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*Program for  
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MAY 2015

# Getting Real About Reform: Estimating Revenue Gains from Changes to California's System of Assessing Commercial Real Estate

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# Introduction

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In coming years, tax reform will likely be on the agenda in California. Given the large-scale cuts that were experienced during the Great Recession and the fact that a subset of new revenue generated from Proposition 30, approved by voters in 2012, is set to expire at the end of 2016, discussions about both structural changes to our tax system and whether such changes will yield new revenues will occupy the attention of both policymakers and the public. The key questions looking forward: What reforms are both desirable and feasible? How much revenue would any particular reform yield?

One such set of discussions is concerned with revisiting the provisions ushered in under Proposition 13 approved by voters nearly 40 years ago. Prior to 1978, real property (i.e., land and improvements) was assessed at market value at locally set rates. With the passage of Proposition 13, property assessment changed from a system based on market value to one based on acquisition value, with a maximum tax rate of 1 percent, and annual increases in a property's assessed value capped at the lesser of 2 percent or the rate of inflation. When the real estate market grows faster than inflation, assessed value stays well below market value, and the gap widens over time.

Proponents of the current system defend it on the basis of protecting long-time homeowners, especially fixed-income seniors, from being pushed out of their homes because they could not afford to pay the property tax on rising home prices (Howard Jarvis Taxpayers Association, 2015). And the current system certainly does tend to benefit seniors and lower-income homeowners who move less frequently (O'Sullivan, Sexton, & Sheffrin, 1994).

Yet some argue that commercial property owners are gaining more than homeowners. The California Tax Reform Association reports a shift in the composition of the property tax base from one that was relatively equally distributed between commercial and residential properties to one that more heavily relies on residential properties (Goldberg & Kersten,

2010; Haveman & Sexton, 2008). The California Legislative Analyst's Office (LAO) also cites evidence of homeowners accounting for a greater share of the property tax base than they did in the mid-1980s (California Legislative Analyst's Office, 2012, p. 16).

**Proposition 13, approved by voters in 1978, rolled back property assessments to 1975 values; capped annual increases in value to a maximum of 2 percent until the property is sold, at which time the property is reassessed at market value; set the county-assessed property tax rates to 1 percent; and required a two-thirds supermajority to raise revenue (while lowering revenue requires only a simple majority).**

One reason for the shift in the property tax base away from commercial properties involves a change-of-ownership loophole in current law. Commercial property, in general, is often held in complex ways that make change of ownership more difficult to track and determine than it is for residential property. This is perhaps best exemplified by the 2006 purchase by Michael Dell of a luxury hotel in Santa Monica, which was reported by the *Los Angeles Times*. His lawyers structured the deal in a way that Dell avoided a majority share of ownership in the hotel. Thus the purchase avoided triggering a reassessment, which the *Los Angeles Times* calculates at a loss of one million dollars in property tax revenue annually (Felch, 2013; Felch & Dolan, 2013).

But closure of the loophole would not completely fix disparities and inefficiencies in the current system. Indeed, our current acquisition value-based system is what some call a "welcome stranger" tax in which newcomers are contributing a greater share of the property tax (Morrow, 2004). When recent commercial property owners are taxed at or near market value while long-time commercial

property owners are not, this can work against new business formation by imposing higher relative costs on start-ups or on expanding firms interested in acquiring property.

While much has been written about Proposition 13 and its effect on residential property, only limited empirical analysis has been generated with regards to commercial property. In this brief, we focus on one question: How much additional revenue would be collected from changing the way commercial property is assessed from one based on acquisition value to one based on market value? Our best estimate: If all commercial property were to be assessed at market value, an additional \$8.2 to \$10.2 billion would be generated statewide in 2019-20.

Our methods for estimating this revenue gain build on earlier work of academics from the California State University, Sacramento and experts from Blue Sky Consulting Group and are based on an analysis of ten consecutive years of county assessor data on all non-government-owned commercial and industrial property in California covering the years 2004 to 2013. We use this data to determine disparity ratios (ratio of market to assessed value) for commercial property, to analyze how those disparity ratios are affected by real estate market fluctuations, and to develop estimates of the revenues that would result

from ending the under-assessment of commercial property.

This brief is organized as follows: We begin with three key starting assumptions and definitions underlying our research and analysis, and then we briefly summarize our method and basic approach. We then turn to results and report estimated revenue gains for the state as a whole, and because property taxes are actually a local tax, we also report estimates for every county within the state. We conclude with a discussion about implications for reforms based on our findings. For those interested, we include a longer description of our data sources and methods as a technical appendix.

In the end, we hope this brief will provide information that will help generate a new level of civic—and civil—conversation about our state’s property tax system and modifications that level the playing field for a prosperous future for California. At a time when our state ranks near the bottom in per-pupil spending, when our infrastructure is crumbling, and when our deficit is only temporarily on hold, it is time to consider how we can best invest in our future and in the California dream.



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# Assumptions

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In this section, we discuss three key aspects of our analysis that are important to understanding the estimated revenue gains we provide in this brief. The first involves clarifying what changes in current law we are assuming in order to generate the estimates. The second involves defining what we refer to as “commercial” properties throughout this report; as we will explain, we focus on “true” commercial uses and exclude residential rental and, importantly, agricultural properties. The third relates to assumptions about the future outlook for the real estate market which are necessary to make in order to carry revenue estimates forward to the year 2019-20.

## Estimates Are Based on Changes to Current Law

Currently, under Proposition 13, properties are reassessed at market value when the property is sold; thereafter, annual increases in assessed value are capped at the rate of inflation up to 2 percent until the property is sold again. New construction also triggers reassessment at market value, but any existing structures and the underlying land are not reassessed until the property is sold. In these cases, a property may have multiple base years, one for land and one (or more) for structures. Under Proposition 8, when a property’s market value falls below its assessed value, it qualifies for a temporary reduction in assessed value. Its annual assessed value may increase more than 2 percent thereafter until it reaches its allowable Proposition 13 base year value. According to the LAO, reduced assessments under Proposition 8 reached a peak in 2012-13. It estimates that commercial properties, apartments, and agricultural land received, on average, a \$7,500 reduction in property taxes (California Legislative Analyst’s Office, 2014a, pp. 6, 9).

In this brief, we provide estimates of new revenue that would be collected from a policy change that would assess commercial real property (i.e., land, buildings, and other permanent structures) at market value. Simply stated, the gains we estimate are the

difference between revenues that would be collected if all commercial and industrial properties were assessed at market value (regardless of the last date of sales) and revenues that would be anticipated under current law. We attribute only gains in revenue to the estimates since downward assessments to meet market value are already allowable under current law. Furthermore, the estimated revenue gains include only the 1-percent general tax levy and do not include voter-approved parcel taxes or personal property taxes.

## All Residential and Agricultural Uses Are Excluded from Commercial

In this brief, we use the term “commercial properties” to refer to both commercial and industrial properties. We were asked to analyze only those properties that are dedicated to commercial and industrial land uses such as offices, retail stores, manufacturing facilities, and hotels. What we exclude from the analysis are agricultural land uses, such as farms, pastures, and orchards, as well as all residential uses including multi-family apartments, vacation homes, and vacant residential land. Our definition of commercial covers approximately 10 percent of all non-government-owned properties, includes about 1.1 million parcels, and accounts for about 25 percent of the state’s property tax base.

In cross-checking our data, we find our totals to be comparable to other published accounts of the state’s property tax base. For example, the LAO report *Understanding California’s Property Taxes* (2012) states that in 2010-11, commercial (as we define it), agricultural, and other properties account for 1.3 million properties and 28 percent of the state’s property tax base. We also cross-check county-level total assessed value against the unaudited totals reported in *A Report on Budgets, Workloads, and Assessment Appeals Activities in California Assessors’ Offices*, published annually by the Board of Equalizations (BOE) based on assessor surveys (California State Board of Equalization, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013a, 2013b).



## Estimates Based on Scenarios of Moderate Recovery

The revenue gains in this brief are our best estimates for what would be collected in 2019-20, which is approximately when a new assessment system could be put into place. Under this scenario, we assume that if a constitutional amendment were on the November 2016 ballot and passed by voters, commercial properties would be reassessed at market value by the January 1, 2019 lien date and property taxes collected in the fiscal year 2019-20.

Our projections to 2019-20 are based on an assumption of moderate recovery from the real estate market crash triggered by the 2008 financial crisis. Our baseline estimates derived from assessor roll data are for the year 2012-13, which is the first year in which we begin to see market prices recovering. Given that there are too many factors affecting real estate prices to forecast into the future, we develop a set of assumptions around average annual growth rates for both assessed value and

market value under current law, and apply those rates to our baseline estimates. We should note that while the maximum annual increase in assessed value that is allowable under Proposition 13 (in lieu of a change in ownership) is 2 percent, our assumptions are higher to account for increases in assessed value due to sales (which is also impacted by our assumption around market growth) and new construction. See Table 1 for the low, middle, and high growth scenarios that determine the range in the estimates reported for 2019-20.

**Table 1. Scenarios for Average Annual Growth Rates, Assessed and Market Value**

	ASSESSED VALUE	MARKET VALUE
LOW	3.9%	7%
MID	4.4%	8%
HIGH	5.0%	9%



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# Methods

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Our method is drawn from previous approaches conducted by Blue Sky Consulting Group and best documented by Arthur O’Sullivan of Lewis and Clark College, Terri Sexton of California State University, and Steven Sheffrin of Tulane University (O’Sullivan, Sexton, & Sheffrin, 1995; Sexton & Sheffrin, 2003; Sheffrin & Sexton, 1998). The main approach requires determining disparity ratios, or the ratio of market value to assessed value, where market value is defined by a property’s sales price and where sold properties reflect non-sold properties.

This approach also requires classifying properties within a county by base year, which is the last year when the property was reassessed at market value. Properties with older base years have larger disparity ratios than properties with more recent base years. Therefore, we classify properties within a county by base year, calculate weighted-mean disparity ratios based on sales for each base year (weighted by assessed value), then apply the weighted-mean disparity ratio to the assessed value of all non-sold properties of the same base year to estimate their combined market value, and sum market values for both sold and non-sold properties to determine the total market valuation in 2012-13.

We then carry both total market and assessed values forward to 2019-20 using the assumptions described in Table 1, and we calculate new revenue for each county as the difference between revenue that would be collected from fair market valuation of all commercial properties and that which would be collected under current law. Finally, we calculate the statewide gain as the sum of gains across all counties. One important note around projecting revenue gains forward is that the relationship between change in market value and change in revenue gain is not one-to-one. Rather, a given percentage change in market value can result in a much greater percentage change estimated revenue gains, which is partly why we offer a range of estimates.

Three key challenges addressed by our methodology include: 1) determining “true” sales in the data that trigger reassessment (versus a refinance) and actually reflect market value (versus a “fire sale” when the sales price is deeply discounted due to a distressed seller); 2) considering the accuracy of estimates for smaller, less-populated counties (because of small samples of sales); and 3) understanding the impact of the real estate market cycle on revenue gains.

The advantage we have over previous efforts is that we have ten consecutive years of assessor data (versus two years) for all non-government parcels in the state that cover the years 2004-05 through 2013-14. This robust dataset allows us to conduct a more careful analysis of identifying true sales that both trigger reassessment and reflect the market. We are able to generate estimates for all counties (including smaller counties with few sales of commercial properties) by aggregating to county groups then adjusting to account for county differentials to the county group, among other modifications and adjustments. And we are able to better understand how revenue gains perform under different market conditions.

We should note that despite the variety of efforts we make to improve estimates for small counties (e.g., Alpine, Inyo, and Trinity), our estimates are bound to be more accurate for larger counties (e.g., Southern California and Bay Area counties) given that disparity ratios for those counties are based on a larger number of sales within each county and base year.

For a longer discussion of data sources and methods, please see the Technical Appendix.

# Results

In this section, we report and discuss our findings to the single question: How much additional revenue would be collected from changing the way commercial property is assessed from one based on acquisition value to one based on market value? We first report estimated total revenue gains for the state and for every county. We then report estimated revenue gains per capita for every county. And we conclude with a brief discussion on considerations for reforms that address inefficiencies and disparities in the current system.

Reassessing commercial property at market value would generate about \$9.2 billion, or between \$8.2 and \$10.2 billion, statewide in 2019-20, assuming moderate growth and recovery from the real estate and financial crisis of 2008. While all counties would gain, those with denser, older, urban areas that were developed before 1978 would gain the most in terms of total revenue. Those include the counties of Los Angeles, Orange, San Diego, Bay Area counties, and San Bernardino. Yet significant gains would also accrue to Riverside, Sacramento, Santa Barbara, and Ventura on the central coast, and Fresno and Kern in the Central Valley. See Table 2 for the results on the range of revenue estimates and the mid-point estimate for all counties.

To understand the gains to a county in comparison to the size of its population, we calculated new revenue per capita based on 2010 population. In terms of new revenue per capita, we find that the benefits from reform are more broadly shared across the state and across both urban and rural regions. San Francisco and

San Mateo would gain the most per capita while the southern coastal counties of Los Angeles, Orange, and San Diego would still make the top ten. However, also found among the top ten are a few smaller northern, mountain counties. See Table 3 for the range of estimated revenue gains per capita for all counties.

Our results are in line with what we would expect. More urbanized and densely populated counties have highly valuable commercial properties that are under-assessed, as the level of revenue gains shows. And because we exclude agricultural land and timberlands from our analysis, rural counties would not be as impacted by reforms. Yet all counties would benefit in terms of gaining new revenue that could be invested in schools, public services, and infrastructure.

It is arguable that reforming our current system could contribute to greater efficiency as well as fairness. We estimate that 50 percent of commercial properties are already assessed at or near fair market value, when defined as having an assessed value no more than 13 percent below its market value. It

**Table 2. Estimated Revenue Gains by County, 2019-20 (dollars in millions)**

County	Estimate Range	Mid Estimate	County	Estimate Range	Mid Estimate
ALAMEDA	330.4 - 413.0	370.3	PLACER	52.2 - 67.1	59.4
ALPINE	.3 - .4	0.4	PLUMAS	3.2 - 4.3	3.8
AMADOR	3.2 - 4.2	3.7	RIVERSIDE	196.6 - 261.1	227.7
BUTTE	11.3 - 15.5	13.3	SACRAMENTO	124.2 - 166.4	144.5
CALAVERAS	2.1 - 2.8	2.4	SAN BENITO	3.0 - 4.0	3.5
COLUSA	1.5 - 2.0	1.7	SAN BERNARDINO	251.6 - 327.3	288.1
CONTRA COSTA	235.9 - 295.2	264.5	SAN DIEGO	720.9 - 892.0	803.5
DEL NORTE	1.2 - 1.7	1.4	SAN FRANCISCO	628.9 - 758.4	691.5
EL DORADO	12.7 - 16.9	14.7	SAN JOAQUIN	57.5 - 77.2	67.0
FRESNO	89.9 - 115.1	102.0	SAN LUIS OBISPO	46.5 - 58.5	52.3
GLENN	1.9 - 2.4	2.1	SAN MATEO	451.1 - 538.8	493.5
HUMBOLDT	17.5 - 21.5	19.4	SANTA BARBARA	97.2 - 122.4	109.3
IMPERIAL	8.7 - 11.6	10.1	SANTA CLARA	505.8 - 632.3	566.9
INYO	8.5 - 10.8	9.6	SANTA CRUZ	47.6 - 58.3	52.8
KERN	86.9 - 111.1	98.6	SHASTA	19.8 - 25.1	22.4
KINGS	10.2 - 13.8	11.9	SIERRA	.2 - .3	0.2
LAKE	2.4 - 3.3	2.9	SISKIYOU	4.5 - 5.8	5.1
LASSEN	1.7 - 2.3	2.0	SOLANO	65.4 - 83.5	74.1
LOS ANGELES	2,664.2 - 3,251.7	2,948.2	SONOMA	76.4 - 96.3	86.0
MADERA	14.4 - 18.4	16.3	STANISLAUS	35.4 - 47.9	41.4
MARIN	44.2 - 55.5	49.7	SUTTER	13.1 - 16.6	14.8
MARIPOSA	1.2 - 1.5	1.4	TEHAMA	4.4 - 5.6	5.0
MENDOCINO	26.2 - 32.3	29.1	TRINITY	.5 - .7	0.6
MERCED	18.4 - 23.9	21.1	TULARE	29.2 - 39.4	34.1
MODOC	1.4 - 1.7	1.5	TUOLUMNE	5.0 - 6.5	5.7
MONO	3.4 - 4.5	3.9	VENTURA	123.6 - 156.6	139.5
MONTEREY	75.8 - 94.3	84.7	YOLO	25.1 - 32.6	28.7
NAPA	48.6 - 60.3	54.2	YUBA	6.7 - 8.2	7.4
NEVADA	12.6 - 16.0	14.3	<b>Total</b>	<b>8,233.6 - 10,203.6</b>	<b>9,185.0</b>
ORANGE	901.8 - 1,106.6	1,000.8			



**Table 3. Estimated Revenue Gains Per Capita by County, 2019-20 (dollars)**

County	Estimate Range	Mid Estimate	County	Estimate Range	Mid Estimate
ALAMEDA	218.8 - 273.5	245.2	PLACER	149.8 - 192.6	170.4
ALPINE	265.1 - 346.9	304.5	PLUMAS	160.4 - 217.1	187.7
AMADOR	84.6 - 111.4	97.5	RIVERSIDE	89.8 - 119.3	104.0
BUTTE	51.4 - 70.4	60.5	SACRAMENTO	87.5 - 117.3	101.9
CALAVERAS	45.9 - 61.6	53.5	SAN BENITO	53.7 - 71.9	62.5
COLUSA	71.2 - 92.2	81.3	SAN BERNARDINO	123.6 - 160.8	141.6
CONTRA COSTA	224.8 - 281.4	252.2	SAN DIEGO	232.9 - 288.2	259.6
DEL NORTE	43.2 - 58.8	50.7	SAN FRANCISCO	781.0 - 941.9	858.8
EL DORADO	69.9 - 93.1	81.1	SAN JOAQUIN	83.9 - 112.6	97.7
FRESNO	96.6 - 123.7	109.7	SAN LUIS OBISPO	172.5 - 216.9	193.9
GLENN	65.9 - 84.0	74.7	SAN MATEO	627.9 - 749.9	686.9
HUMBOLDT	130.0 - 159.7	144.4	SANTA BARBARA	229.2 - 288.7	258.0
IMPERIAL	50.0 - 66.6	58.0	SANTA CLARA	283.9 - 354.9	318.2
INYO	457.9 - 582.5	518.0	SANTA CRUZ	181.4 - 222.3	201.1
KERN	103.5 - 132.4	117.4	SHASTA	111.8 - 141.6	126.2
KINGS	66.6 - 90.5	78.1	SIERRA	63.3 - 84.0	73.3
LAKE	37.5 - 51.3	44.1	SISKIYOU	99.8 - 128.4	113.6
LASSEN	48.9 - 67.1	57.7	SOLANO	158.1 - 201.9	179.3
LOS ANGELES	271.3 - 331.2	300.3	SONOMA	157.9 - 199.1	177.8
MADERA	95.1 - 121.7	107.9	STANISLAUS	68.8 - 93.1	80.5
MARIN	175.0 - 220.1	196.7	SUTTER	138.6 - 175.1	156.2
MARIPOSA	65.8 - 84.9	75.0	TEHAMA	69.1 - 89.0	78.7
MENDOCINO	297.9 - 367.6	331.6	TRINITY	34.4 - 48.2	41.1
MERCED	72.0 - 93.6	82.4	TULARE	66.0 - 89.0	77.1
MODOC	139.5 - 178.1	158.1	TUOLUMNE	90.9 - 117.1	103.5
MONO	237.7 - 319.0	276.9	VENTURA	150.1 - 190.2	169.4
MONTEREY	182.5 - 227.2	204.1	YOLO	124.9 - 162.3	142.9
NAPA	355.8 - 441.7	397.3	YUBA	92.4 - 113.5	102.6
NEVADA	127.6 - 162.2	144.3			
ORANGE	299.6 - 367.6	332.5			

buildings and permanent structures are reassessed at market value upon construction. Another phase-in option: Older properties could be assessed first. We find that about 38 percent of properties have pre-2000 base years and also account for about two thirds of our estimated revenue gain statewide.

While not the focus of this brief, we also considered

is long-time commercial property owners who are assessed far below market value. In terms of putting property to its best and highest use, cost structures that differ only due to the recency of purchase may not be the best incentive system for improving efficiency, and thus reform could be pro-economic growth.

We recognize that it may not be feasible to reassess all commercial properties in the first year. Our estimates for 2019-20 should be seen as an upper-bound gain for that year with the full amount to be realized over a period of time that would depend upon how reforms are phased in. Once phased in, however, we would anticipate an annual gain that is similar to (or larger than) what we estimate for 2019-20 relative to a scenario of no change in current law.

There are a number of ways to consider how such reforms could be phased in. For example, land values could be assessed first before buildings and permanent structures. According to our analysis, land alone accounts for about two thirds of the estimated revenue gain statewide. Land accounts for such a large share because it is only reassessed at market value upon the sale of a property while

an alternative reform scenario of increasing the 1-percent rate on commercial properties to 1.25 or 1.5 percent. While increasing the rate could bring in a similar level of revenue as full assessment to market value, in our 10-year analysis of properties that sell in comparison to those that do not sell, there seems to be higher turnover in properties with more recent base years and a set of properties that has not changed ownership since 1978 that will likely never change hands and thus never trigger reassessment at market value. Thus this scenario would not address the fundamental problem of unfairness and disparities between businesses.

Lastly, we should note that our estimates of revenue gains are only that—estimates. They are not firm predictions: After all, it is impossible to know how the real estate market is going to recover, how recovery will play out in the different counties and regions of California, or what reforms will actually be debated and won. What we do know is that the current system is producing a shortfall in revenue that we could be investing in our youth, our health, and our communities.

# Conclusion

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We are at an important moment in the Golden State. After years of fiscal deficits and dysfunction, the debate is now about how much funding to set aside in our reserves versus how much goes to restore deep cuts in education, health, and human services. While not uncontroversial, this is nonetheless a refreshing change from the large-scale cuts that we were making just a few years ago. But with the first set of tax increases from voter-approved Proposition 30 set to expire at the end of 2016, we are not far from another fiscal challenge.

Now is the time for a new civic—and civil—conversation about California’s tax system. Our analysis suggests that reforms to the commercial property tax system should be part of that conversation. We recognize that the revenue yield is only one aspect and that there are other criteria to consider in weighing reforms, such as practicality, equity, and efficiency. We also know that there will be other tax reform proposals that will become part of the public discussion and the merits of each will need to be weighed.

That said, revisiting the provisions of an initiative that was passed nearly 40 years ago should clearly be part of our considerations about solutions to resolving fiscal balance for the long haul—and allowing California to reclaim our status as a state capable of offering a vital social safety net, modern infrastructure, and a world-class public education for all.

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# Technical Appendix

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## Data Sources

The main data for this analysis are from the county assessor rolls collected and standardized by DataQuick, now CoreLogic. While property tax data are public information, what each county assessor office makes available and at what cost varies widely. Therefore, we find it to be more consistent, cost-effective, and efficient to use DataQuick's data. Our estimates are largely based on roll data for 2012-13 and 2013-14 but draw upon information from previous years as necessary given our methodology, as described below.

DataQuick also made available historical files for every year dating back to 2004-05. These longitudinal data allow us to employ and expand upon previous methodologies used to identify sales that trigger reassessment to market value. (For ease, we simply use the term "sales" to refer to such transactions below, and by this we mean to exclude transactions which do not trigger a reassessment to market value). Each annual file covers all non-government-owned properties for every parcel in California. The types of data include assessed value for land and improvements, last sale date, ownership information, site address, legal description, property type, land use, and other property characteristics. There are over 11 million total records in each year with 138 total variables (though several do not have values for all properties).

For our analysis, we include all parcels with the following land uses: commercial, industrial, commercial vacant land, and industrial vacant land. We exclude agricultural and all residential uses, including multi-family apartments, condominiums, timeshares, and vacant residential land. This covers approximately 10 percent of all non-government-owned parcels (25 percent of assessed value) for a total of about 1.1 million, with some variations in each year.

Data for two counties, Santa Clara and Kern, are missing or unreliable for 2013-14; therefore, we rely on data that are lagged by one year for these

two counties to make our initial estimates and then adjust them forward one year using data from loopnet.com to bring them into alignment with our estimates for the other counties. We cross-check our totals of assessed value of commercial property against Board of Equalization (BOE) annual survey data (for all counties included in the BOE survey data) to validate accuracy of DataQuick data.

The most recent year for which we can generate revenue estimates using the DataQuick data is 2012-13. These estimates are historically low based on our analysis of the 10-year dataset. Additionally, they are low given the recovery in the real estate market since the 2008 financial market crisis. Moreover, to be relevant to current policy discussion, we project estimates into the year 2019-20, which is about when new revenue could be realized based on the time it would take to put a new assessment system into place.

With limited data on the commercial and industrial real estate market trends and projections, the main sources of data we use to develop assumptions for our seven-year projections are from the California Association of Realtors (CAR), California Legislative Analyst's Office (LAO), and BOE.<sup>1</sup> We discuss what data and how we use the data in the methodology description below.

## General Approach

The basic approach for generating revenue estimates is based on the methodology best documented by Arthur O'Sullivan, Terri A. Sexton, and Steven M. Sheffrin (O'Sullivan et al., 1995; O'Sullivan, Sexton, & Sheffrin, 1993; Sexton, & Sheffrin, 2003; Sheffrin & Sexton, 1998). It employs the primary

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<sup>1</sup> BOE data on assessed value of homeowner-occupied property, assessed value of all business and non-homeowner property subject to Proposition 13 assessment limits, and percentage increase by year as reported in California Taxpayer Association's report *Proposition 13 Revisited: A look at California's property tax 35 years after passage of Proposition 13* (Gutierrez, Doerr, Kline, & Blocker, 2013, p. 19).



assumption that properties sold in any given year are representative of those that did not sell, and it requires the following information:

- *Assessed value:* The assessed value is the value of a property (including both the land and improvements) for taxation purposes. This data is available for land and improvements in the DataQuick data.
- *Market value:* The market value is the price that a willing buyer would pay and a willing seller would accept. Sales price is used as the measure of market value. This requires identifying a sales, or arms-length transactions and changes in ownership that trigger a reassessment.
- *Disparity ratio:* The ratio of market-to-assessed value for a property or class of properties. This ratio is applied to the assessed values of properties of that same class that did not sell to estimate their market values.
- *Base year:* The base year is the most recent year in which a property was re-assessed at market value. In general, the base year is the last sales date. For example, properties that last sold in 2005 have a 2005 base year. For properties that existed in 1975 and have never been sold, the base year is 1975. Properties that have been sold more recently, in general, have a smaller disparity in market-to-assessed value.

The general approach to estimating revenue gains that we take based on O’Sullivan, Sexton, and Sheffrin’s methodology is as follows:

1. Determine which commercial properties have sold in a given year.
2. Use the sold property’s sales price as its market value.
3. For each property sold, calculate its disparity ratio, or the ratio of its sales price to its assessed value prior to the sale.

4. Calculate a summary disparity ratio for sold properties in each county that share the same base year.
5. Apply the summary disparity ratios to the assessed value of non-sold properties by county and base year to generate an estimate of the total market value of all properties within a county.
6. Calculate the difference between estimated market value and assessed value for all properties and take 1 percent to determine the revenue gain.

## Implementation of the General Approach

While we follow the general approach described above in deriving our estimates, we make several modifications and adjustments to accommodate the particular dataset we use, to generate estimates for all counties in California (including smaller counties with few sales of commercial properties in 2012-13), and to account for the fact that the time period for which our estimates are based (2012-13 to 2013-14) is essentially at the “trough” of the real estate market following the crash triggered by the 2008 financial market crisis. More details on our methodology are included below, along with the source of our assumptions around growth in market and assessed value that are used to carry our estimates forward to 2019-20.

The DataQuick data we use poses several challenges in identifying sales, sale prices, and base years prior to a sale. First, it does not include sales price information so sales prices must be interpreted from assessed values. Second, it only includes the current base year, so if a sale occurs in the 2012, the base year in the 2012-13 roll shows up as 2012 and we must retrieve the base year prior to the sale from the previous year’s assessor roll to implement our methodology. Third, there is inconsistency as to when the sale price becomes reflected (as a new assessed value) on the assessor roll, so we cannot simply rely on the reported base year to identify sales in a given year and take the following year’s assessed value as the sale price. All of this means

that we need several consecutive years of assessor data in order to gather all of the prior base year and sale price information for sales that resulted in an update of assessed value to market value between the 2012-13 and 2013-14 roll years.

To better understand the need for several consecutive years of data, consider a property in the 2012-13 roll with an assessed value of \$100k that sells that same year for \$200k and had a previous base year (year last sold) of 1980. To implement our method correctly, this would suggest a disparity ratio of 2.0 with previous base year of 1980. However, given that the sale price of \$200k does not show up in DataQuick data until the 2013-14 roll (as the new assessed value), and the (current) base year in the 2012-13 roll (year last sold) shows up as 2012 (flagging it as a sale in that year), we can only get the previous base year to the sale (1980) by pulling it from the 2011-12 roll for this property.

To identify sales that triggered a reassessment to market value between 2012-13 and 2013-14 roll years, we first look for changes in assessed land value that diverge from the standard average annual increase applied by assessors (the maximum allowable increase under current law is 2 percent) that are accompanied by a change in ownership name.<sup>2</sup> We find that standard increases in assessed value vary by county and take this into account to identify sales more accurately. Once an apparent sale is identified by these criteria, we examine base year information to see whether and when a sale was indicated by the base years recorded in the 2011-12 through 2013-14 rolls; for the few cases in which no sale was indicated by the base year, we do not include the property as a sale in our final categorization. For the majority of sales that triggered a reassessment to market value between the 2012-13 and 2013-14 rolls, the base year indicates a sale in 2012, with the remainder split about evenly between 2011 and 2013. Given that 2012 is the central year indicated by the base year for all such sales, we assume that the assessed value reported in the 2013-14 roll reflects sale prices that

<sup>2</sup> We focus on only land value (and not improvements) when identifying sales because land values are only reassessed to market value upon the sale of a property while improvements are often reassessed to market value at the time they are made.

were negotiated in 2012-13 and refer to them as sales in 2012-13.<sup>3</sup>

We should note that some properties are missing previous base year information. We treat them as their own class of properties—in other words, as a distinct “base year.” In our final categorization of properties as sales in 2012-13 to use in deriving disparity ratios for this group, we exclude apparent arms-length transactions that have missing current base years (about one third of all properties missing previous base years) because they exhibit disparity ratios that were vastly different (often near one) from those with a missing previous base year but a valid current base year. The data appear to suggest that when a true arms-length transaction occurs, it coincides with a base year appearing in the DataQuick data where it had been previously missing.

We use the properties identified as sales 2012-13 to derive and test three summary disparity ratios: median disparity ratio by county/base year, weighted-mean disparity ratio by county/base year, and a weighted-mean disparity ratio calculated statewide across all base years. O’Sullivan, Sheffrin, and Sexton use the median disparity ratio by county/base year; Blue Sky Consulting Group uses the weighted-mean disparity ratio by county/base year in its 2009 estimates; and the BOE uses what is analogous to the weighted-mean statewide ratio across all base years in calculating the 4-R Equalization Ratio that is applied for assessing rail transportation property at the same percentage of market value as all other commercial and industrial property. The weighted-mean disparity ratios are weighted by assessed value in 2012-13.

Models for each of the summary disparity ratios are tested by: 1) comparing results with previous revenue estimates; 2) comparing against real estate market trends; and 3) using a randomly selected (80 percent) sample of all sales to derive the disparity ratios and examining how well they predicted market value for the remaining (20 percent) of sales. Based

<sup>3</sup> This assumption—basically, that the sale price becomes the subsequent year’s assessed value with no upward adjustment—was validated by individual property history records from county assessor websites that included sales prices and assessed values for several consecutive years.

on the results, we chose to use the weighted-mean disparity ratio (weighted by assessed value). While O'Sullivan, Sheffrin, and Sexton opt to use the median disparity ratio to minimize the influence of outlying property-level disparity ratios on the summary disparity ratio for each county/base year, it is our view that because more valuable properties play a larger role in determining total market value in a county, improving market value estimates for them by allowing them to carry more weight in deriving the summary disparity ratios improves estimates overall, and we take other measures to reduce the outliers (described below).

To the extent that different land uses within the commercial spectrum appreciate at different rates over time, a case could be made for calculating and applying separate disparity ratios for different land uses within each county/base year. However, the number of sales observations by county/base year is often already very small, making further division of the sales by land use imprudent. Therefore, in an effort to adjust for the potential mismatch in land use distribution between sold and non-sold properties in each county/base year, we instead adjust the weights before calculating our weighted-mean disparity ratios so that the distribution of 2012-13 assessed value for sold parcels mirrors that for all parcels in each county/base year across four broad land use categories. In essence, the adjustment simply gives more weight to land-use categories that are underrepresented among sales in a given county/base year and vice versa.

For counties/base years in which there are fewer than 10 sales to serve as the basis for the summary disparity ratio, we make a series of adjustments and substitutions that seek to use as much county-specific data as possible while incorporating disparity ratio information from surrounding counties and the state overall. We aggregate counties that are similar in terms of disparity ratios (for base years with more than 10 sales) and a series of demographic and housing characteristics from the U.S. Census to divide the state into nine county groups. We also group base years together to create base year categories, and derive summary disparity ratios for each county group (and statewide) by base year and base year category. We then apply the

disparity ratios by base year from the most detailed level of geographic aggregation for which they are based on at least 10 sales (either the county group or statewide), and adjust them up or down for each county using adjustment factors that based on what we know about the county relative to its county group and (if necessary) the county group relative to the state from the variety of disparity ratios calculated, while ensuring that each adjustment factor itself that we apply is also based on at least 10 sales.

Partly because of the anomalous period of time covered by our data (a period in which property values have more or less bottomed out following a crash in the market), our calculation of weighted-mean disparity ratios under the approach described above can produce disparity ratios that are less than one for some counties/base years (particularly for base years in the mid-2000s in counties that experienced significant increases in property values at the height of the real estate market cycle). This result would suggest that market values for certain properties are below their assessed value in 2012-13. There are a variety of possible reasons for this: Property owners may not exercise their right to decline-in-value assessments under current law (perhaps to avoid negative externalities of a decline in asset values); our estimate of market value may be too low (to the extent that fire sales are prominent); or there may be lag time between when the market falls and when the decline-in-value assessments are reflected on the assessor roll.

In any case, we would not expect this scenario (disparity ratios of less than one) to persist for any significant length of time as property owners are able to adjust assessments downward when market values fall below assessed value under current law (Proposition 8). Thus, to focus our estimates on the impact of change to current law, we set a minimum of one for disparity ratios that are applied to non-sold properties. This has the effect of excluding from our results any estimated losses in tax revenue from (downward) reassessment to market value, as these are to be expected under current law. Finally, to the extent that fire sales (i.e., distressed properties sold at extremely discounted prices) are prominent in our data, it is likely that they drive down all (or many) of our calculated disparity ratios

—not just those for counties/base years in which our initial disparity ratio estimate came out below one. Thus, our baseline estimates of revenue gains in 2012-13 should be seen as conservative.

One final methodological choice we make aims to reduce the impact of outliers. While this was the rationale behind O’Sullivan, Sheffrin, and Sexton’s choice of applying the median disparity ratio, given that we find the weighted-mean disparity ratio to be a better fit for other reasons, we sought to account for outlying property-level disparity ratios in our methodology. To do so, we run our model under three levels of outlier exclusion among sales, excluding the outlying 1, 2, and 5 percent of values from each end (top and bottom) of the property-level disparity ratio distribution by county/base year. Note that if there are fewer than 20 sales in a particular county/base year, no outliers are excluded, and so to capture any outliers in counties/base years with few sales, we also excluded observations found to be among the outlying 1, 2, and 5 percent of values (respectively) at each end of the property-level disparity ratio distribution statewide by base year. As we would expect, the outlier exclusion affects smaller counties more than larger counties. Baseline estimates of revenue gains for each county in 2012-13 were derived under each of the three levels of outlier exclusion separately, and the average of the three results was taken as our final estimate.

## Projections to 2019-20

To carry our baseline estimates of revenue gains in 2012-13 forward to 2019-20, making them more relevant for policy discussion, we make some simple assumptions around growth in total market and total assessed value over the period, with the same assumptions applied to all counties.<sup>4</sup> There is limited data on the average annual growth in assessed value for commercial properties only and there is even

<sup>4</sup> While it is more than likely that market trends will play out differently in different counties, any county-specific projections would be highly uncertain given the lack of good data on market trends by county. We offer a range of estimates under different assumptions around market growth to illustrate their impact estimates of revenue gains by county.

less data on commercial real estate market trends. Therefore, we rely on what historical information we were able to find on the relationship between growth in market and assessed values for residential properties and the relationship between growth in assessed value for commercial and all properties combined, and combine this with projections of average annual growth in assessed values from the LAO to inform our assumptions.

All of the historical data we examine covers the period from 1996-97 to 2003-04. We use this seven-year time period because it arguably resembles the seven-year portion of the market cycle we can expect between 2012-13 and 2019-20, given that both periods begin at a time when the market had just bottomed out following a downturn.

We start with a comparison of average annual growth in market and assessed values for residential properties. For market values, we use median prices for existing single-family detached homes from the California Association of Realtors (CAR) while for assessed values we use BOE data for homeowner-occupied property as reported in California Taxpayer Association’s (CalTax) report *Proposition 13 Revisited: A look at California’s property tax 35 years after passage of Proposition 13* (Gutierrez, Doerr, Kline, & Blocker, 2013, p. 19).<sup>5</sup> We calculate average annual growth over the seven-year period for each measure, market and assessed value, and find growth rates of 12.7 percent and 7.1 percent per year, respectively, and a ratio of the two growth rates (market to assessed value) of 1.8.

To estimate the relationship of growth in assessed value for commercial to all properties combined, we use the same BOE data from the CalTax report. We calculate average annual growth in assessed value for commercial properties (business and non-homeowner property) of 6.7 percent, which is just slightly lower than the rate we find for all properties (business plus homeowner-occupied property) of 6.8 percent. Thus, the historical data suggest that assessed values for commercial properties grow slightly more slowly than assessed

<sup>5</sup> CAR data is available at: <http://www.car.org/marketdata/data/housingdata/>.

values for all properties combined, but the difference is small.

We then examine the LAO's assumptions for growth in assessed value of all properties through 2019-20 as reported in the 2014-15 and 2015-16 fiscal outlook reports (California Legislative Analyst's Office, 2013, 2014). While its assumption for growth in assessed values is slightly higher in the 2015-16 fiscal outlook report than in the previous year's report, it remains near the historical average annual growth rate of 6 to 7 percent for the period through 2019-20. Applying the aforementioned ratio of average annual market growth to assessed value growth of 1.8, the LAO's assumption around growth in total assessed value for all properties suggests average annual market growth of between 10.8 and 12.6 percent (California Legislative Analyst's Office, 2014b).

However, because the historical data suggest that market values for commercial properties may grow more slowly than for all properties combined, and because we prefer to err on the conservative side when it comes to assumptions around market growth and their implications for our estimates, we select a middle-scenario assumption of average annual growth in market value for commercial properties of 8 percent. Based on our historical analysis, this assumption corresponds to average annual growth in assessed value for commercial properties of around 4.4 percent.

Finally, we should note that estimated tax revenue gains from assessing commercial property at market value are sensitive to changes in the market, such that a given change in market values can be expected to result in a much larger change in revenue gains. For example, given a disparity ratio of 1.3 (which is our estimate for the disparity ratio for all commercial property combined in 2012-13), a 10-percent increase in market values leads to nearly a 25-percent increase in estimated revenue gains.<sup>6</sup> Thus, to illustrate how differing assumptions around

market growth impact our results, we generate low- and high-scenario estimates which assume average annual growth in market values of 7 and 9 percent, which correspond with average annual growth in assessed values of 3.9 and 5.0 percent, respectively. The assumptions around average annual growth in market and assessed values that we apply under each scenario are summarized in Table 1 in the main body of this brief.

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<sup>6</sup> This example assumes a 5.5 percent increase in assessed values, which is the growth rate associated with a ten percent increase in market values emerging from our historical analysis.



# Acknowledgements

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USC Program for Environmental and Regional Equity (PERE) thanks the James Irvine Foundation and the Ford Foundation for providing funding that allows us to carry out this research. We also thank California Calls for commissioning this specific project. The authors want to recognize PERE staff for their assistance in the research: Jared Sanchez, Madeline Wander, Pamela Stephens, and graduate student researcher Jessica Medina. Gladys Malibiran and Jacqueline Wong were instrumental in the production of this brief. We also benefited from the early efforts of former PERE staff Mirabai Auer and graduate student researcher Hilary Wilson. We could not have accomplished this without the advice and guidance of many experts in this field. We thank Terri Sexton for providing invaluable advice early in our analysis. Finally, we appreciate the guidance of Tim Gage and Matthew Newman of Blue Sky Consulting Group throughout this project.

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