REPORT

BERKELEY INSTITUTE FOR YOUNG AMERICANS

A Reexamination of Proposition 13 Using Parcel Level Data

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Executive Summary

Proposition 13 plays an outsized role in the history of public finance in California and is a central feature of property ownership in the state. Despite its importance, the initiative's effects remain understudied, due in part to the logistical difficulties and costs of obtaining the accurate and comprehensive property data needed to illuminate the Proposition's effects. In this report, we use parcel-level data covering 2017 made available to us by Zillow to examine the effects of the Proposition 13 status quo and specifically how the law's benefits vary by property type. Our findings suggest that all property types benefit from Proposition 13. Commercial parcels generally receive larger absolute dollar discounts than residential, but we find that relative property tax discounts are similar for residential and commercial parcels. We discuss the implications of our findings for debates regarding the reform of Proposition 13.

California Property Taxes Overview

California's state finances and its ability to generate revenue are subject to the constraints of the state's unique property tax regime, established following the passage of Proposition 13 in 1978. The law puts limitations on both the assessed value of properties and the property tax rate, has produced inequities in property taxes levied on residents, and has severely limited local government's ability to levy taxes on its citizens (Legislative Analyst's Office, 2012; Silicon Valley Community Association & Joint Venture, 2013. It is difficult to generate accurate estimates of the law's effects due to challenges in gathering detailed, parcel-level data on California properties; however, the available data makes clear that, since its passage, Proposition 13 has played a central role in California public finance and property ownership in the state.

Pre-Proposition 13

At one point in the early 20th century, property taxes made up as much as 70% of state revenue, before Progressive and New Deal era tax reforms shifted the collection and management of property tax revenue almost entirely to local government entities.[1] Today, it is the central funding source for local government, including counties, cities, schools, and special districts in California (California State Board

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[1] All property taxes outside of those levied on private railroad cars are entirely levied by county assessor's offices (California State Board of Equalization, 2018).

of Equalization, 2018). Figure 1 shows that even given the reductions caused by Proposition 13, property taxes represent a significant proportion of the total tax revenue collected at all levels of government in the state.

Figure 1: Composition of Public Revenues in California as a Fraction of State GDP
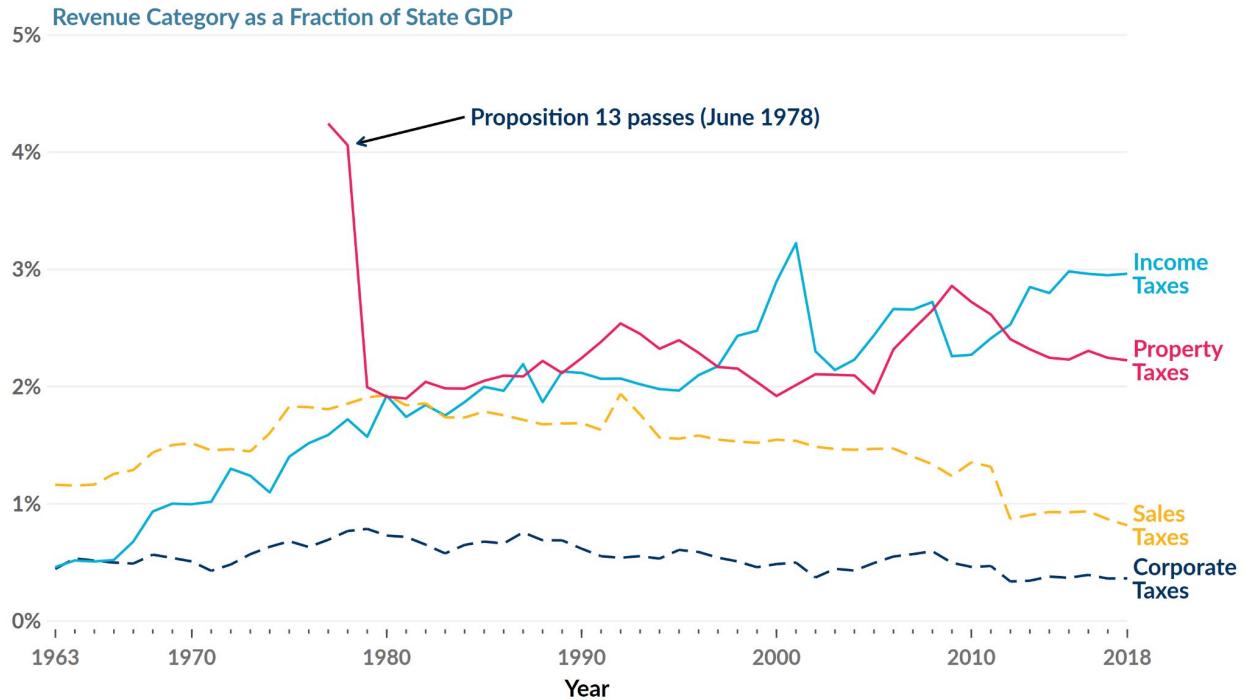
Proposition 13

In 1978, California voters approved Proposition 13, a ballot initiative that limited property taxes on all residential and commercial property in the state and significantly limited the ability of local governments to institute new taxes. Prior to Proposition 13, assessed property values were typically set at or near their contemporary market value (the amount they would potentially sell for) through cyclical appraisals and systematic review (California State Board of Equalization, 2018). During the 1970s, a period of high inflation, California home prices rose dramatically, and with assessed value set at or near market value, property tax levies also sharply rose. Proposition 13's campaign, referred to at the time as "The People's Initiative to Limit Property Taxation," was organized in response to resulting increases in property taxes and was marketed as a protection for homeowners, particularly those on fixed incomes (Nichols, 2018).

The campaign for Proposition 13 was focused on creating a benefit for homeowners, but the law makes no distinction between residential and commercial properties – all types of secured property became subject to Proposition 13's rules (Nichols, 2018). This follows from the fact that, while often advertised as a campaign for homeowners, some commercial interests, especially apartment complex owners, played an outsized role in the passage of Proposition 13 (Lo, 2018, p. 137). The Proposition 13 campaign's leader, Howard Jarvis, was simultaneously employed as the executive director of the

Apartment House Association of Los Angeles County (a lobbying group for apartment owners), members of the Orange County Apartment House Association led a signature collection drive, and the California Apartment House Owners Association endorsed the campaign (Lo, 2018, p. 137). Beyond apartment complex owners, business owners generally supported the Proposition, and it has been argued that it was their support that made the Proposition 13 campaign more successful than previous attempts by homeowner groups to change the tax code in their favor (Lo, 2018, p. 143).

The proposition ultimately passed with 65% of the vote and resulted in a constitutional amendment that fundamentally changed state and local government finances (Nichols, 2018).
Proposition 13 instituted three key changes to property taxes and by extension public finance in the state that are important to our research. The law caps local property tax rates near 1%[2] of a property's assessed value and ensures that a property's assessed value cannot grow more than 2% in a given year (California State Board of Equalization, 2018). Under Proposition 13, properties can only be reassessed to current market value upon change of ownership or new construction on the property (California State Board of Equalization, 2018).

The Effects of Proposition 13
Proposition 13 had far ranging effects on the way that California funds local government, especially education, and on the equity of levied property taxes.

Local Government Tax Revenue
Proposition 13 resulted in an immediate and significant drop in property tax payments, causing a roughly 60% decrease in property tax revenue for local governments in the year after passage (Legislative Analyst's Office, 2016). Many local government entities fell into a fiscal crisis, requiring a series of legislative bailouts that cost the state $9 billion in the two years after Proposition 13's passage (California State Board of Equalization, 2018). Local governments generally increased their sales, hotel, and utility taxes to make up for lost revenues, shifting tax burdens away from property owners (Legislative Analyst's Office, 2016). Cities and counties specifically have seen tax revenue per person decline outright in the decades since Proposition 13's passage, while local government entities in general have seen tax revenue per person decline relative to local government entities outside of California (Legislative Analyst's Office, 2016).

Disparities in Property Taxes
Due to Proposition 13's emphasis on the year of a property's purchase – the property's assessed value is "reset" at market value at the time of purchase – it privileges longtime property owners (California State Board of Equalization, 2018). In areas where there has been significant appreciation in property values, such as in parts of the San Francisco Bay Area and Los Angeles, disparities between longtime property owners and those who recently purchased property are especially pronounced. For example, in one census tract in Belmont, California,[3] the average assessed value of a property was $676,500 in 2018, meaning that on average, an existing property owner would owe about $6,765 that year in property

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[2] The cap is effectively 1% plus the rate needed to fund local voter-approved bond debts or special district assessments.
[3] Census Tract 06081608800.

taxes (Levin & Amihere, 2018). The average market value of a property in that same geography was $1.6 million, meaning a new property owner would pay on average $16,000 that year in property taxes – more than double what the existing property owner paid, purely because of differences in time of purchase (Levin & Amihere, 2018). This difference between market value and assessed value of a parcel can be thought of as the "Proposition 13 discount."

Attempts at Property Tax Reform

The Proposition 13 tax regime has become a central feature of property ownership in California (Levin, 2020). It is colloquially referred to as the "third rail" of California electoral politics in reference to the political danger posed by reforming it, and polling data show enduring support for Proposition 13 from the majority of Californians (Levin, 2020). However, this has not stopped various attempts to reform aspects of the law. The most recent and one of the most ambitious being Proposition 15, a 2020 ballot measure that would have raised commercial property taxes while preserving the status quo for residential property (Christopher, 2020). The Proposition ultimately failed, but it is worth discussing its proposal at more length.

Proposition 15

Proposition 15 would have implemented a "split-roll" system, where the Proposition 13 status quo would be preserved for residential and agricultural parcels, but other commercial and industrial parcels would have had property taxes tied to their market value – how much they could be sold for – rather than assessed value. This would have effectively raised commercial and industrial real estate property taxes, though with some temporary and permanent exemptions carved out for lower value businesses with less than 50 employees.[4] The reform would have increased revenue generation for state programs, like education; improving horizontal equity considerations of the property tax system by ensuring that similarly situated commercial and industrial properties pay similar amounts in taxes (e.g., two commercial property owners with similarly-valued properties would not pay substantially different amounts in property taxes due to length of ownership). Politically, the reform was intended to eliminate the benefits from Proposition 13 for commercial/industrial property owners, given the original campaign for Proposition 13 was ostensibly aimed primarily at residential properties. The measure narrowly failed ("California Proposition 15, n.d.), but it is the closest that the state has come to reforming Proposition 13 for the purpose of revenue generation and equity considerations.

Our Analysis Approach

Given the Proposition 15 proposal, we seek to identify to what degree commercial properties currently benefit from Proposition 13 and generally how the law's benefits vary by property type. Our work builds on previous efforts to study the effects and inequities of the Property 13 tax regime. Key differences between existing analyses of Proposition 13 typically lie in what data source they rely on and to what extent they isolate the analysis to specific property types. For example, Hahnel et al. (2022) use residential-level data obtained from various U.S. census products to estimate market value for

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[4] Increases funding sources for public schools, community colleges, and local government services by changing tax assessment of commercial and industrial property, initiative constitutional amendment (2020). https://lao.ca.gov/BallotAnalysis/Proposition?number=15&year=2020

residential property. In order to verify the data, which was based on homeowners' estimates of their own property values, the authors benchmark those estimates on aggregate values from the S&P/Case-Shiller Home Price Index (Hahnel et al., 2022). Ito et al. (2018, 2020) use parcel-level data from CoreLogic, a private business intelligence firm, and the authors limit their analysis to only commercial properties, given their focus on split-roll tax reform. We conduct parcel-level analysis of both residential and commercial real estate using the extensive administrative records available via The Zillow Transaction and Assessment Dataset, and use publicly available data from the California Board of Equalization to benchmark and verify the accuracy of that data. We focus on examining how the effects of Proposition 13 vary by property type, which has implications for any "split-roll" reform.

Data

The Zillow Transaction and Assessment Dataset (ZTRAX) is a comprehensive, national real estate database made available free of charge to U.S. academic, nonprofit and government researchers.[5] The principal benefit of working with ZTRAX is having access to parcel-level data collected and maintained by county assessors, recorders, and clerks, including parcel sale price, assessed value, location, land-use designation, and much more. In the case of California, we have access to records for approximately 12 million parcels in the state.[6] With this data, we are able to examine the effects of Proposition 13 and how those effects differ by property type. The key variables for this analysis are as follows:

- "Assessed Value" and "Assessment Year," which represent a property's total assessed value according to the county, and the year associated with that recorded assessed value. We have access to assessed value for essentially every parcel in California in 2017.
- "Sale Price" and "Date of Sale" represent the price and date of a given parcel's last transfer. Sale price can be interpreted as the market value of that parcel if the transfer was an "arms-length sale" (a term for a sale that is made at the fair market value of the parcel).
- "Document Type" and "Sales Type" are standard codes for each parcel transfer that indicate to us whether a transfer was indeed an "arms-length sale" at true market value.
- Various parcel characteristics, including "Zip Code," which is the finest grain geographic identifier available in the data, and "Property Use Code," which tells us whether a property is residential, commercial, vacant, etc.

Using the above information, one can examine the gap between the arms-length "Sale Price" and "Assessed Value" for a parcel and determine the extent to which the parcel is receiving a discount from Proposition 13 (assuming the property would be taxed at its "Sale Price," analogous to market value, in the absence of Proposition 13). Additionally, we look at how these discounts vary across property types. All results reported in our analysis are nominal dollars for 2017.

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[5] Data provided by Zillow through the Zillow Transaction and Assessment Dataset (ZTRAX). More information on accessing the data can be found at http://www.zillow.com/ztrax. The results and opinions are those of the author(s) and do not reflect the position of Zillow Group.
[6] Analysis of ZTRAX. The results and opinions are those of the author(s) and do not reflect the position of Zillow Group.

Limitations

While ZTRAX presents us with the opportunity to potentially analyze the entire universe of California parcels and estimate the effects of Proposition 13, we are confronted with a few key limitations to our analysis:

1. *Not all parcels are sold for market value.*
   Each year only a small subset of parcels actually sells, and of that subset an even smaller group is sold at market value (many others are transfers for less than "full consideration").[7] We only know the true market value of those parcels that are sold at market value. Determining which sales records represent market value sales in ZTRAX is a complex task that other research groups, notably the PLACES Lab at Boston University, have devoted considerable time to (Nolte et al., 2021). We use their data processing procedure to identify those sales records that represent market value. To know the true market value of parcels that did not sell, one could feasibly use a statistical model to predict and/or forecast their value, but this is beyond the scope of our study.[8]

2. *The degree to which data are missing varies by county.*
   In order to determine the degree to which data in ZTRAX is missing, we benchmark parcel counts, total assessed value, property taxes paid, and property transfer counts on public data from the California Board of Equalization (BOE). We find that, at the state level, benchmarks of ZTRAX figures are consistently within 5% of those in the BOE data (Zhang & Amerkhanian, 2023). However, as we examine individual counties, we find that some have severe error rates (assuming the veracity of state figures), with some upwards of 60%. This reflects widespread missing parcels in some cases, and widespread overcounting of parcels in others, none of which seems to be randomly distributed (Zhang & Amerkhanian, 2023). We note that San Mateo had the most complete set of records, with 95% of parcels represented in the data.

Given these limitations, we extensively process our data prior to analysis and subject our analysis to several robustness checks. We restrict analysis to only those parcels in the state that have sold for fair market value. Since 2017 is the only year for which we have both commercial and residential parcel records, we also restrict our analysis to that year. For those parcels, we know their true market value via their sale price and are able to calculate the difference or ratio between that value and their assessed value. We examine how those measures vary with respect to property use code, with and without controlling for geography (Zip Codes) and month of sale. We repeat that analysis twice – once at the state level, where our aggregate numbers are accurate but we find significant error county-by-county – and once at the level of one county, San Mateo, where we have verified the data much more closely and attain a high degree of accuracy with respect to sales price, assessed value, and parcel count.[9]

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[7] See Figure 1.

[8] ZTRAX does not include Zillow's own market value forecast, known as the "Zestimate."

[9] San Mateo County was subject to benchmarking with San Mateo County Association of Realtors data. The results of that benchmarking exercise can be found in a separate brief, Benchmarking The Zillow Transaction and Assessment Dataset (ZTRAX). We confirmed that 95% of parcels were included in the data, and that sales prices were accurate according to data from the San Mateo Realtor's Association

Analysis

Statewide Trends

Characteristics of Parcels Sold in 2017

We first examine trends at the state level. There are, according to ZTRAX, approximately 12 million unique parcels in the state, and of that group, a subset of about 360,000 parcels sold at fair market value in 2017. The key assumption of our analysis is that, for all parcels of a given property type, the relative differences in the distribution of assessed value and market values are similar for the subpopulations of unsold and sold properties. While this is a standard assumption in the literature, due to the paucity of administrative data on market values, it is important to note that there are differences between the sold/unsold subpopulations, which we note in Table 1. For instance, the subpopulation of parcels that sold at market value has a lower assessed value (a mean of about $440k vs $480k in the broader population of parcels). There is also a degree of difference in the relative frequency of the property types in each subpopulation, with residential parcels overrepresented among properties sold.

Table 1: Parcel Counts by Property Type (Among Properties Sold vs Not Sold in 2017)

	Among Parcels Sold		Among Parcels Not Sold	
Land Use Code	Frequency (#)	Percent of Total (%)	Frequency (#)	Percent of Total (%)
Residential	334,077	81.92	9,279,601	74.8
Vacant Land	35,402	8.68	1,225,030	9.87
Residential Income - Multi-Family	17,357	4.26	614,445	4.95
Commercial Retail	6,752	1.66	266,629	2.15
Agricultural	4,927	1.21	308,933	2.49
Industrial	3,391	0.83	120,626	0.97
Commercial Office	3,063	0.75	97,979	0.79
Miscellaneous	1,398	0.34	167,392	1.35
Exempt & Institutional	513	0.13	75,626	0.61
Governmental	287	0.07	148,510	1.2
Industrial-Heavy	277	0.07	19,212	0.15
Recreational	263	0.06	30,272	0.24
Transportation	67	0.02	10,405	0.08
Communication	34	0.01	1,666	0.01

Analysis Results

In examining the Proposition 13 discounts that various parcels received, we examine the difference between a parcel's market value through two measurements:

- The difference between a parcel's sale price and its assessed value within the same year as the sale. We will refer to this measure as the "absolute difference," and it shows the actual dollar discount that a parcel owner received under Proposition 13, relative to a system in which property taxes were based on market value.

- The ratio of a parcel's sale price to its assessed value within the same year as the sale. We will refer to this measure as the "differential ratio." As a relative indicator, it shows us the sale price expressed as a percentage of the assessed value – a measure of the percentage discount that a parcel owner received.

The first of these two measurements, the absolute difference, offers an easily interpretable measure of Proposition 13's effect, and its median value is shown for each class of property in Figure 2 below, with values rounded to the nearest $5k.

It's evident that non-residential properties, especially Industrial-Heavy, Industrial, and Commercial Retail properties, reap very large median discounts under Proposition 13 – the median difference between market value and assessed value was $720k for Industrial-Heavy parcels in our sample. One disadvantage of this form of comparison is that property values typically vary widely between property types – e.g. Industrial parcels are typically much larger and more valuable than Residential parcels. Expressing absolute dollar differences between market and assessed value overstates the benefits received by more expensive parcels, as $720k could be a small difference relative to the value of an Industrial-Heavy property.

We use the differential ratio, expressed as a ratio of market to assessed value, to generate a statistic that takes into account the general price differences between property types. Figure 3 depicts the differential ratios for each class of property, measured in three distinct ways:

- We first show "naive medians," which are median differential ratios without any controls. These statistics are directly comparable to the median absolute differences already depicted in Figure 2, though are expressed in percentage rather than absolute terms.

- We show "naive means," which express the average differential ratio without controls. These statistics are computed using trimmed data, where we remove the top 1% and bottom 1% of parcels in terms of sale price to remove the influence of extreme outliers.

- We compute linear regression coefficient estimates, also using trimmed data, of the mean differential ratios for each property type, holding zip code and month of purchase constant, allowing us to control for the variation in property values that arises due to seasonal price fluctuation and geography in our measurements. We label this statistic as "mean with controls" in Figure 3.

We note that trimming the data leads to Recreational and Industrial-Heavy parcels having too few parcels to display,[10] so they are omitted in Figure 3. All of our measurements show that, after taking into account a property's value, Vacant Land, Miscellaneous (i.e. railroads, wells, roads), and Agricultural parcels claim the largest relative Proposition 13 discounts.[11] However, by cross referencing the results with those in Figure 2, we also find that in absolute dollar terms, these parcel types' discounts are some

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[10] A threshold of 30 parcels for any parcel type is used for privacy in accordance with Zillow's guidance.
[11] Note that we largely disregard Government property in this analysis, as it represents very few (59) properties.

of the smallest of all property types, suggesting that the large relative discounts may not be particularly consequential for property tax revenue. Likewise, by cross referencing Figures 2 and 3, we find that while Industrial parcels receive the largest absolute dollar discounts, they receive among the smallest discounts relative to their parcel's values.

Figure 2: Median Absolute Differences Between Property Value (Market Value) and Assessed Value, California
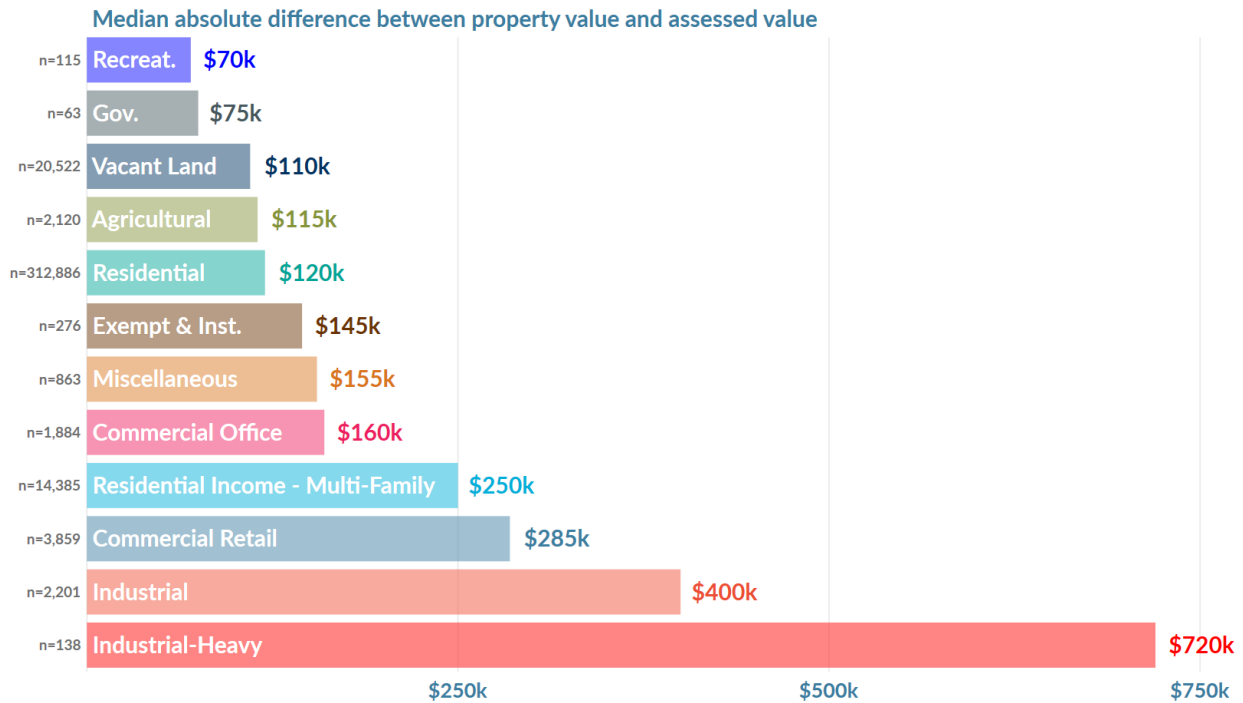
Median absolute difference between property value and assessed value

	Category	Value
n=115	Recreat.	$70k
n=63	Gov.	$75k
n=20,522	Vacant Land	$110k
n=2,120	Agricultural	$115k
n=312,886	Residential	$120k
n=276	Exempt & Inst.	$145k
n=863	Miscellaneous	$155k
n=1,884	Commercial Office	$160k
n=14,385	Residential Income - Multi-Family	$250k
n=3,859	Commercial Retail	$285k
n=2,201	Industrial	$400k
n=138	Industrial-Heavy	$720k

$250k $500k $750k

Source: Authors' analysis of ZTRAX.
Sample: ZTRAX California data, 2017. Restricted to parcels transacted at market value using PLACES Lab methodology.
Notes: This visualization illustrates the median discount (property value minus assessed value), with median values rounded to the nearest $5k.

There are several takeaways from this analysis. Zooming out, it is clear that all categories of parcels receive substantial relative discounts from Proposition 13; results for Commercial Office, representing the smallest differential ratio, show that market values are twice as large as assessed values on average. Furthermore, all property classes show that median differential ratios run much smaller than the mean, with or without controls, indicating that outliers for this measure are driving up the averages. That said, no specific property types appear to be clear winners in terms of their Proposition 13 benefits across *both* absolute and relative measurements. Indeed, in terms of relative discounts, most of the property types are not substantially distinguishable, while those that are – Agricultural, Vacant, and Miscellaneous parcels – receive very small absolute dollar discounts. All property classes other than Agricultural, Vacant, and Miscellaneous have a range of differential ratios for the mean with controls of 2.2 to 2.94 (Commercial Office and Governmental, respectively).

Figure 3: Estimates for Differential Ratios by Property Type, California
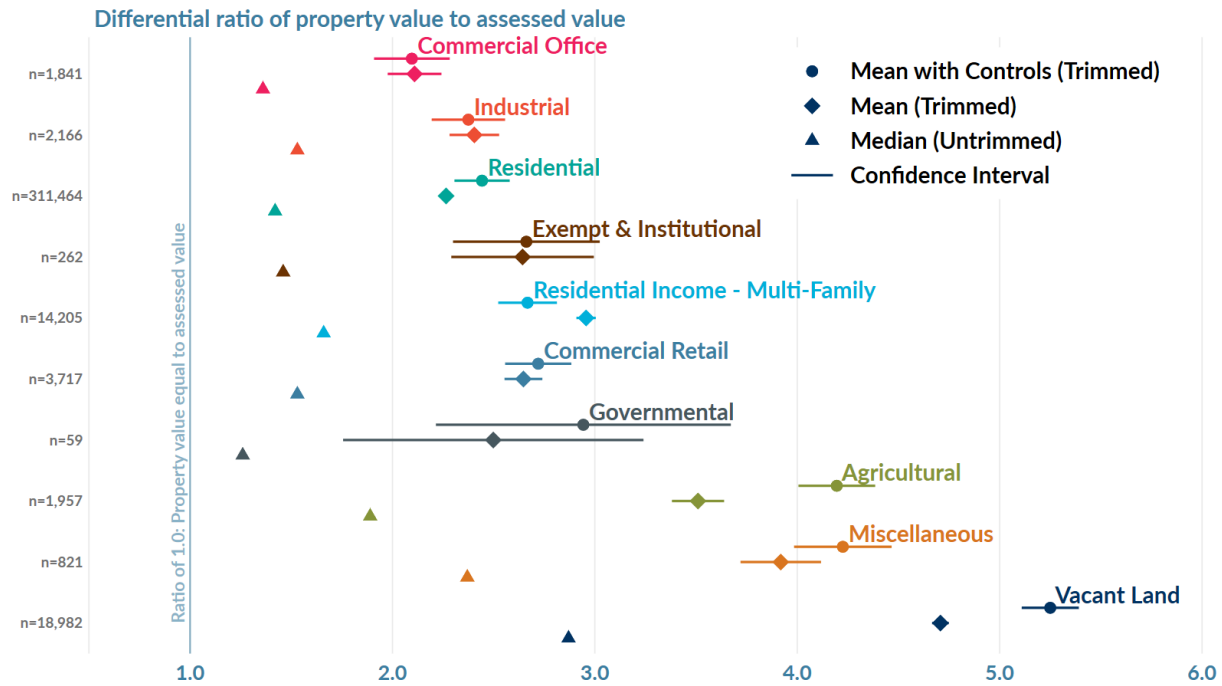
Source: Authors' analysis of ZTRAX.
Sample: ZTRAX California data, 2017. Restricted to parcels transacted at market value using PLACES Lab methodology.
Notes: Trimmed data eliminates any parcels with assessed value of less than $1 and only reports results for the middle 99% of data. Sample size (n) reported for trimmed sample. Property types with less than thirty observations are excluded from reporting to protect data confidentiality.

San Mateo Trends

We proceed to analyze trends in Proposition 13 discounts within San Mateo County, the 15th largest county in California, located just south of San Francisco (U.S. Census Bureau, 2021). San Mateo offers a helpful case study of state property taxes using data from ZTRAX for two reasons: 1) it contains the most complete parcel sales price records of all counties in the state – in most counties we found that sales price was missing in ZTRAX for more than 50% of records, whereas in San Mateo it was present for 95% of records – and 2) by isolating to just one county, we are able to more rigorously benchmark and verify its assessment and sales data in ZTRAX with other sources.

San Mateo Benchmarking

We compared San Mateo County's data with data from the BOE to benchmark assessed value, parcel counts, and taxes paid, which is the same benchmarking process that state-wide data was subject to (Zhang & Amerkhanian, 2023). This benchmarking exercise showed that for all of these measurements the San Mateo data in ZTRAX is within 2% of that in the BOE records, suggesting a high degree of accuracy in ZTRAX relative to state figures. Unlike the rest of the state, we also subjected San Mateo's sales records to benchmarking with data obtained from the San Mateo Realtor's Association (SMRA), with which we were able to verify the degree of accuracy of sales counts and sales prices for San Mateo County's single family homes sold in 2017, finding that average sale prices in ZTRAX were within 15% of the average sale prices in SMRA data (Zhang & Amerkhanian, 2023).

How Different is San Mateo from California?

While San Mateo represents the county with the best data quality for our purposes in ZTRAX, it may not be representative of the state as a whole. San Mateo County is one of the wealthiest counties in California by most measures – in 2019, the county had the third most taxable income per-capita in the state, only coming behind Marin and San Francisco Counties.[12] It also had the third highest average assessed parcel value of all counties in the state in 2021 (roughly $1.1 million).[13] Both residential and commercial properties are typically valued higher in San Mateo compared to the state as a whole, though parcels do seem to see market value transactions at a similar rate as in the rest of the state, as evidenced by "Average Years Since Last Sale" in Table 2.

Table 2: San Mateo County versus California, Source: 2020 ACS 5-year estimates,[14] ZTRAX

	San Mateo County	California
Population	765,623	39,346,023
Population Non-white (%)	61%	63%
Median Household Income	$128,091	$78,672
Median Owner-Occupied Housing Unit Value (Owner's estimate in ACS)	$1,163,100	$538,500
Average 2017 Sale Price / Assessed Value Ratio, All Properties	$1,754,203 / $919,450 = **1.90**	$875,106 / $453,678 = **2.03**
Average Years Since Last Sale[15]	14.72	14.02

We conclude that San Mateo will likely see higher Proposition 13 discounts compared to the rest of the state when we measure by absolute dollars. However, when we examine the ratio of sales price to assessed value for San Mateo and the state as a whole, they are quite close on average, and thus in our San Mateo analysis we expect to be able to add information that meaningfully complements our state-level results.

Analysis Results

We replicate the analysis that we previously used to analyze Proposition 13 effects at the state level, generating the same statistics at the level of San Mateo County. As evidenced by Figures 5 and 6, we are working with substantially smaller sample sizes for each property type, making for larger confidence intervals on our estimates. We also do not have sufficient Miscellaneous or Agricultural parcels to analyze, and too few Commercial Office parcels to analyze after trimming; therefore, far fewer parcel types are displayed than in the state-level analysis.

Figure 4 shows, similarly to the statewide numbers expressed in Figure 2, that various types of commercial parcels claim the largest Proposition 13 discounts in absolute terms. The estimates are all

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[12] Authors' analysis of data from the U.S. Internal Revenue Service (n.d.).

[13] Authors' analysis of data from the California State Board of Equalization (2022).

[14] Obtained via https://censusreporter.org/.

[15] "Average years since last sale" is measured relative to 2017, the most recent year in ZTRAX. For example, the average in San Mateo County is 14.02 years, so the average year of last sale is 2003.

generally higher than at the state level, for example the median discount for a residential parcel in San Mateo County is $565K, compared to the state median of $120K, but they follow similar general trends.
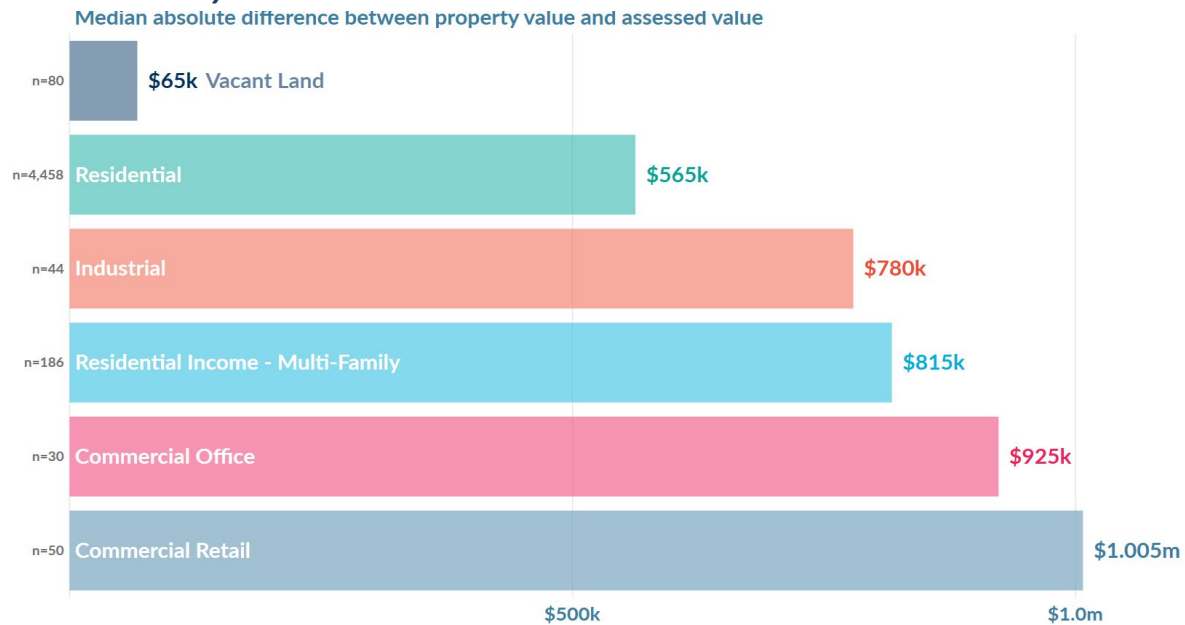
Figure 5 shows relative discounts in San Mateo, and we find that the estimates that we obtain largely reinforce those that we generated at the state level. The ordering of parcel type by largest to smallest differential ratio is the same as at the state level. We again see large differential ratio estimates for Vacant Land, but we again can contextualize those findings with the fact that Vacant Land claims the smallest median discount of all property types in San Mateo in absolute dollar terms.

Discussion

### *Proposition 13's Benefits for Homeowners*

Proposition 13 was famously passed due to a "homeowner's revolt," and given its purported aim of helping homeowners, we examine both whether Proposition 13 benefits homeowners and the degree to which it benefits other property types (Christopher, 2020). Our analysis of state level data and San Mateo County data show that within our samples, residential parcels received substantial benefits. Indeed, holding zip code and month of sale constant, we find that California's residential parcels in our sample had average market values that were 2.4 times their assessed values, and in San Mateo, market values for residential parcels were 4.3 times their assessed value. These figures represent very large property tax discounts for homeowners. However, they are also clearly driven to some degree by outliers. At the median, a statistic less sensitive to outliers, residential parcels were valued at 1.4 times assessed value in California as a whole, and 1.8 times assessed value in San Mateo. Either way, Residential parcels receive substantial benefits, as the campaign for Proposition 13 intended.

Figure 4: Median Absolute Differences Between Property Value (Market Value) and Assessed Value, San Mateo County

Median absolute difference between property value and assessed value

- n=80 — $65k Vacant Land
- n=4,458 — Residential — $565k
- n=44 — Industrial — $780k
- n=186 — Residential Income - Multi-Family — $815k
- n=30 — Commercial Office — $925k
- n=50 — Commercial Retail — $1.005m

$500k $1.0m

Source: Authors' analysis of ZTRAX.
Sample: ZTRAX California data, 2017. Restricted to parcels transacted at market value using PLACES Lab methodology.
Notes: This visualization illustrates the median discount (property value minus assessed value), with median values rounded to the nearest $5k.

Figure 5: Estimates for Differential Ratios by Property Type, San Mateo County
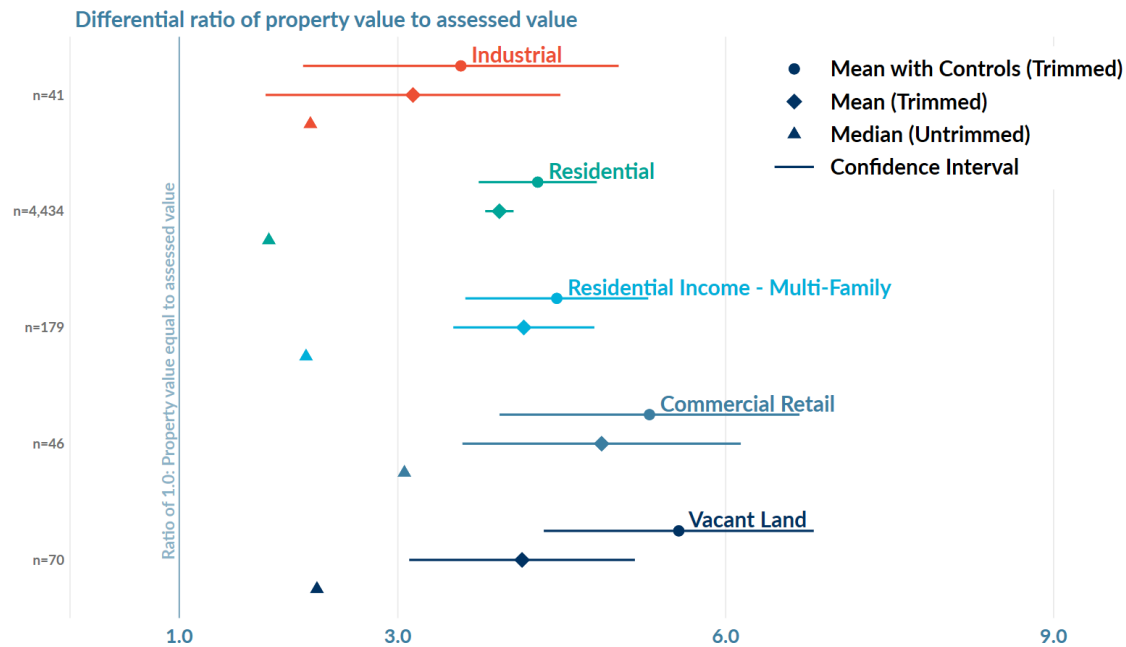
Differential ratio of property value to assessed value

Source: Authors' analysis of ZTRAX.
Sample: ZTRAX California data, 2017. Restricted to parcels transacted at market value using PLACES Lab methodology.
Notes: Trimmed data eliminates any parcels with assessed value of less than $1 and only reports results for the middle 99% of data. Sample size (n) reported for trimmed sample. Property types with less than thirty observations are excluded from reporting to protect data confidentiality.

While homeowners benefitted from the Proposition, did it ultimately serve commercial interests – owners of Industrial, Commercial, Agricultural, etc. properties – more? We can begin to answer this question using our results. At the state-level, various types of commercial parcels see absolute property tax discounts that are much larger than those received by Residential parcels, but that is clearly an artifact of commercial parcels being worth more. Once expressed in relative terms, discounts are largely similar between Residential parcels and all other property types, with the exception of Vacant Land, Miscellaneous, and Agricultural parcels. It is possible that these specific classes of parcels see a large relative discount because they experience less property turnover than other parcel types, which would lead to a growing divergence between assessed value and market value due to Proposition 13. However, we did not directly test this question and leave it for further research. Importantly, Vacant Land, Miscellaneous, and Agricultural parcels receive such small discounts in absolute dollar terms that their large relative discounts may not be relevant to any Proposition 13 reform that seeks to increase property tax revenues.

Our results pose a new set of questions, both normative and positive. First, is it desirable that all parcel types receive roughly similar relative benefits under Proposition 13? Should residential parcels see more benefits than others given the goals of Proposition 13's initial campaign? These are political questions that can be further probed in light of this paper's findings. Second, within these parcel types, how are Proposition 13's benefits distributed? Distributional effects of Proposition 13 on homeowners is discussed in depth by Hahnel et al. (2022), who find heterogeneity with respect to race, age, and income and conclude that white, older, longer tenured homeowners of high value properties typically receive

larger Proposition 13 benefits. The distributional effects of Proposition 13 on owners of other types of parcels should be examined through further research.

Conclusions

The principal goal of this analysis has been to explore important questions about the discounts of Proposition 13. We engage in various benchmarking and data quality control procedures to improve the generalizability of our results, and we proceed to describe how Property 13 benefits vary by property type. Our findings raise important questions about the Proposition 13 status quo and provide a better understanding of the implications of a Proposition 15-style reform approach. We hope future research can build on these findings, ideally using a data set with more representative sales or market value data at the state level.

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Appendix

Tables for Figures 2 and 3: California Estimates

Differential Ratios: Mean and Mean with Controls

Land Use	Mean with Controls	Mean with Controls (Lower CI)	Mean with Controls (Upper CI)	Mean	Mean (Lower CI)	Mean (Upper CI)	N
Vacant Land	5.25	5.11	5.39	4.71	4.67	4.75	18,982
Miscellaneous	4.23	3.98	4.47	3.92	3.72	4.12	821
Agricultural	4.2	4.01	4.39	3.51	3.38	3.64	1,957
Governmental	2.94	2.21	3.67	2.5	1.76	3.24	59
Commercial Retail	2.72	2.56	2.88	2.65	2.55	2.74	3,717
Residential Income - Multi-Family	2.67	2.52	2.81	2.96	2.91	3.0	14,205
Exempt & Institutional	2.66	2.3	3.02	2.64	2.29	2.99	262
Residential	2.44	2.31	2.58	2.26	2.25	2.28	311,464
Industrial	2.38	2.19	2.56	2.4	2.28	2.53	2,166
Commercial Office	2.1	1.91	2.28	2.11	1.98	2.24	1,841

Median Ratios and Absolute Discounts

Land Use	Median Discount ($)	Median Differential	N	% Of Parcels
Industrial-Heavy	720,000	–	138	0.04
Industrial	400,000	1.53	2,201	0.62
Commercial Retail	285,000	1.53	3,859	1.08
Residential Income - Multi-Family	250,000	1.66	14,385	4.04
Commercial Office	160,000	1.36	1,884	0.53
Miscellaneous	155,000	2.37	863	0.24
Exempt & Institutional	145,000	1.46	276	0.08
Residential	120,000	1.42	312,886	87.95
Agricultural	115,000	1.89	2,120	0.6
Vacant Land	110,000	2.87	20,522	5.77
Governmental	75,000	1.26	63	0.02
Recreational	70,000	–	115	0.03

Tables for Figures 5 and 6: San Mateo Estimates

Differential Ratios: Mean and Mean with Controls

Land Use	Mean with Controls	Mean with Controls (Lower CI)	Mean with Controls (Upper CI)	Mean	Mean (Lower CI)	Mean (Upper CI)	N
Vacant Land	5.57	4.34	6.81	4.14	3.1	5.17	70
Commercial Retail	5.3	3.93	6.67	4.86	3.59	6.14	46
Residential Income - Multi-Family	4.45	3.62	5.29	4.15	3.51	4.8	179
Residential	4.28	3.74	4.82	3.93	3.8	4.06	4,434
Industrial	3.58	2.13	5.02	3.14	1.79	4.49	41

Median Ratios and Absolute Discounts

Land Use	Median Discount ($)	Median Differential	N	% Of Parcels
Commercial Retail	1,005,000	3.06	50	1.04
Commercial Office	925,000	–	30	0.62
Residential Income - Multi-Family	815,000	2.16	186	3.87
Industrial	780,000	2.2	44	0.92
Residential	565,000	1.82	4,458	92.78
Vacant Land	65,000	2.26	80	1.66