

An Impact Analysis of California’s State-County Assessors’ Partnership Agreement Program

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Abstract

California’s State-County Assessors’ Partnership Agreement Program (SCAPAP) provided select counties with a dollar-for-dollar matching grant from the state for assessment administration over a three-year period from fiscal year 2015 through 2017. One of the policy goals for the grant was to finance administrative activities that would lead to an increase in the property tax base, thereby increasing property tax revenue. This study evaluates how well the grant accomplished this goal. Using the synthetic control method on data from 2007 through 2018, I find little evidence SCAPAP funds increased participating counties’ property tax base. Since the purpose of the program is based on sound economic theory, I caution interpreting this conclusion as a reason to discontinue policy experimentation.

Introduction

The California Legislature enacted a three-year pilot program called the State-County Assessors’ Partnership Agreement Program (SCAPAP) effective in fiscal year 2015.¹ The program provided a dollar-for-dollar grant to eight counties. SCAPAP had two policy goals: (1) to help assessors finance administrative activities that would increase property tax revenue; and (2) to stimulate county spending in assessment administration. This study evaluates the success of the grant in achieving the first goal.

The rationale for the state investing in local property assessment administration is rooted in Propositions 13 and 98, two constitutional amendments with disparate policy objectives that combine to create a fiscal externality on the state budget. County boards of supervisors may make additional appropriations for local assessment administration equal to the additional expected revenue generated by the appropriations, but from the state’s perspective this funding level may be inadequate. Because Proposition 13 imposes a fixed one percent property tax rate for general government purposes, counties cannot raise property tax revenue fast enough to pay

¹ Fiscal years are July through June with the year denoted in the text indicating the year in June. Thus, fiscal year 2015 is the period from July 2014 through June 2015.

for changes in administrative workloads, which state lawmakers believe results in escaped assessments—that is, taxable value that assessors fail to enter on the tax roll.² Under Proposition 98, every local property tax dollar that falls short of the statewide per pupil minimum is a dollar the state must allocate from its general fund in order to meet the minimum. Hence, assessment administration may be efficiently funded at the local level but still impose a cost on the state budget.

The economic wisdom of SCAPAP, then, rests on whether a dollar in grant money generates more than a dollar in additional local property tax revenue. If one state dollar generates more than one local dollar, the state saves money with the grant. However, if the grant stimulates *less than* a dollar in additional county property tax revenue, the state would be spending more than it saves, implying it is cheaper to make the additional payments to cover the per pupil minimum. It is an empirical question whether the grant generates more in property tax revenue than it is worth, and I test for a revenue impact using the synthetic control method (SCM) on countywide property tax base data from 2007 through 2018. The impact of SCAPAP is the difference between actual SCAPAP counties (treated) and their synthetic SCAPAP counterparts (untreated), the latter being an estimate of what the tax base would have looked like in participating counties had they not participated. The data indicate that SCAPAP failed to increase participating counties' assessed values. While this implies the state wasted its money, the rationale for the program rests on sound economic theory, and I hope the legislature continues its willingness to experiment with different grant design programs.

The remainder of the paper is organized as follows. The next section discusses assessment administration performance and funding strategies in broad terms. I also include a brief review of relevant assessment administration research on these topics. I follow this by providing more detailed information on assessment administration in California, focusing on the unique policy characteristics of the state that give rise to state lawmakers' concern that counties underfund assessors. After a detailed discussion of the study's research design, I present the results of my analysis. The paper closes with a brief summary and discussion.

Assessment Administration Performance and Funding

As the focus of this study is on assessment administration performance and funding in California, it is useful to place the state within the broader national context. To that end, in this section I first briefly review academic literature exploring the funding-performance nexus. I then discuss state-level variation in how assessors are funded with the goal of highlighting the likely impact of Proposition 13.

² A trivial example of an escaped assessment is a new home with an unfinished basement. If at some future date the owner finishes the basement for use other than storage but fails to alert the assessor, the owner will pay no taxes on the marginal increase in market value due to the basement conversion. This value has escaped the assessor, and subsequent discovery will prompt a supplemental property tax bill. If instead of a basement conversion it has always been finished but this fact was unknown to the assessor—perhaps because a physical inspection of the property was never made or the building permits erroneously indicated the basement was unfinished—the marginal assessed value due to the finishing has again escaped the assessor, though not because of property owner evasion.

Assessment Administrative Performance

Assessment administration is a public service with the singular purpose of determining the property tax base, and among assessors' core activities are inventorying, listing, and valuing property within their respective jurisdictions. As the International Association of Assessing Officers notes, assessors require a minimum funding level in order to carry out their core responsibilities. To the extent lawmakers and residents desire accuracy and fairness in executing these core functions over time, though, additional funding is necessary (International Association of Assessing Officers Technical Standards Committee, 2014).

The potential effects of underfunding assessment administration have been documented in empirical research. Eom (2008) found in a study of New York assessing jurisdictions that assessment budgets positively predict assessment uniformity—that similar properties were more likely to be assessed similarly in jurisdictions providing assessors more budgetary resources compared to those given less. Propheter (2016a) corroborates this finding in Washington state as did Lloréns-Rivera (1996) from a sample of over 400 assessing jurisdictions throughout the US. Lowery (1982b) also finds support for budgets positively predicting assessment quality in Michigan despite using a different measure of performance—the assessment-sales ratio—compared to the other studies.

However, other studies have suggested that assessment quality is not determined by funding considerations alone. Institutional factors matter as well. For instance, scholars have explored administrative differences vis-à-vis assessment quality and cost efficiency between elected and appointed assessors (Kim, Chung, and Eom, 2020; Makowsky and Sanders, 2013; Propheter, 2016b; Ross, 2011, 2013; Lowery, 1982b, 1984) as well as between contracted and in-house assessments (Bowman and Mikesell, 1978, 1986; Carver, 1989; Lowery, 1982a; Mikesell, 1987; Ross, 2012). Despite the volume of research in assessment administration performance, though, there is no consensus on how these factors predict performance, which may not be surprising since nearly every study focuses on assessing jurisdictions in a single state. Since state laws and professional practices vary across the country and over time, generalizing assessment administration too much from one state to another is often unreasonable (Propheter, 2016a).

Curiously, scholars have not evaluated property assessment administration performance in California, and I speculate this is because Proposition 13 fundamentally changed the nature of assessment administration in the state. In most states, properties are revalued to market value on a regular basis, allowing for the creation of benchmarks to evaluate assessment quality.³ Before Proposition 13, California was no different. Counties assessed properties to market value every three to seven years, and the Board of Equalization annually took samples of counties' tax rolls

³ Three metrics are common: the median assessment-sales ratio (ASR), the coefficient of dispersion (COD), and price-related differential (PRD). The ASR is a ratio of the assessed market value to sales price, and the median value in a jurisdiction is an indicator of the median assessment's precision. The COD measures the variation in ASRs around the median ASR. Larger values of the COD indicate a distribution of ASRs that vary from the median more widely—the distribution spreads. Smaller values indicate a narrowing distribution. As such, the COD indicates how similar properties are assessed. If all single-family homes had the same ASR, there would be no variation in ASR around the median (since all homes were assessed equally), and the COD would equal zero. As the COD value increases, there is greater variation around the median. The PRD measures vertical inequities in assessments, whether higher valued properties are undervalued or overvalued relative to lower valued properties.

for sales-ratio studies to measure assessment accuracy and uniformity.⁴ Proposition 13, however, replaced periodic revaluation to market prices with revaluation to sales price only at the time of an eligible ownership transfer, and it further imposed assessment growth limits such that between sales a property's assessed value cannot exceed two percent of the prior year's value. These provisions render moot common measures of assessment quality. In addition, since assessed values now bore little resemblance to market values in most years, the provisions also eliminated much of the appraisal expertise required to value properties fairly.⁵ As a result, Proposition 13 eliminated much of the professional judgement and technical training needs that has historically defined the assessment administration task (Welch, 1991).

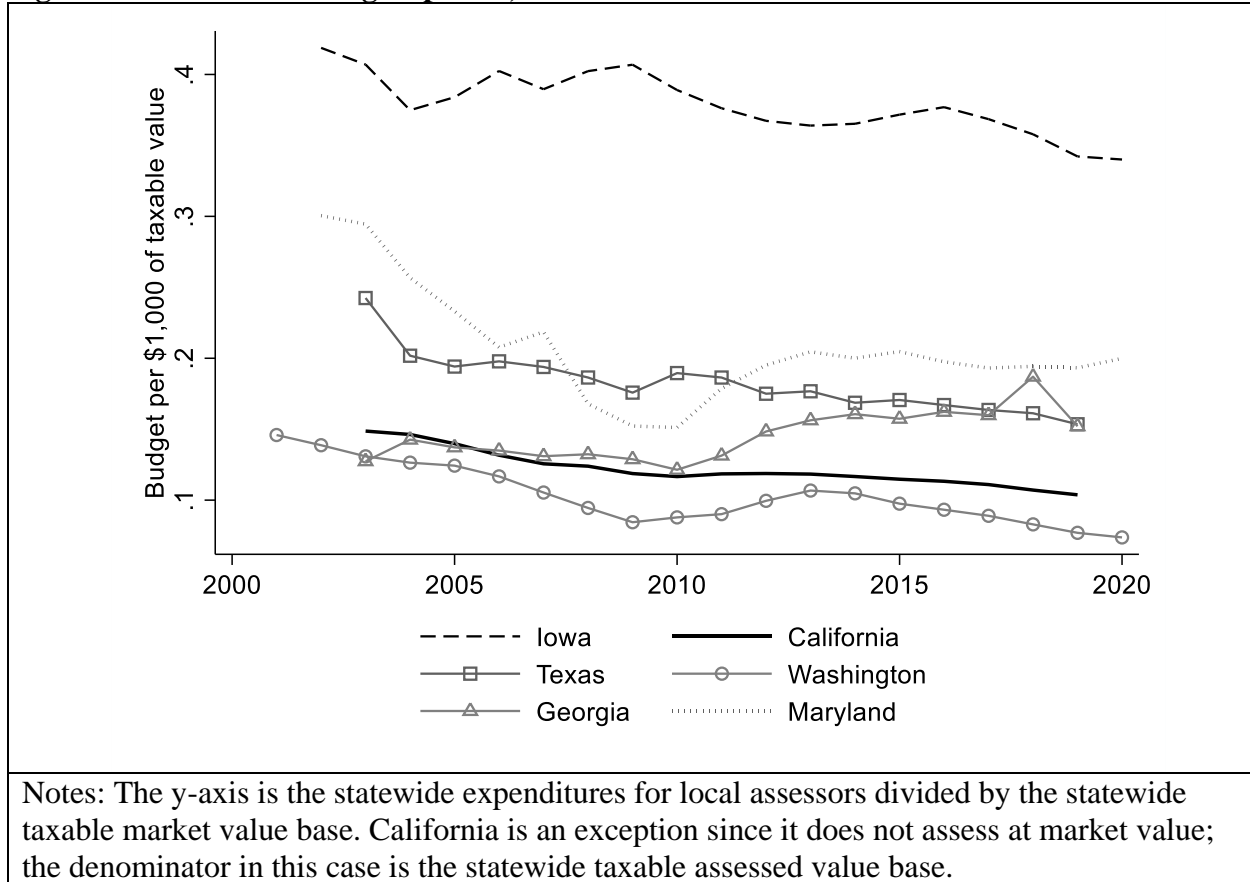
Assessment Administration Funding Across the US

In addition to changing how assessment performance could be evaluated, Proposition 13 also changed how assessment administration in California is funded over time. Before Proposition 13, counties would set property tax rates necessary to finance expected expenditures. Subject to budgetary politics, then, assessors would receive the funds necessary to meet their expected workloads. The fixed one percent property tax rate and the limit on assessed value growth imposed by Proposition 13 restricts assessors' options for meeting increasing workloads by thinning the total pool of property tax dollars to the county. Though the tax rate limit does not apply to assessment administration specifically, every budgetary dollar appropriated to assessors is a dollar not spent on another county function. That is, each additional dollar allocated to assessment administration becomes more expensive in terms of foregone alternative public services, making it increasingly less likely assessors will receive an additional appropriated dollar to spend.

⁴ The law requiring periodic revaluation was Assembly Bill 80 (1967), which was a legislative response to assessor corruption scandals occurring throughout the state including in San Diego, San Francisco, and Alameda counties. Assembly Bill 80 also required that all counties tax at 25 percent of market value. Had Proposition 13 not passed, state legislation would have compelled all counties to revalue each property at least once every five years (Assembly Revenue and Taxation Committee, 1979).

⁵ After Proposition 13, state law turned the board into an administrative monitor. Board personnel evaluate county assessors' practices every five years, and sometimes as part of the audit of practices the board will take a sample of properties from the roll for closer scrutiny. The difference between the board's opinion and the county assessor's opinion cannot be more than five percent. If the difference is greater than five percent, the county cannot recover costs to administer the supplemental assessment roll.

Figure 1: Assessment Budgets per \$1,000 of Taxable Assessed Value



To demonstrate the potential impact of Proposition 13, I collected statewide assessor budgets from five states in addition to California: Georgia, Iowa, Maryland, Texas, and Washington. I chose these five states for comparison because, first, they are illustrative of the variation in assessment administration financing strategies employed throughout the country, and, second, there is variation in terms of state-level tax and expenditure limitations. To be sure, I am not arguing that California should adopt a financing system like these other states. I am simply drawing attention to the role tax and expenditure limitation systems like Proposition 13 may have on funding assessment administration. For the six states, I plotted the statewide assessment budget against taxable assessed value over time, as detailed in Figure 1. Since states assess property at different percentages of market value, I express the denominator in 100 percent market value terms. This adjustment is not possible for California given that Proposition 13 does not allow for fair market valuations for all property, only those that sell at the time of sale. However, it is safe to evaluate the California figure as an upper limit, because due to Proposition 13, market values are almost certainly greater than assessed values.

In order to appreciate the differences in assessment budgets, the following information about each state is useful:

- **Georgia:** Each county has a Board of Tax Assessors that either performs assessment administration or oversees a tax assessor that does so. Boards are department-level entities that receive funding from county general fund appropriations. Georgia imposes no tax or

expenditure limitations on local governments. Thus, subject to local budgetary politics, assessment administration expenditures can rise and fall as needed. Georgia law requires listing property annually, but assessors are allowed to undertake countywide revaluations at their discretion. All property is taxed at 40 percent of market value.

- Iowa: Assessment administration is a county function in most of the state, except in seven cities where it is a municipal function. (State law allows any city with more than 10,000 residents to establish a city assessor in lieu of a county assessor.) Assessors are appointed by a Conference Board, a body comprising the county Board of Supervisors, the mayors of all incorporated cities in the county, and one member from each school district in the assessing jurisdiction. Unlike other states (as far as I am aware), assessors set their own budget and impose a direct levy on property owners to finance it. In other words, each property tax bill contains a line-item tax rate with the funds earmarked for assessment administration. While Iowa imposes no tax and expenditure limitations on local governments in general, the assessment administration tax rate cannot exceed \$0.675 per \$1,000 of value. Property is revalued every odd-numbered year, and properties are taxed at a percentage of market value that changes annually.⁶
- Maryland: Assessment administration is a state-level public service in Maryland. The governor appoints the Director of the Department of Assessments and Taxation. Each county has a supervisor of assessment, a state employee, that manages day-to-day assessing operations in field offices. Assessment administration is financed by state general fund appropriations, and the state has no tax and expenditure limitations. State law requires revaluing properties to market value at least once every three years.
- Texas: Assessment administration is a county-level function in Texas, one performed by Central Appraisal Districts (CAD), a government entity distinct from counties. Each CAD has boundaries coterminous with counties. (The exception is Potter-Randall CAD, which is a consolidated CAD serving Potter and Randall counties.) CADs are overseen by a board whose members are appointed by the taxing jurisdictions in their boundaries, and the board appoints the CAD chief appraiser, who is responsible for the day-to-day operations of the CAD as well as for assessment quality. CAD budgets are approved by the board. Like California, CAD budgets are financed by charging jurisdictions within the CAD boundaries a fee for assessment services. Unlike California, however, schools are not exempt from these fees. Texas imposes no tax or expenditure limits on local governments.⁷ State law requires revaluing properties to market value at least once every three years.

⁶ Iowa has an assessment limit but it is not calculated based upon an individual property's assessment growth but rather based upon the statewide growth. After assessing each property, assessors transmit tax rolls to the state. Officials sum the value across all assessing jurisdiction, and then determine what the statewide value should sum to with the assessment growth cap. The assessment cap varies by property type; for residential and agricultural property, for instance, the cap is 3 percent, for utilities, it is 8 percent. If the actual assessed values are greater than the capped values, the state calculates a ratio that scales back the actual values to equal the capped values—this is called the property tax rollback. Functionally, the rollback rate accomplishes the same goal as an assessment ratio but one that is calculated each year. In Georgia, for instance, all property is assessed at 40 percent of market value, a figure that is fixed over time. In Iowa, the assessment ratio (qua rollback rate) was 56.9180 percent for residential in 2018, down from 78.2516 percent in 1978. Colorado had a process similar to Iowa, but voters in November 2020 repealed the so-called Gallagher Amendment.

⁷ The state has a truth in taxation requirement that compels local governments to publish notices and hold hearings on proposed tax increases, but no law prevents local governments from increasing taxes.

- Washington: The most similar state to California in terms of assessment administration, assessors are countywide elected officials that receive budget appropriations from the county general fund, similar to California. Though the state has no tax rate or assessment growth limits, state law does impose a property tax expenditure limit on local governments with property tax levies not exceeding one percent of the prior year's levy. The property tax levy limit has the same effect of limiting property tax revenue but through the expenditure side rather than the rate/assessment side as in Proposition 13. State law allows counties to adopt different revaluation cycles. As of 2020, all but two counties revalue property at least once every six years; Chelan and Ferry counties revalue every four years.

These differences across the states help explain the patterns in Figures 1. California assessors receive the fewest dollars as a percentage of its property base second only to Washington. The difference on average, though statistically significant at the 90 percent level, is trivially small—less than two cents per \$1,000 of assessed value. That California and Washington fund assessment administration at comparatively low levels highlights the potential impact of property tax and expenditure limitations on assessor budgets. All of the other sampled states in comparison spend more on local assessment administration, and these states lack the same fiscal constraining features as California. Iowa is noteworthy for being the outlier, and perhaps this is due to its financing mechanism, which essentially allows assessors to set their own budgets and perhaps eschew budgetary politics to some extent.

It is important to note that I am only suggesting that California's relatively low funding levels for assessment administration (and local government services more generally) are due to Proposition 13. In a survey of Texas CADs, for instance, a state that lacks tax and expenditure limitations, appraisers indicated that budgets were less of an issue for producing accurate assessments (Johnson and Forgey, 2013). While it has been well-documented that Proposition 13 cut local budgetary resources by 30 to 40 percent, it does not follow that the patterns observed in Figure 1 are likewise due to Proposition 13. Evaluating such a claim would require a separate analysis outside the scope of this study.

Assessment Administration and Public Policy in California

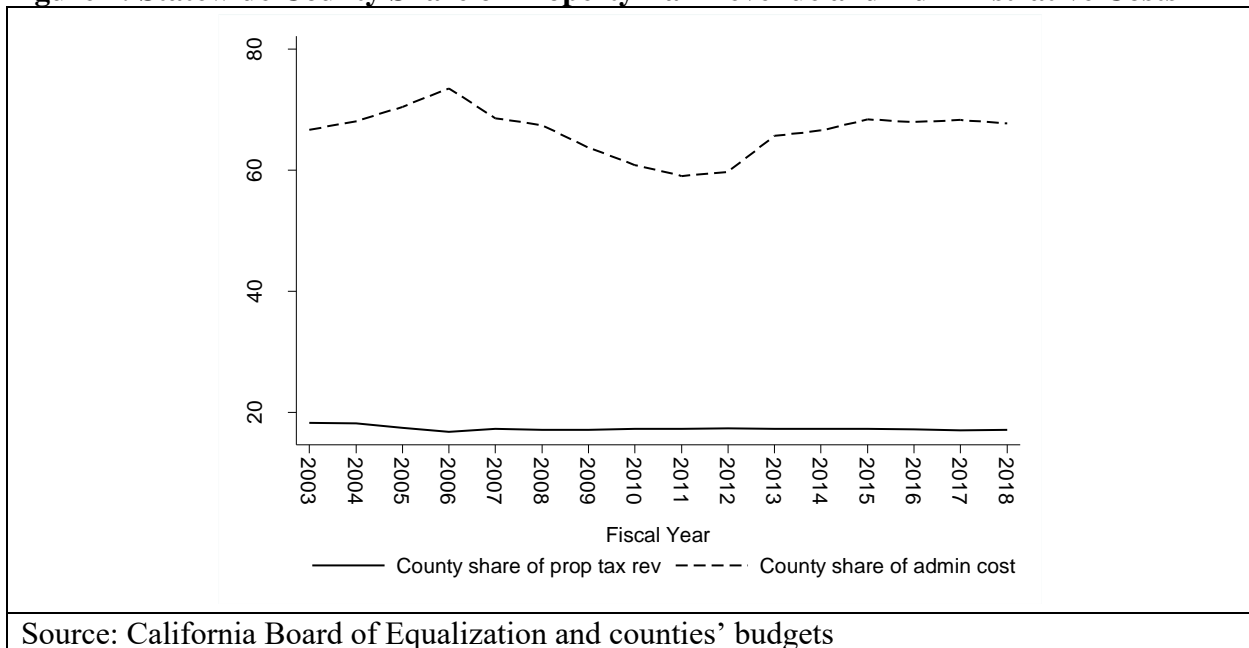
In the previous section I discussed assessment administration and its funding in broad terms to facilitate comparisons between California and other states. In this section, I provide greater detail about California specifically. I also discuss the state's interest in county spending on assessment administration and legislative efforts to resolve a budgetary externality imposed on the state general fund.

Property assessment administration is a county-level function in California, and the most important function of the assessor's office is to discover value and place it on the assessment roll for taxation. Doing this well depends on economic conditions, however (Propheter, 2014). Under Proposition 13, for instance, assessing new construction accurately is critical, since its value in the first year on the roll determines how much revenue the property will generate until it experiences an eligible ownership transfer.⁸ During periods of economic growth, new construction occurs at a quicker pace than usual. If assessors cannot hire sufficient labor to keep pace with the increase in construction, then existing staff appraiser workload increases, thereby increasing the likelihood of undervaluing new construction (Sheffrin and Sexton, 1998). This in

⁸ Most ownership transfers are reassessable events. However, under Proposition 19 (2020) some transfers do not trigger reassessment.

turn would translate into fewer property tax dollars than if the per appraiser workload were lower. Presumably, assessors would like greater financial freedom to hire staff as economic conditions dictate to ensure that all taxable assessed value is discovered and entered onto the roll accurately and timely as well as to have adequate resources to defend assessments on appeal. Proposition 13, though, is a formidable barrier to more responsive local governance (Barbour, 2007).

Figure 2: Statewide County Share of Property Tax Revenue and Administrative Costs



Adequate financing of assessment administration is further complicated by post-Proposition 13 state policies that placed the greatest burden of paying for assessments on counties. Counties only receive about 20 percent of all property taxes levied within their boundaries, but they pay about two-thirds of the cost to discover and maintain the assessed values used to determine the levies. Figure 2 displays trends of counties' share of property tax revenue and their share of assessment costs. Since 1990, state law has allowed counties to charge sub-county governments for assessment administration in proportion to their respective share of countywide assessed values, but school districts were exempted from these fees beginning in 1992.⁹ The fees were intended to allow counties to recover some of the funds the Proposition 13 one percent tax rate limit took away, and exempting schools shifted their cost burden onto counties.

The State's Interest in County Assessors' Budgets

The state has a financial interest in how much counties fund assessors. Voters approved Proposition 98 (1998), a constitutional amendment requiring the state to guarantee a minimum amount of per pupil funding to local schools. The state is obligated to pay the difference between local property tax revenue and the minimum, an amount determined by formula each year. Thus, when local property tax revenue increases, the state's commitment to school funding decreases,

⁹ See California Revenue and Taxation Code §97 and Chapter 333 of laws of 1991 (Senate Bill 282).

and vice versa. Minimizing the impact to the state budget requires maximizing local property tax revenue and maximizing local property tax revenue requires that assessors find all taxable property and assess it accurately, subject to state laws.¹⁰ Underinvesting in assessment administration plausibly reduces local property tax revenue through increased workloads and appraiser stress (Sheffrin and Sexton, 1998).

The state has made multiple efforts to boost county spending on assessment administration through a series of intergovernmental grant programs. The earliest was the State-County Property Tax Administration Loan Program implemented in fiscal year 1995, which attracted between 44 and 49 counties in any given year during its existence.¹¹ Beginning in 2003, the program was renewed but converted to a grant which did not have to be repaid.¹² The program was to be funded through 2007, but the legislature only appropriated the allotted \$60 million a year through 2005.¹³ Efforts to resuscitate the program after 2007 failed.¹⁴

It was not until SCAPAP that the state made another attempt to boost spending on county assessment administration. The three-year pilot program provided a grant for up to nine competitively selected counties, but unlike the prior programs, SCAPAP required a dollar-for-dollar match from the county.¹⁵ In addition, participation was competitive; while all counties could submit an application, the program's enabling legislation required the Department of Finance to limit the number of participants based on county population.¹⁶ Applications required describing the expected use of funds, and assessors could only finance activities that would plausibly increase property tax revenue or enhance administrative efficiency—hiring additional full-time or part-time staff, paying existing staff for overtime, purchasing aerial imagery services, or purchasing computers and software. The matching element and the strings attached to the money may explain why only nine counties submitted applications. Due to the participation restrictions, though, only eight received funds; Fresno, Madera, Monterey, Riverside, San Benito, San Francisco, Santa Clara, and Tuolumne with Los Angeles being the only rejected applicant.

¹⁰ Maximizing local property tax revenue also entails minimizing delinquencies. However, delinquency rates tend to be relatively low. A review of county financial reports indicates the annual delinquency rate is between one and three percent.

¹¹ Only the 53 counties that did not generate enough property tax revenue to meet the minimum per pupil funding were eligible.

¹² Counties that did not require any state funds to meet minimal statewide per pupil funding standards were ineligible to receive property tax administration loans. Participation in the loan program among eligible counties required the board of supervisors to pass a resolution and assessors to commit to staffing and budgets levels not to fall below those in fiscal year 1995. The grant program retained these program features. For the loan program, see Chapter 914 of the Laws of 1995 (Assembly Bill 818) and for the grant program, see Chapter 521 of Laws of 2001 (Assembly Bill 589). The program was originally supposed to go through 2007, but the legislature did not appropriate funds for it in 2006 and 2007.

¹³ Actual disbursements ranged between \$50.5 million and \$59.8 million in nominal terms. Participation in the grant program was between 49 and 53 of the state's 58 counties during the three years it was funded.

¹⁴ See for instance Assembly Bill 83 in 2007, Assembly Bill 946 in 2011, and Assembly Bill 2650 in 2012.

¹⁵ See California Revenue and Taxation Code §95.5.

¹⁶ State law restricted the number of counties that could be eligible based upon population: at most two counties with populations of 1.4 million or greater (county classes 1 and 2), at most four counties with populations between 400,000 and 1.4 million (classes 3 through 12), and at most three counties with populations less than 400,000 (classes 13 through 58).

Table 1: SCAPAP State Grants to Selected Counties

County Name	FY 2015	FY 2016	FY 2017	FY 2014 Budget	Grant % of FY 2014 Budget
Fresno	\$825	\$619	\$619	\$9,240	7.4%
Madera	\$150	\$150	\$150	\$1,976	7.6%
Monterey	\$200	\$200	\$200	\$4,645	4.3%
Riverside	\$1,875	\$1,875	\$1,875	\$23,376	8.0%
San Benito	\$150	\$150	\$150	\$1,491	10.1%
San Francisco	\$300	\$460	\$525	\$16,705	2.6%
Santa Clara	\$785	\$785	\$785	\$31,738	2.5%
Tuolumne	\$104	\$104	\$104	\$915	11.4%
Total	\$4,389	\$4,343	\$4,408	\$90,086	4.9%

Note: Figures are in thousands of nominal dollars. The grant percentage of FY 2014 is based upon the annual average nominal amount across the three years. The percentage does not include the required county match. Los Angeles County was the only county to have applied but not been selected. All other counties did not apply.

As Table 1 details, on average the grant equaled five percent of assessors' budgets, and it tended to comprise a larger share among lower populated counties than higher populated ones. Table 2, meanwhile, details how funds were spent. All counties used their funds to hire some full-time staff, which is noteworthy since labor is more likely to become entrenched and thus become more difficult to eliminate. If the workers hired with the funds are retained after the program ends, county boards of supervisors would have to increase assessors' appropriations to compensate for the lost state aid. This would suggest that participating in SCAPAP led to a general increase in assessment administration spending.

Table 2: Use of SCAPAP Funds

County	Number of FTE staff hired	% New FTEs	Paid existing staff overtime?	Contracted out for services?	Capital purchases?
Fresno	15	17%	N	N	N
Madera	2.5	10%	Y	Y	Y
Monterey	3.5	7%	N	N	N
Riverside	13	7%	N	N	N
San Benito	3	30%	N	N	N
San Francisco	9	7%	N	N	N
Santa Clara	7.5	3%	N	Y	Y
Tuolumne	2	2%	N	N	Y

Note: FTE means full time equivalent. FTE staff figures are based upon fiscal year 2017. Figures for fiscal years 2015 and 2016 are similar. The other three use of funds reflect activity any time during the three-year program. % New FTEs is the percentage of new FTEs hired (column 1) divided by the number of FTEs in 2013-2014 multiplied by 100. For this figure, two budgeted part-time positions equal one full-time position. Personnel data come from the Board of Equalization.

The SCAPAP program ended after the 2017 fiscal year, but the state implemented the State Supplementation for County Assessors' Program (SSCAP) effective in 2019. SSCAP is nearly identical to SCAPAP, including a three-year pilot period, but a crucial difference is that SSCAP requires that counties only match half of the state grant. Another difference is that the population-based participation restriction in SCAPAP has been eliminated. Perhaps this feature coupled with the cheaper local match explains higher participation rates. Sixteen assessors received SSCAP funds, five of which also participated in SCAPAP—Fresno, Madera, Monterey, San Benito, and Santa Clara.

This brief review of assessment administration in California highlights the seemingly perpetual financial strain county assessors operate under as well as the statewide public policies that created and continue to influence how the financial strain evolves over time. I also described the various intergovernmental aid programs the state has adopted over nearly 30 years in an effort to reverse perceived local underinvestment in assessment administration, and on this matter, it is clear the state legislature is open to continued policy experimentation.

But despite this willingness to experiment, there is little empirical analysis evaluating whether the state's investment is worth the cost. The Legislative Analyst's Office (2017) conducted the only analysis to date, studying SCAPAP midway through the program's lifespan. It found no difference in assessed value growth rates between cities within SCAPAP and non-SCAPAP counties. Their research design, however, may not capture important differences between participating and non-participating counties, such as the relative homogeneity of the property tax base, for instance. It is cheaper to discover taxable assessed value and maintain accurate assessments over time when the base is comprised of more similar properties than more dissimilar properties (Bowman and Mikesell, 1979; Propheter, 2014).¹⁷

The impact of SCAPAP on countywide property tax bases equals the difference in the base when SCAPAP counties receive SCAPAP and when they do not. The fundamental problem of causal inference is that one only ever observes SCAPAP counties when they participate in SCAPAP and never when they do not participate. Empirical economists use identification strategies to provide a way to estimate the counterfactual world, the world as it would have been had something been different (Angrist and Pischke, 2008). To evaluate the causal impact of SCAPAP on the locally assessed property tax base, I use the synthetic control method (SCM), which I discuss in the next section.

Methodology

I estimate the impact of SCAPAP on countywide property tax revenue using SCM, a research design for causal inference of program impacts when the number of units—in this case, county assessors—participating is low (Abadie, Diamond, and Hainmueller, 2010). The effect of SCAPAP on the locally assessed property tax base equals the difference in the base when a county receives SCAPAP funds minus when it does not. SCM estimates the counterfactual property tax base by constructing statistically similar SCAPAP counties using data from all non-SCAPAP counties. If SCM performs well, each SCAPAP county and its synthetic counterpart

¹⁷ Consider a jurisdiction comprised entirely of single-family homes and another of a mix of single-family and multi-family homes, manufacturing plants, agriculture, retail, office, and so forth. The administrative costs per parcel will be less in the former than in the latter because of administrative economies of scale. The latter county needs to hire a variety of appraisers with different types of expertise, for instance, whereas the former does not have this variation.

will be statistically identical in terms of pre-SCAPAP characteristics. In other words, if two counties look identical before SCAPAP but only one of the counties participated in SCAPAP, then any differences in the property tax base between the two counties after SCAPAP must be due to SCAPAP.

A useful comparison for understanding SCM is to contrast it with matching research designs. In a one-to-one matching design, the researcher would search for a non-SCAPAP county that matches, for instance, San Francisco as closely as possible during a pre-SCAPAP period of time. If one matches on a single variable—say, average personal income—the most appropriate non-SCAPAP county match would be San Mateo, but income is not the only characteristic of counties that predict their property tax base. If the researcher matches on income and the number of single-family homes, however, San Mateo is no longer as good a match, since it has about a third more homes than San Francisco, based on Census data. As the number of variables to match on increases, the likelihood of finding a good match decreases. SCM overcomes this problem by constructing synthetic SCAPAP counties from a weighted average of all non-SCAPAP counties. Whereas in one-to-one matching the scholar searches for one county that looks like San Francisco in all important respects, with SCM the scholar allows for multiple counties to comprise the counterfactual San Francisco. For instance, the best match for San Francisco in terms of per capita income and the density of single-family homes is a weighted average of four counties: 10 percent Humboldt, 33 percent Orange, 17 percent Marin, and 40 percent Alameda.

For the analysis, I model the log-transformed locally assessed property tax base, ignoring centrally assessed property since this portion of the property tax base is not part of local assessors' workload. One may reason that since SCAPAP intended to increase property tax revenue that revenue should be modeled instead. However, such an interpretation largely ignores the fact SCAPAP is for property assessment administration, not tax collections. A county could boost property tax revenue by, for instance, investing in more tax collectors and auditors, but SCAPAP provided grants for assessment administration for the purpose of discovering value that assessors otherwise would have missed without the funds. Though increased property tax revenue follows as a result, discovery of escape assessed value is the intermediate administrative behavior that makes this possible.

Moreover, SCM uses a factor model to generate the respective weights, and this process generates multiple combinations of weighted non-SCAPAP counties for each SCAPAP county. Choosing among the alternative weighted combinations, then, requires a decision rule. Abadie, Diamond, and Hainmueller (2010, 2015) recommend weights whose combination minimizes the root mean square percentage error (RMSPE) in the pretreatment period.

Constructing the Pool of Non-SCAPAP Counties

As with every quasi-experimental research design, care must be taken in designing control groups. In the context of SCM, this requires excluding from the pool of possible non-SCAPAP counties any county experiencing spillover effects from a SCAPAP county. The logic of this requirement is as follows. If one includes a non-SCAPAP county that changed its assessing behavior because a neighboring county received grant dollars, then one is no longer comparing the SCAPAP county to its non-SCAPAP counterfactual. Instead, one is comparing the SCAPAP county to a version of it that received some SCAPAP benefits transmitted by association. By way of example, in studying how eliminating the property tax on personal

property impacted manufacturing employment in Ohio, for instance, Mughan and Propher (2017) excluded adjacent states from the pool of candidate control states. They reasoned that neighboring states may change their property tax policies in a way impacting their manufacturing employment because of Ohio's policy.

While there is a theoretical case for excluding counties potentially experiencing spillover effects, there seems little reason to be concerned about this in the context of property assessment administration. For there to be spillover effects from SCAPAP to non-SCAPAP counties because of SCAPAP, one would have to argue that, for example, the San Luis Obispo county assessment staff changed their administrative practices *because* the Monterey county assessor received a three-year SCAPAP grant. Similarly, one would have to argue that the market forces determining assessment workload in San Luis Obispo county changed *because* Monterey county received the SCAPAP grant. These arguments seem like a stretch considering the SCAPAP grant was known in advance to be short-lived, and there is not much of a theoretical basis to suppose that assessment administration practices change because a neighboring assessor received a temporary increase in their budget.

Notwithstanding these considerations, the pool of non-SCAPAP counties needs to exclude Los Angeles county because it was the only county to have applied and been rejected by the Department of Finance for participation. Because Los Angeles county sought to be treated, it is possible that the assessor or county board of supervisors changed their behavior in some way in anticipation of having their SCAPAP application approved. While I have no data to support this theoretical possibility, including the county in the pool of non-SCAPAP counties risks introducing estimation bias into the analysis for no obvious estimation benefit.

Selecting the Treatment Date

A related concern in SCM is determining the appropriate time of treatment—in this case, the earliest year in which one might expect SCAPAP to start impacting the countywide property tax base. I use fiscal year 2015 as the treatment date. California counties and the state operate on a July-June fiscal year, and the SCAPAP program was created in the state's 2014-2015 budget, which the governor signed on June 20, 2014. The property taxes used to create counties' fiscal year 2015 budget were set on the January 1, 2014 assessment lien date, which means the assessed values for the county budget were set before the state legislature approved the program and before counties set their budget. Fresno County's budget, for instance, was approved June 12, 2014 while Madera County's budget was approved in late May. Moreover, the state Department of Finance, the agency responsible for selecting SCAPAP participants, did not announce participants until October 2014. In other words, fiscal year 2015 is the earliest possible period where one would observe any impact to assessor behavior, perhaps in mid-year budget changes. Using a year later as the treatment date risks introducing anticipation effects into the estimation, in case assessors changed their behavior or received mid-year budget adjustments after learning they were awarded SCAPAP.

Matching Variables

As previously noted, SCM uses a weighting algorithm (a factor model) to determine the combination of non-SCAPAP counties that best matches a SCAPAP county in the pre-treatment period. In order to improve the fit of the weighted matching, I included a number of variables in

the factor model: the county's log population, the log number of single-family homes, the log number of private sector employees, the average property tax rate, inflation-adjusted per capita income, the share of the locally assessed base from unsecured property, and the share of voters voting Republican in the most recent gubernatorial or presidential election. The purpose of these variables in the SCM framework is not for hypothesis testing, hence the variables' direction of effect on the property tax base is immaterial. While the variables should be theoretically motivated, their function is strictly to improve the pre-treatment fit.

With respect to theoretically motivating the variables, population, single-family homes, and private sector employees are measures of administrative workload with population accounting for scale differences in the property tax base and single-family homes and private employees accounting for differences in the residential and non-residential composition of the base, respectively. The average property tax rate signals the presence of special districts; recall that county assessors receive revenue (fees) for assessment administration from all sub-county governments except schools. While Proposition 13 limits the property tax rate to one percent, voters can approve rate increases, and typically these are for capital projects in special districts. Moreover, per capita income captures differences in preferences for assessment administration spending through the county budget process while the share of unsecured property captures differences in the volume of tangible personal property across jurisdictions. Finally, the share of voters in a county voting Republican is an effort to measure differences in assessor behavior arising from differences in political philosophies. Assessors are elected officials in California, and a Democrat-leaning assessor may allocate their SCAPAP resources differently than Republican-leaning assessors. I measure political preferences of voters rather than of assessors under the assumption that assessors adopt policies and behaviors consistent with the median voter.¹⁸

I also include countywide assessed values in the pre-treatment period in the weighting algorithm, which is a common strategy for accounting for unobserved variation between treated and untreated units. The rationale is that by matching on pre-treatment outcomes the researcher also matches on the unobservable factors correlated with the outcomes. However, as Kaul et al. (2021) note, researchers should not use all pre-treatment outcomes for weighting, since this would sap all explanatory power from the other matching variables. The consequence is that the reader would be unsure what was driving SCAPAP counties' future property tax base trend: the covariates or past values of the base. Which past values to include is selected based upon the aforementioned RMSPE when constructing each synthetic SCAPAP county.

Synthetic Control Results

I now turn to discussing the SCM results. As noted earlier, SCM creates various weighted combinations of non-SCAPAP counties, and I selected the weighted combination with the smallest RMSPE as the counterfactual. I have placed the relevant information for the SCM pre-treatment matching in Table A in the Appendix. For each SCAPAP county, I show the average values of the matching variables for the county and its synthetic control. For reference, the final column contains the mean values if all non-SCAPAP counties were aggregated together. The

¹⁸ A second reason I match on voters rather than assessor political affiliation is because matching on a binary variable leads to poorer matching compared to matching on a continuous variable. Voting share is continuous while assessor political party is binary.

reader will notice the synthetic control matches SCAPAP counties much more closely than the average of all non-SCAPAP counties.

The table also includes the counties I used to construct the synthetic control along with their respective weight in the synthetic construction. For instance, the best fitting synthetic Fresno is a weighted average of Kern, Merced, San Bernardino, Stanislaus, and Tulare with Tulare (29.6 percent) and San Bernardino (26.6 percent) being weighed the strongest in the synthetic control. A cursory review of the weighted counties reveals the SCM algorithm gave greater weight to geographically nearby non-SCAPAP counties, which is not surprising since neighboring counties may be more similar than not.

Figure 3: Synthetic Control Results for SCAPAP Counties

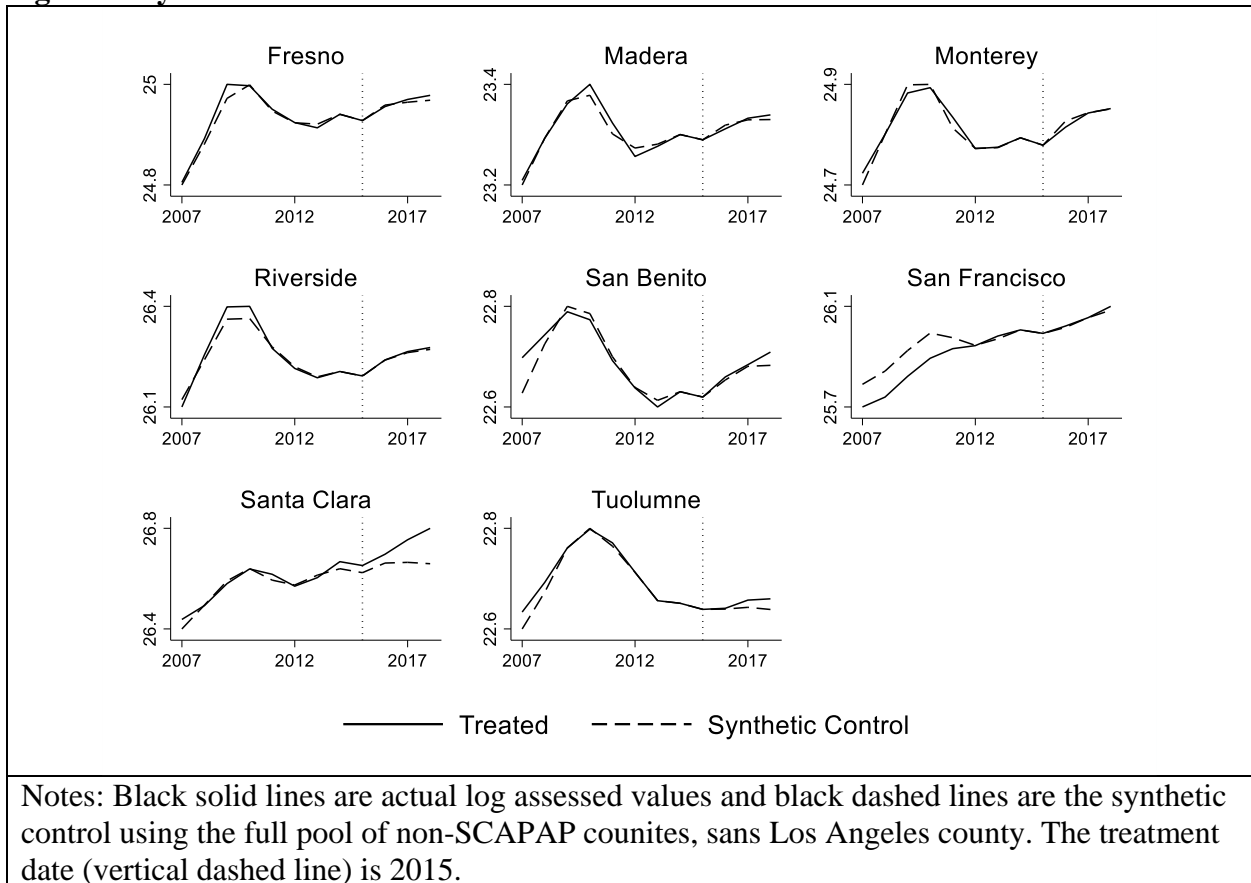
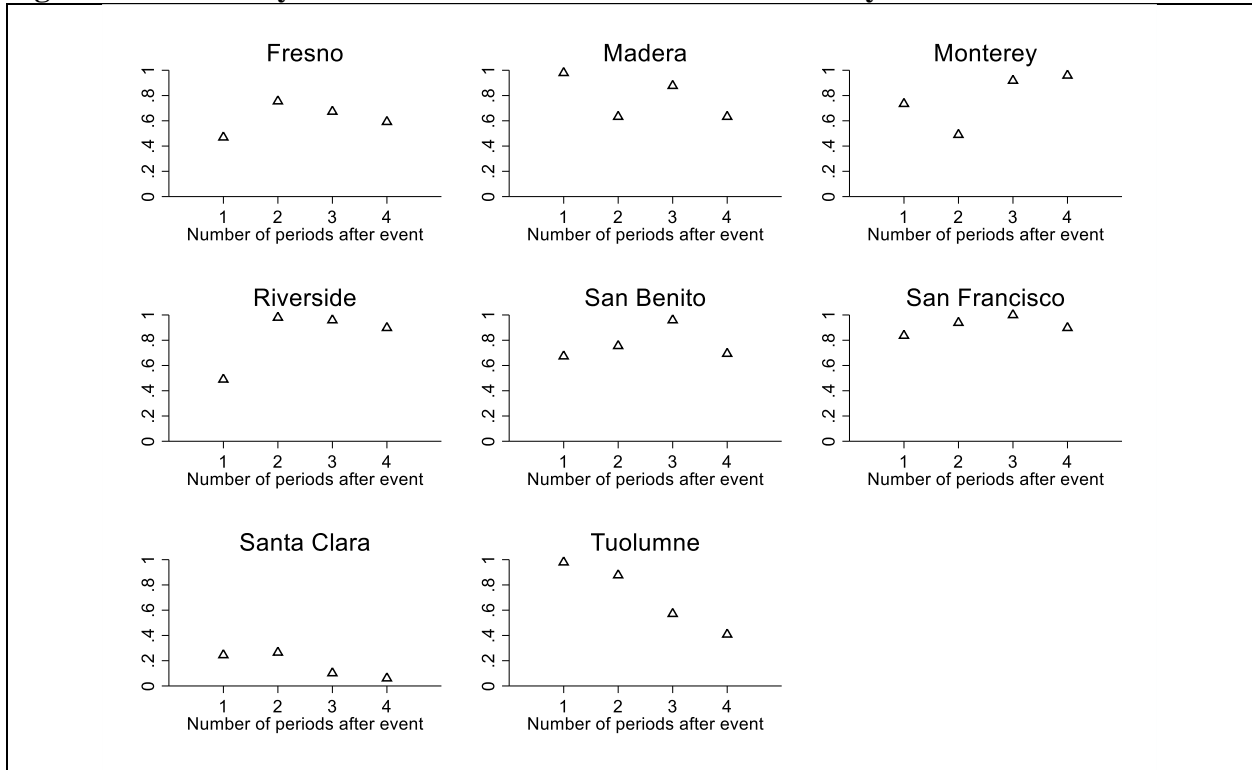


Figure 3 contains the synthetic control results for the SCAPAP counties. Each county has its property tax base over the observation period (solid line) mapped against the property tax base for its synthetic control (dashed line). The difference between the solid and dashed line after 2015 is the causal effect of SCAPAP. The graphs show that most synthetic counties' pre-treatment trends map actuals relatively well, but San Francisco and Santa Clara are exceptions. For San Francisco this issue does not undermine the credibility of the treatment effect estimate since the synthetic control performs relatively well from 2012 through the treatment start date. For Santa Clara, however, there is a clear pre-treatment trend that is unaccounted for in the synthetic Santa Clara, which biases the observed treatment effect. Ignoring Santa Clara, then, SCAPAP is estimated to have increased countywide property tax revenue among the

participating counties by \$36.1 million. Compared to the state’s \$13.1 million investment, the state appears to receive \$2.75 in general fund relief for every \$1 it provides to county assessment administration.

Figure 4: Probability the Estimated Treatment Effect Occurs by Chance



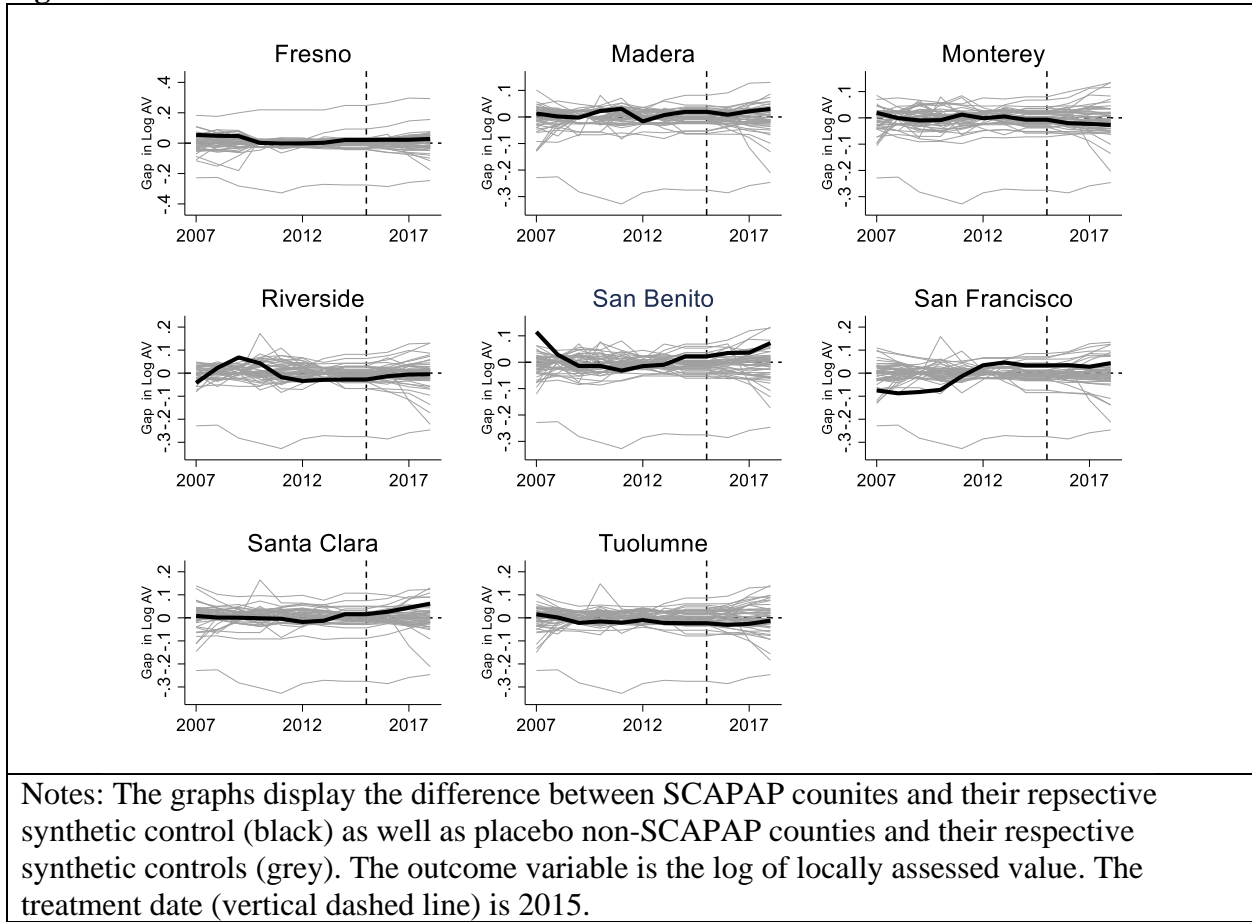
However, significance test statistics for the post-SCAPAP period are calculated following Galiani and Quistorff (2017), and no county has a SCAPAP treatment effect significantly different from zero, including Santa Clara county. The p-values are mapped in Figure 4. Hence, even though I cannot account for the entire upward trend in the pre-treatment period for Santa Clara, and the SCAPAP treatment effect is biased upward as a result, the bias is not large enough to erroneously conclude a false positive. Another way to frame the results is that the estimated (almost) three-to-one return to the state’s general fund has a relatively high probability of being due to chance and not being due to participation in SCAPAP.

Robustness Checks

I conducted three robustness checks of the main findings following the SCM literature (Abadie, Diamond, and Hainmueller, 2010). The first is a placebo test in which I re-constructed a synthetic control for each non-SCAPAP county assuming it participated in SCAPAP. Because non-SCAPAP counties did not participate in fact, I expect to find no SCAPAP treatment effect for these counties. I calculated the difference in locally assessed value between non-SCAPAP counties and their synthetic control; I did the same for each SCAPAP county. I then plotted the differences against each other. The purpose of the placebo test is to provide evidence the absence of a treatment effect in the main analysis is the correct inference, and visual evidence to this effect entails the actual SCAPAP counties having treatment effects no different than the placebo

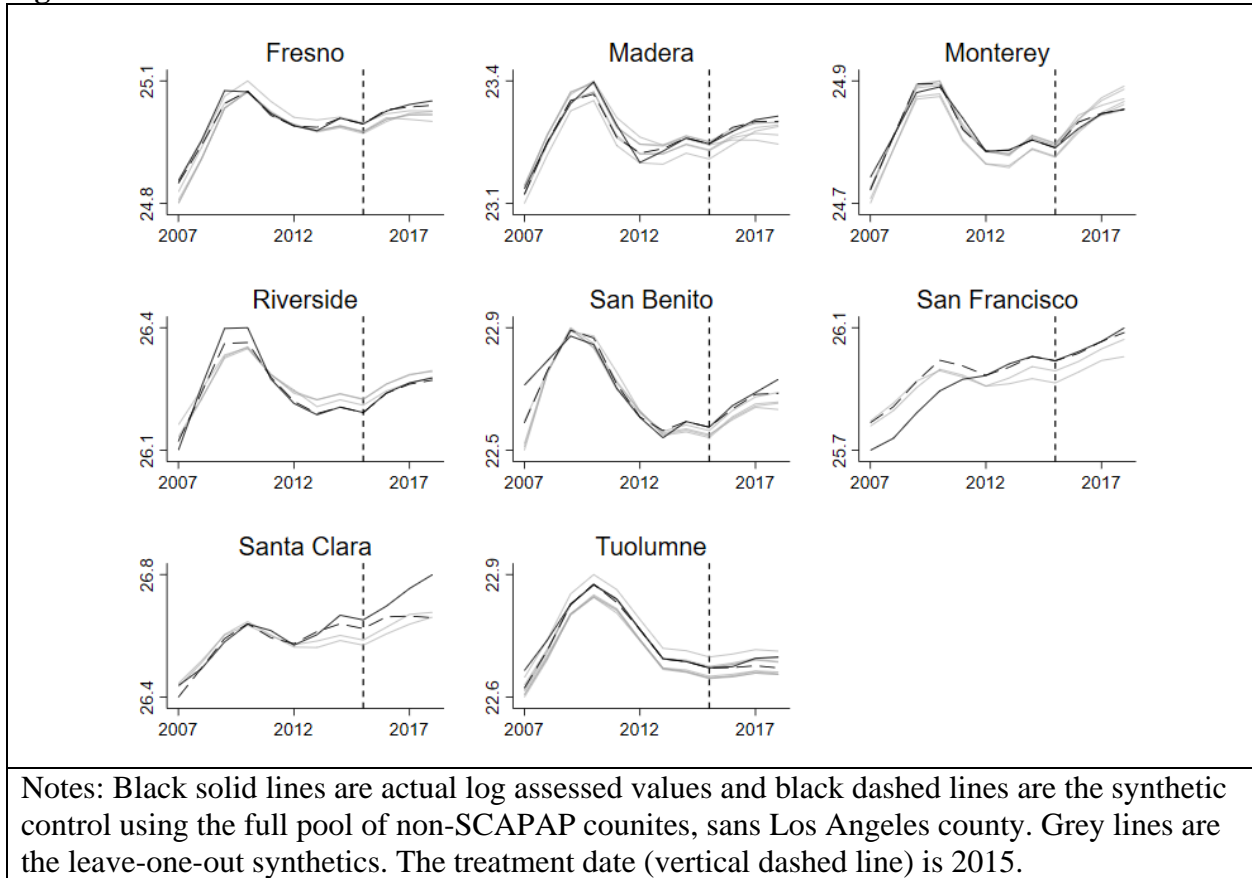
SCAPAP counties. Figure 5 demonstrates this to be the case, as placebo and SCAPAP counties are bunched around zero, indicating no difference between actual and counterfactual assessed values. In other words, SCAPAP counties' property tax bases change in similar ways as non-SCAPAP counties' property tax bases over time, providing additional evidence the state grant had no discernible impact on countywide property tax revenue.

Figure 5: Placebo Test Results



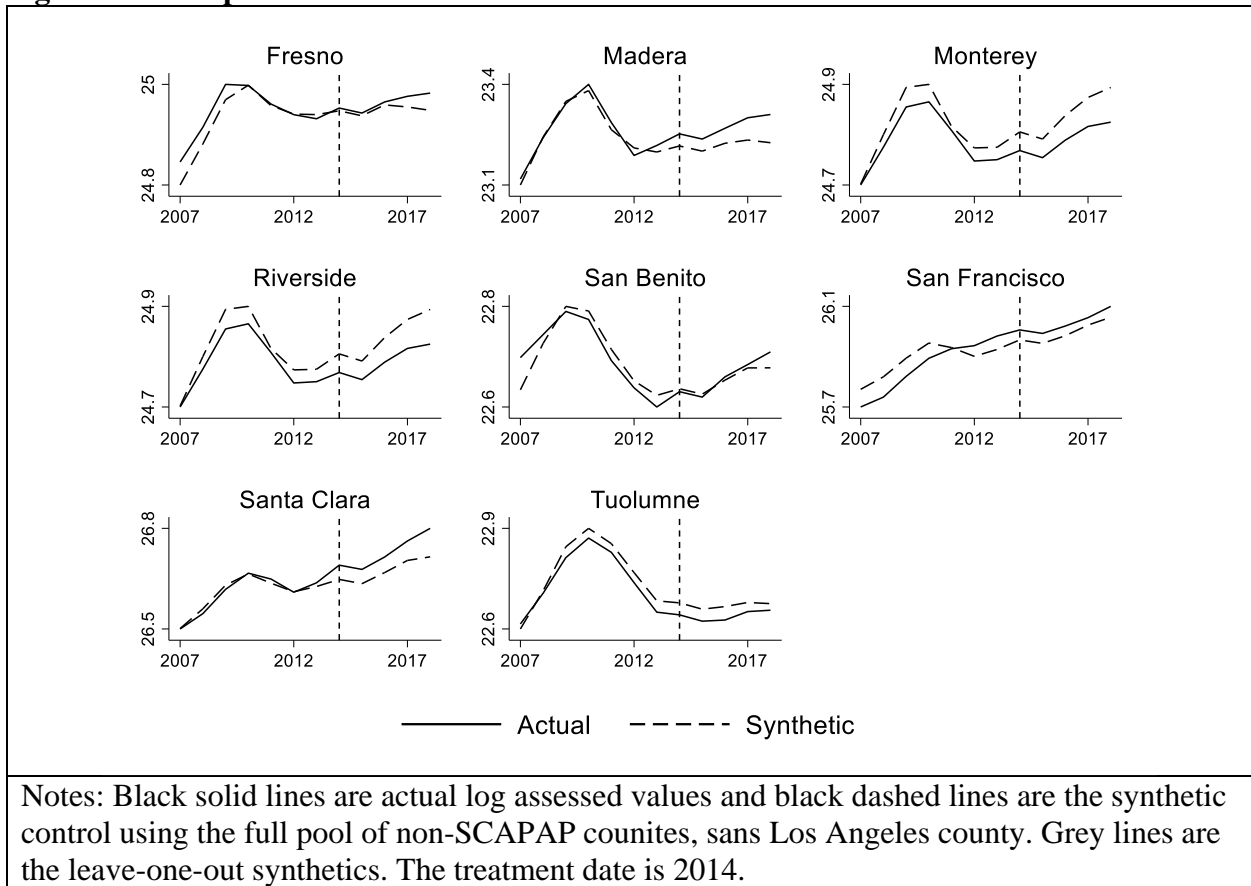
The second robustness check is known as a leave-one-out test (Abadie, Diamond, and Hainmueller, 2015). For each SCAPAP county, I reconstructed their synthetic control but eliminated one matched non-SCAPAP county. For example, the synthetic Fresno county is a weighted average of five non-SCAPAP counties: Kern, San Bernardino, San Diego, Orange, and Tulare. The leave-one-out test requires calculating five different synthetic Fresno counties: one in which Kern is excluded from the pool of donor counties; one where San Bernardino is excluded; one where San Diego is excluded; and so forth. The purpose of this test is twofold—first, to evaluate the relative importance of any particular non-SCAPAP county in creating a synthetic control, and, second, to provide confidence the synthetic control in the main analysis provides the best fit among alternative possible synthetic control constructions. Figure 6 contains these results. The most important conclusion to draw is that the synthetic control in the main analysis traces SCAPAP counties in the pre-treatment period more closely than alternatives, providing greater confidence the null finding is not an artifact of the synthetic control’s construction.

Figure 6: Leave-One-Out Robustness Check



The final robustness check is a test for anticipation effects. When discussing the methodology, I argued that fiscal year 2015 was the appropriate treatment date. To evaluate this, I re-estimated the main SCM analysis but assigned treatment to fiscal year 2014 instead. Because the property tax base for fiscal year 2014 was set in January 2013, notwithstanding eligible property transfers occurring thereafter, 2014 assessments cannot be impacted by a program that lawmakers had not yet considered. If there are no anticipation effects, then SCM results using an earlier fiscal year as the treatment date should show null effects. These results are displayed in Figure 7. For most SCAPAP counties, the graphs are near identical to those when 2015 is the treatment date. For Monterey, Riverside, and San Francisco, the matching is noticeably poorer than in the main analysis, but the differences are not statistically different from zero. The findings corroborate the conclusion of no effect.

Figure 7: Anticipation Robustness Check Results



Discussion and Conclusion

Because of Proposition 98, California lawmakers have a budgetary interest in counties maximizing property tax revenue. Given the relatively low property tax delinquency rate, the most reasonable way to increase property tax revenue is to increase the property tax base. This is accomplished by ensuring that all taxable property value enters the local roll. However, because Proposition 13 limits property tax levies to one percent of taxable assessed value (notwithstanding voter approved rate increases), counties will only appropriate a fraction of this amount to assessment administration, giving rise to the possibility that counties may underinvest in assessment administration from the perspective of the state. The potential consequences of doing so is taxable property value not entering the roll, fewer property taxes collected, and the state general fund having to appropriate additional money to meet per pupil spending minimums.

Since the mid-1990s, the Legislature has adopted a variety of intergovernmental grant programs to increase investment in county property assessment administration, and this study is the first to evaluate the effectiveness of one such program. The State-County Assessors' Partnership Agreement Program was a three-year pilot program that provided a grant to eight county assessors conditional on counties matching the grant dollar-for-dollar. Using the synthetic control method to estimate the causal effect of the program, I find no credible evidence that participation increased the countywide property tax base in excess of what would have happened without the grant. The implication of this finding is that the state wasted its money; that it would

be cheaper for state lawmakers to simply finance the per pupil spending gap than to allocate funds with the hope of boosting county property tax revenue.

One should view this conclusion as tentative, however. Since I only evaluated SCAPAP, it is possible that altering the design of a grant to county assessors could have the desired effect. The enabling legislation for SCAPAP allowed assessors to spend the money on activities that grew the property tax base or improved assessment administration efficiency. If assessors spent the money on the latter, my finding of no effect should fail to surprise. As Table 2 notes, all participating counties spent much of their grant funds on hiring full time employees, but if these employees engaged in activities that, say, reduced administrative backlogs of business audits or assessment appeals, one also should not be surprised the grant did little to increase the amount of discovered escaped assessments.¹⁹ Re-designing the grant so that funds are used exclusively for discovering escaped assessed value may still offer the state a greater return on its investment.

This study also cannot rule out another explanation for the null finding. Notwithstanding spending the grant on non-base expanding activities, perhaps county assessors already leave very little assessed value off the roll. The Board of Equalization administers a survey each year to county assessors, and one of the data points collected is the value of escaped assessments discovered in the preceding year. Among responding counties, on average discovered escape assessments comprise less than one half of one percent of the countywide taxable value in any given year. One could interpret this as assessors not discovering as much escaped value as is “out there,” which appears to be the perspective state lawmakers adopt, or it could be a signal that assessors already discover nearly all taxable assessed value through the normal course of assessment administration and that what remains undiscovered is trivial. Discovering the first dollar of escaped assessments is the cheapest, with each additional escaped assessment dollar being increasingly more costly, as taxpayers presumably respond to increased detection by improving their avoidance and evasion strategies. If the Legislature wants assessors to record every possible dollar of assessed value, then perhaps the SCAPAP grant was simply too small to affect any meaningful change in this regard, because the assessed value that has yet to be discovered is much more expensive to find.

To the extent this explanation has merit, it suggests the recent SSCAP program will also fail to expand participating counties’ bases, at least for the five counties that also participated in SCAPAP—Fresno, Madera, Monterey, San Benito, and Santa Clara. For the other 11 counties, SSCAP may increase the discovery of escaped assessments if the counties have a greater volume of uncaptured assessed value. Of course, owing to its nature as unobserved, it is impossible to know how much taxable assessed value is “out there” to be discovered until one looks, and even then our knowledge of the unobserved will forever be incomplete. I hope future research evaluates whether the more lucrative SSCAP is more successful than SCAPAP.

¹⁹ By its design, this study cannot shed light on why SCAPAP failed to impact the property tax base, but assessment appeals provide one interesting explanation. With additional funds to discover escaped assessments, one would expect property owners to push back on higher assessments by appealing. If county boards of appeal reduce these assessments on average by an amount equal to the increase in assessed escaped value, SCAPAP will have no effect on the countywide property tax base. In such a scenario, it is not that SCAPAP did not help fund base-expanding administrative activity but rather a failure by the legislature to consider how appeals behavior and outcomes in the presence of SCAPAP could undermine their policy goals. It is not within the scope of this study to empirically evaluate the merits of this theoretical line of reasoning, but I hope others give it consideration for future research.

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Appendix

SCM weights matching variables from donor untreated units. I have included the results of the matching of SCAPAP and synthetic SCAPAP counties in Table A. Matching occurs on pre-SCAPAP values, and the more balanced the variables the better the match. For reference, the final column contains the mean values if all non-SCAPAP counties were aggregated together. The reader will notice the synthetic control matches SCAPAP counties much more closely than the average of all non-SCAPAP counties.

Below the RMSPE I have also included the counties used to construct the synthetic control along with their respective weight in the synthetic construction. For instance, the best fitting synthetic Fresno is a weighted average of Kern, Merced, San Bernardino, Stanislaus, and Tulare with Tulare (29.6 percent) and San Bernardino (26.6 percent) being weighed the strongest in the synthetic control.

Table A: Pre-treatment mean values for actual and synthetic controls by SCAPAP county			
	Actual	Synthetic	All Non-SCAPAP Counties
<i>Fresno</i>			
Log population	13.75	13.62	11.89
Log single-family homes	12.30	12.23	10.72
Log private sector employees	12.77	12.54	10.89
Average property tax rate	1.20	1.14	1.10
Per capita income (2018\$)	38,970	37,892	48,358
% voting Republican	52.83	55.56	
% property tax base unsecured	4.19	4.64	
RMSPE		.019	
Non-SCAPAP counties (weight)	Kern (.069); San Bernardino (.310); San Diego (.038); Orange (.014); Tulare (.569)		
<i>Madera</i>			
Log population	11.92	11.90	11.89
Log single-family homes	10.59	10.58	10.72
Log private sector employees	10.68	10.58	10.89
Average property tax rate	1.07	1.10	1.10
Per capita income (2018\$)	34,910	36,211	48,358
% voting Republican	59.04	53.94	
% property tax base unsecured	3.58	5.46	
RMSPE		.017	
Non-SCAPAP counties (weight)	Inyo (.05); Kern (.110); Kings (.094); Merced (.478); Tehama (.178); Trinity (.091)		
<i>Monterey</i>			
Log population	12.94	12.95	11.89
Log single-family homes	11.48	11.62	10.72

Log private sector employees	12.06	12.04	10.89
Average property tax rate	1.10	1.11	1.10
Per capita income (2018\$)	50,730	52,204	48,358
% voting Republican	36.63	42.79	
% property tax base unsecured	3.73	4.27	
RMSPE		.012	
Non-SCAPAP counties (weight)	Alameda (.025); Contra Costa (.144); Merced (.272); Napa (.295); San Diego (.143); Solano (.122)		
<i>Riverside</i>			
Log population	14.60	14.58	11.89
Log single-family homes	13.29	13.19	10.72
Log private sector employees	13.49	13.73	10.89
Average property tax rate	1.14	1.11	1.10
Per capita income (2018\$)	37,916	47,195	48,358
% voting Republican	52.22	47.78	
% property tax base unsecured	3.13	3.86	
RMSPE		.041	
Non-SCAPAP counties (weight)	Sacramento (.310); San Bernardino (.303); San Diego (.387)		
<i>San Benito</i>			
Log population	10.93	11.07	11.89
Log single-family homes	9.59	10.05	10.72
Log private sector employees	9.78	9.65	10.89
Average property tax rate	1.13	1.09	1.10
Per capita income (2018\$)	44,861	39,164	48,358
% voting Republican	43.48	55.65	
% property tax base unsecured	3.55	4.18	
RMSPE		.044	
Non-SCAPAP counties (weight)	Calaveras (.308); Merced (.314); Sierra (.118); Yuba (.259)		
<i>San Francisco</i>			
Log population	13.61	13.58	11.89
Log single-family homes	11.73	12.18	10.72
Log private sector employees	13.39	13.08	10.89
Average property tax rate	1.32	1.10	1.10
Per capita income (2018\$)	97,316	92,963	48,358
% voting Republican	18.08	33.00	
% property tax base unsecured	4.93	5.37	
RMSPE		.064	
Non-SCAPAP counties (weight)	Orange (.061); San Mateo (.939)		
<i>Santa Clara</i>			
Log population	14.40	14.50	11.89
Log single-family homes	12.91	13.02	10.72
Log private sector employees	13.89	14.00	10.89

Average property tax rate	1.17	1.08	1.10
Per capita income (2018\$)	78,367	71,148	48,358
% voting Republican	34.95	48.80	
% property tax base unsecured	5.76	4.82	
RMSPE		.020	
Non-SCAPAP counties (weight)	Orange (.708); San Mateo (.292)		
<i>Tuolumne</i>			
Log population	10.92	10.97	11.89
Log single-family homes	10.13	10.10	10.72
Log private sector employees	9.86	9.85	10.89
Average property tax rate	1.05	1.11	1.10
Per capita income (2018\$)	41,716	41,957	48,358
% voting Republican	57.75	57.41	
% property tax base unsecured	2.90	3.19	
RMSPE		.016	
Non-SCAPAP counties (weight)	Amador (.182); Calaveras (.176); Humboldt (.011); Plumas (.213); Sacramento (.019); Siskiyou (.181); Trinity (.037); Tulare (.182)		

Notes: The figures are mean values of the respective variables. Select lagged values of log locally assessed value were included but are omitted here to conserve space. These are available upon request. RMSPE means root mean square percentage error. Unsecured property is property that is not real property, which in California is mostly fixtures, equipment, and other tangible personal property.