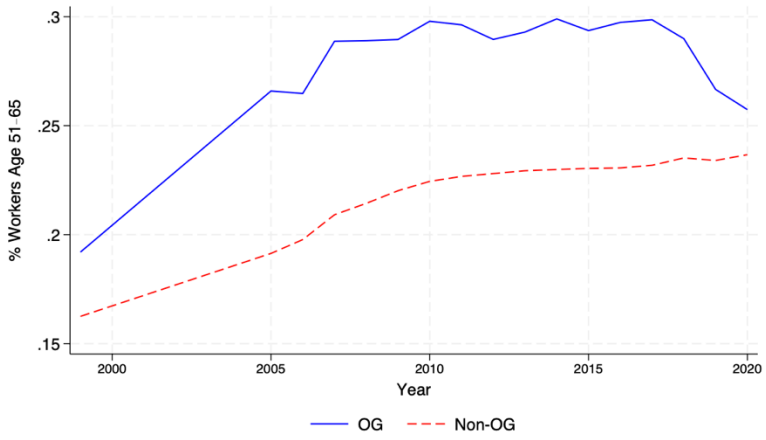


Figure H. 20 Earnings Premium Over Life (No Phase-Out

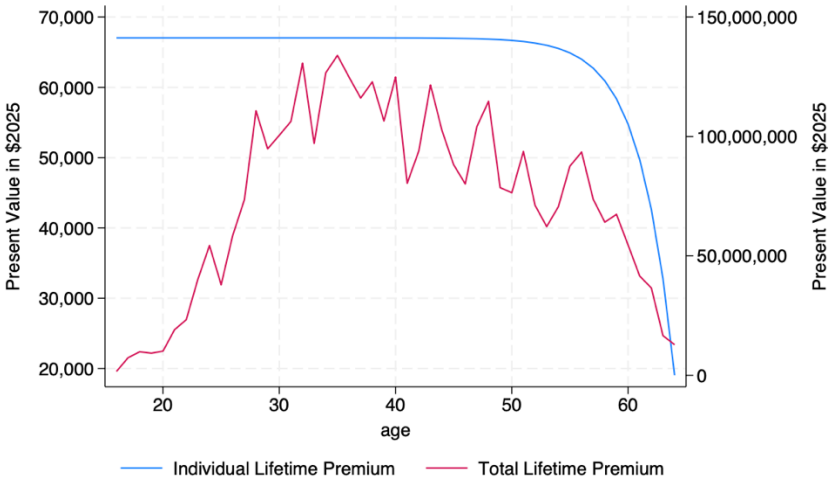


Figure H. 21 Earnings Premium Over Life (No Separations)

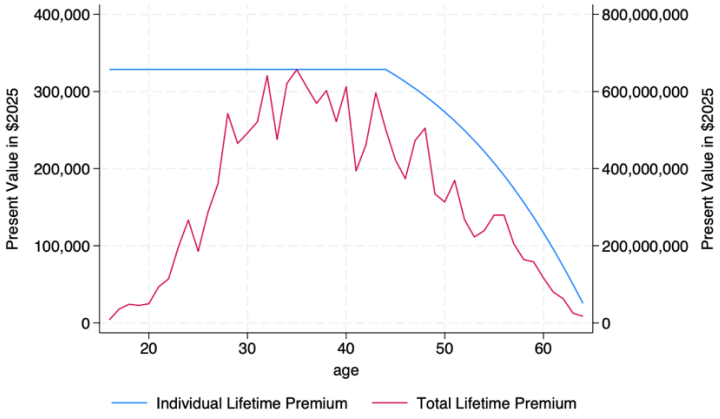
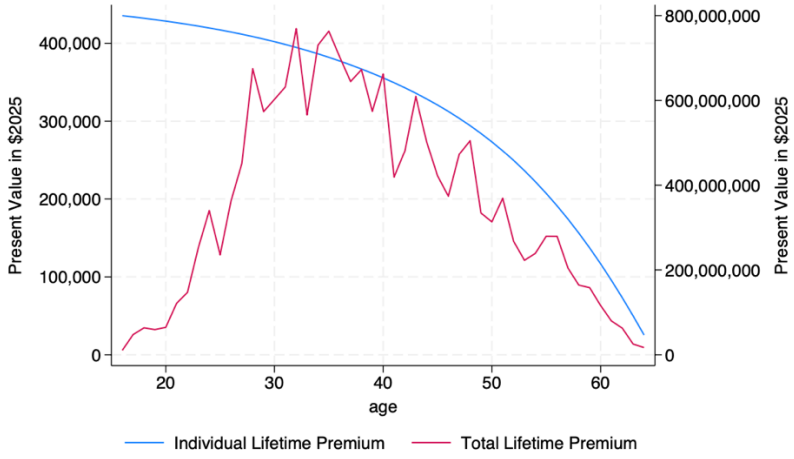


Figure H. 22 Earnings Premium Over Life (No Separations nor Phase-Out)



Oil and Gas Property Tax Assessments, by County

Figure H. 23 Colusa County Oil and Gas Property Tax Assessments

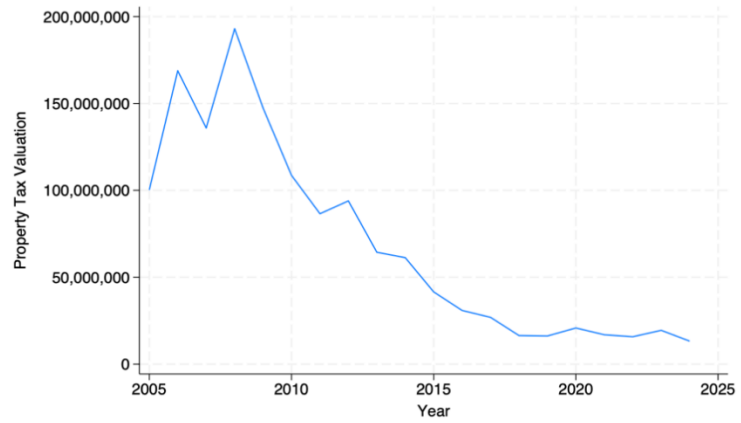


Figure H. 24 Fresno County Oil and Gas Property Tax Assessments

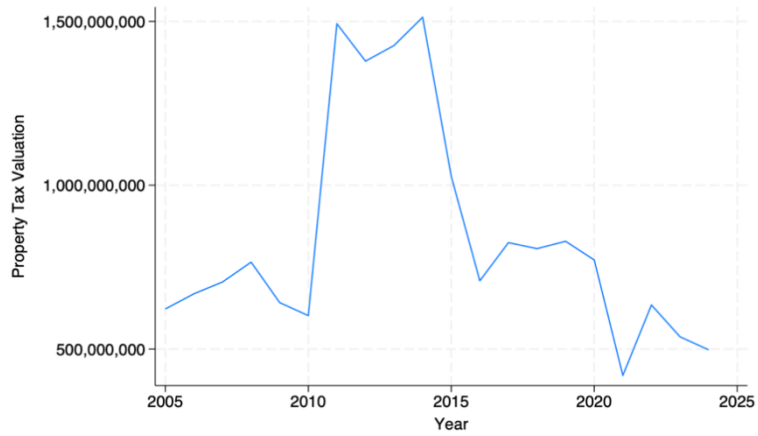


Figure H. 25 Glenn County Oil and Gas Property Tax Assessments

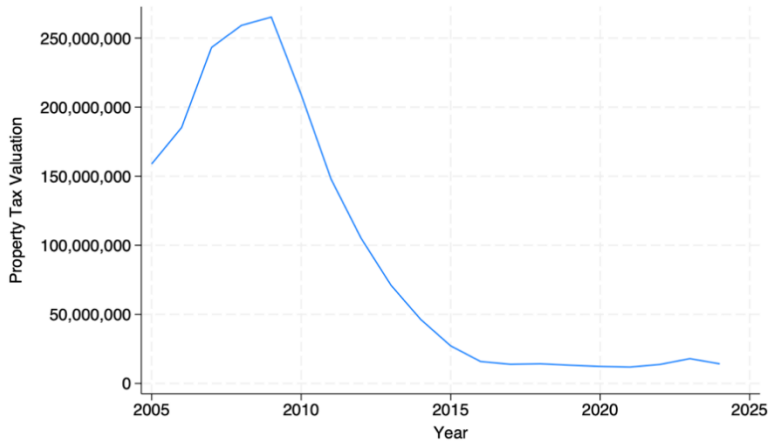


Figure H. 26 Kern County Oil and Gas Property Tax Assessments

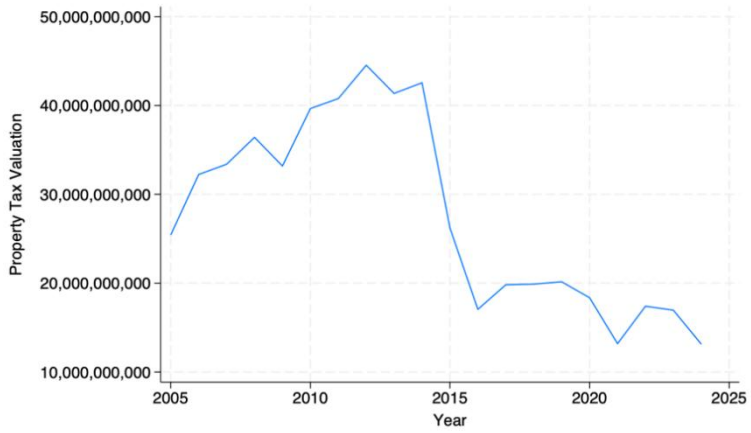


Figure H. 27 Los Angeles County Oil and Gas Property Tax Assessments

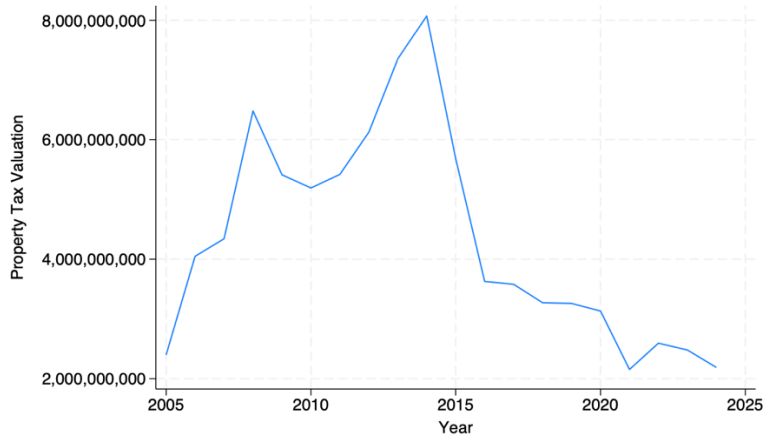


Figure H. 28 Monterey County Oil and Gas Property Tax Assessments

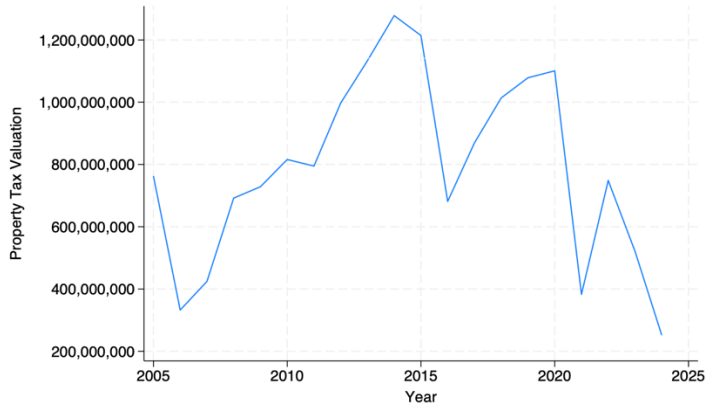


Figure H. 29 Sacramento County Oil and Gas Property Tax Assessments

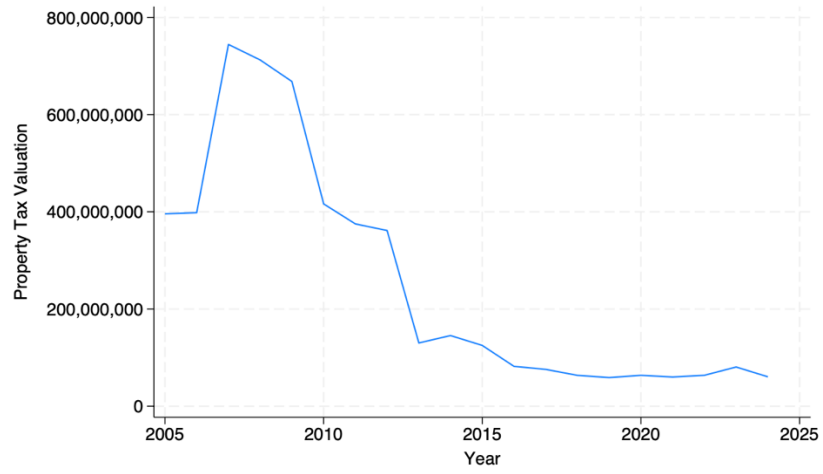


Figure H. 30 San Joaquin County Oil and Gas Property Tax Assessments

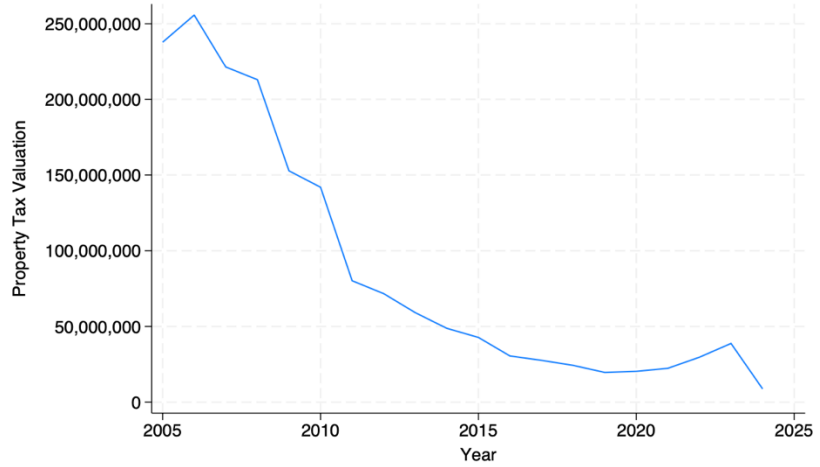


Figure H. 31 Solano County Oil and Gas Property Tax Assessments

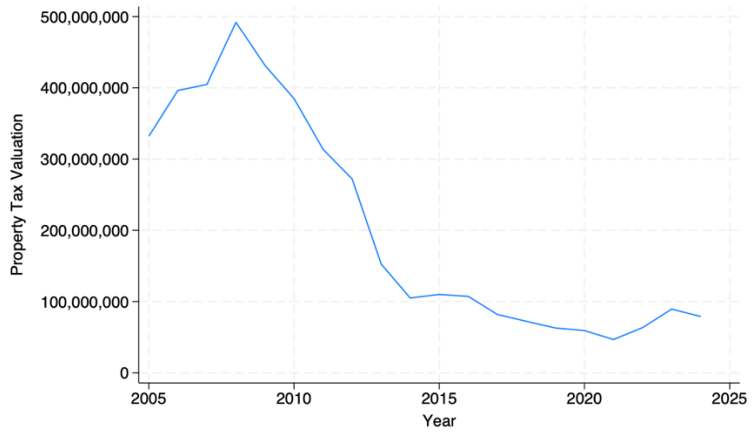


Figure H. 32 Sutter County Oil and Gas Property Tax Assessments

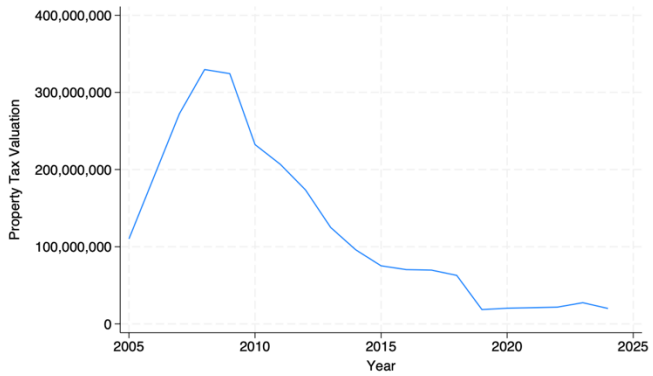
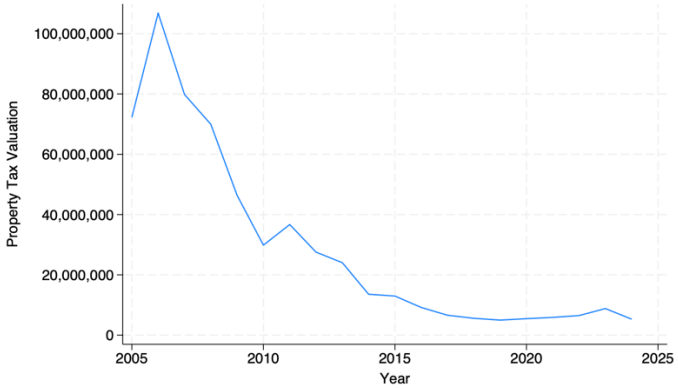


Figure H. 33 Tehama County Oil and Gas Property Tax Assessments



Oil and Gas Property Tax Assessments and Revenues, by County

Figure H. 34 Colusa County Tax Assessments and Revenue

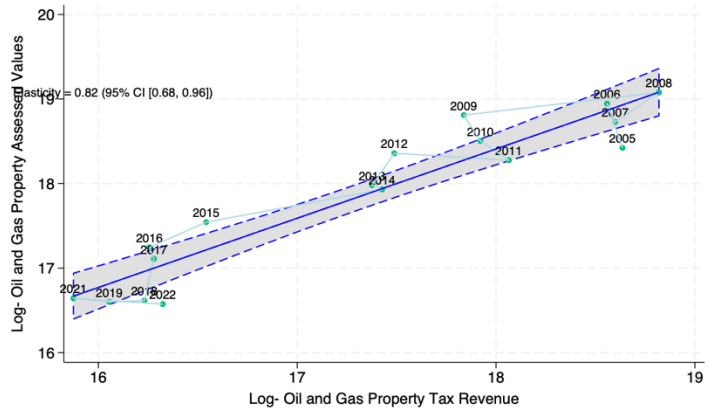


Figure H. 35 Fresno County Tax Assessments and Revenue

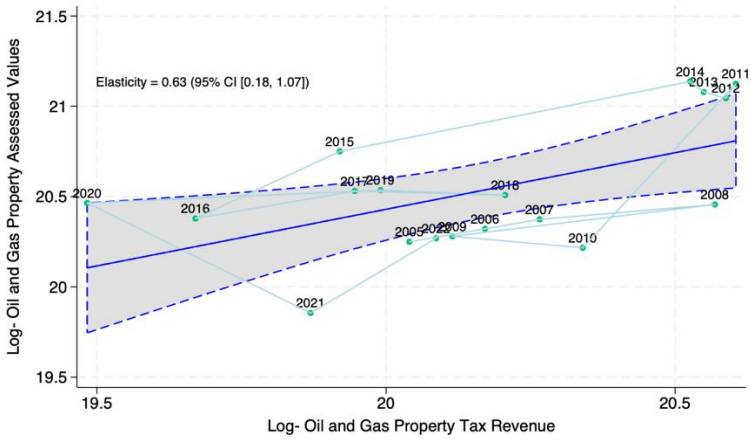


Figure H. 36 Glenn County Tax Assessments and Revenue

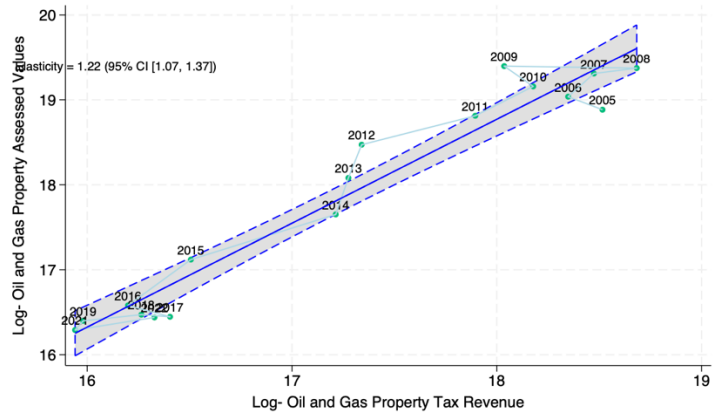


Figure H. 37 Kern County Tax Assessments and Revenue

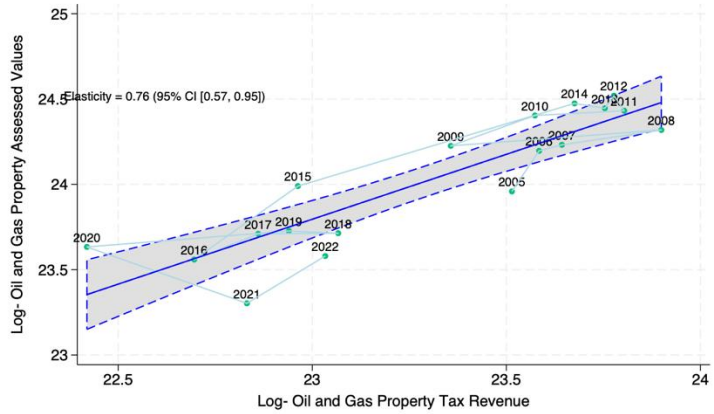


Figure H. 38 Los Angeles County Tax Assessments and Revenues

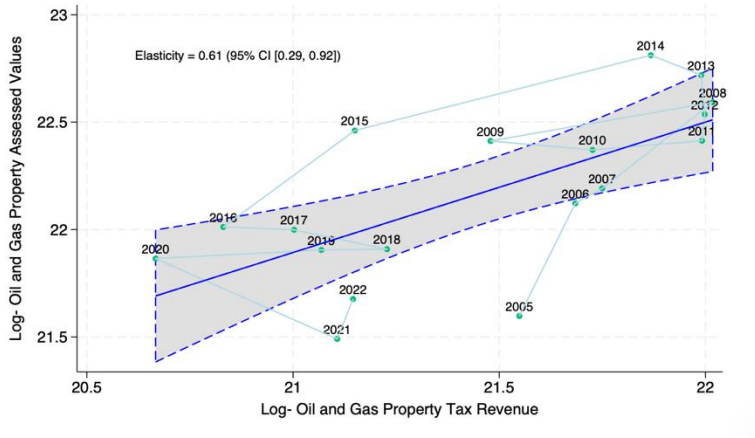


Figure H. 39 Monterey County Tax Assessments and Revenue

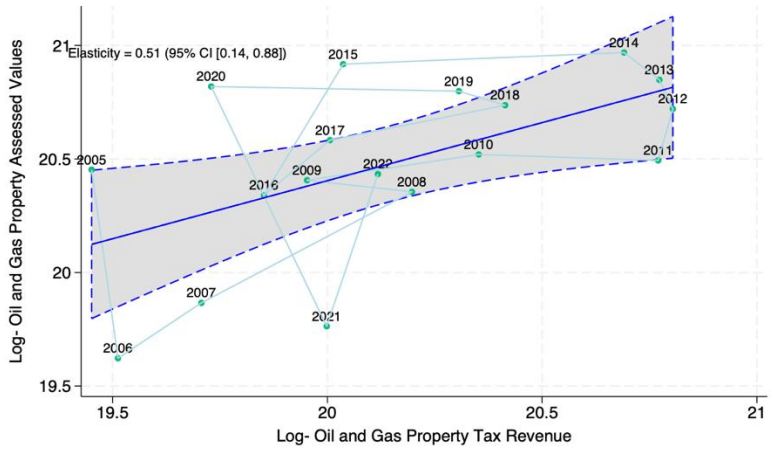


Figure H. 40 Sacramento County Tax Assessments and Revenue

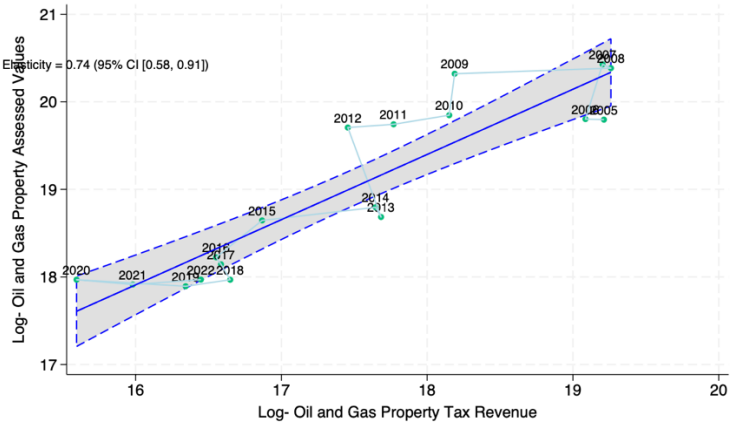


Figure H. 41 San Joaquin County Tax Assessments and Revenue

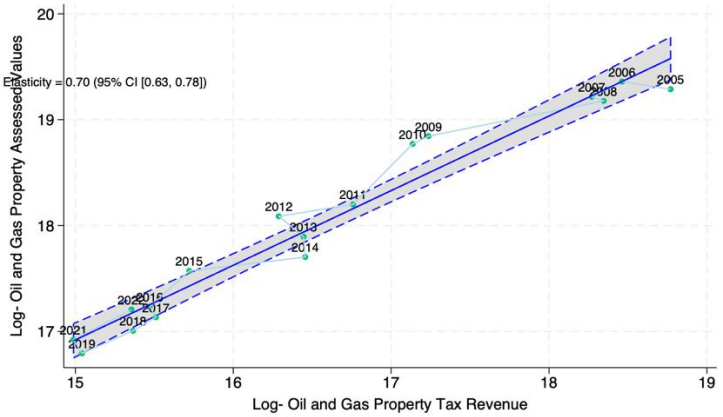


Figure H. 42 Solano County Tax Assessments and Revenue

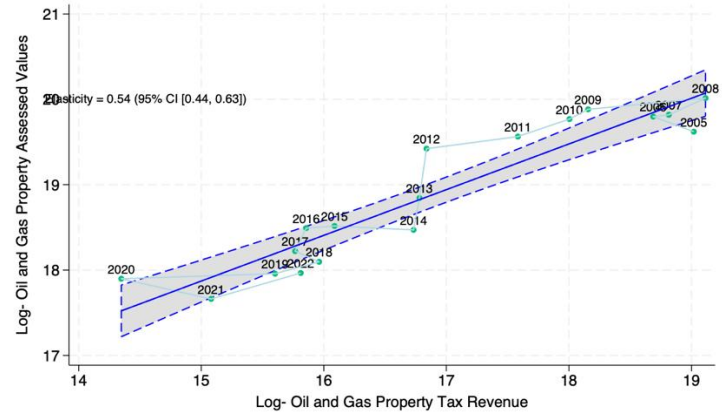


Figure H. 43 Sutter County Tax Assessments and Revenue

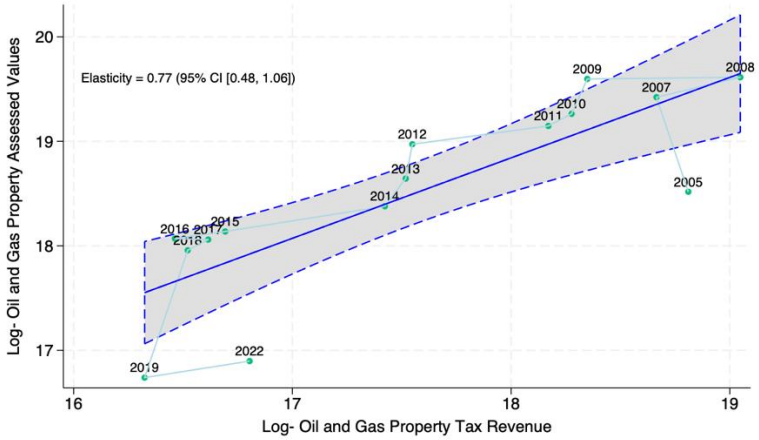
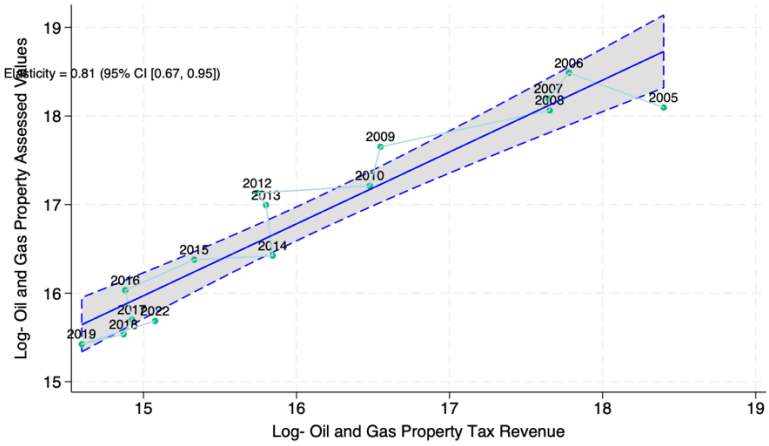


Figure H. 44 Tehama County Tax Assessments and Revenue



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MISSION STATEMENT

The UC Merced Community and Labor Center conducts research and education on issues of community, labor and the environment, in the San Joaquin Valley and beyond.