The Effect of Mild Rent Control on Multifamily Housing Prices and the Implications for Rental Supply

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Abstract

Rent control is the classic example of a price ceiling. I estimate the effect of AB 1482, a recently implemented rent control law in California, on landlord's anticipated future profits. Using data on sales prices of multiple family housing buildings, I find that the value of new controlled rental buildings did not decline after the passage of rent control using a differences in differences approach. In this case, the rent control did not substantially effect the landlord's value of rental housing because the law's price ceiling is typically non-binding. AB 1482 is an example of a non or rarely binding rent control policy that is unlikely to substantially impact landlords incentives to provide rental housing to the market but can protect tenants from the risk of extreme rent increases.

Keywords: Rent Control, Rent Stabilization, Housing Supply, Urban Economics.

Rent control is the classic example of a price ceiling. Econ 101 supply-demand models suggest that basic rent control (if binding) reduces the price a landlord receives for rental housing and

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encourages landlords to exit the rental market (condo conversion) and prospective landlords to not enter the market (reduced housing production). These effects lead to a reduction in the rental and total housing supply which increases housing costs thereby undermining the primary goal of rent control:reducing the price of rental housing.

More recent efforts to create rent control policies have worked to mitigate this issue. Policies often allow for rent increases above inflation, exempt new construction, and eliminate price controls after a tenant voluntarily leaves. These policies aim to ensure that rent control policies do not substantially reduce profits of landlords while protecting current tenants from large increases in rental prices. These milder rent ceilings are often called rent stabilization. The extent that these factors work to achieve these often conflicting goals is limited and is a policy relevant topic given recent expansions of rent control in California, Oregon, and Minnesota.

Urban economists have worked to evaluate whether these methods hold up in practice. There is little direct empirical evidence of rent control on housing supply but there are some theoretical papers on the housing supply effects of rent control and a wide variety of research on related impacts of rent control. Both Glaeser and Luttmer [2003] and McFarlane [2003] present models of housing supply under rent control. McFarlane [2003] argues for ambiguous effects on rent control on housing supply if rent controls do not apply to new tenants while Glaeser and Luttmer [2003] provide the standard analysis of price ceilings as reducing housing supply. A model shown in Mense et al. [2019], suggests that rent control policies that leave new apartments uncontrolled can boost production due to higher prices in the uncontrolled portion of the market. The older literature summarized by Arnott [1995] describes how rent control can impact a wide variety of outcomes but notes there was little conclusive empirical work at the time to evaluate competing models.

More recent research using modern econometric methods have provided some clarity to the issue of rent control and its impacts. Recent work by Sims [2007], Diamond et al. [2019], and Asquith [2019] show evidence of increased conversion from rental to owner-occupied housing under rent control. Early and Phelps [1999], Mense et al. [2017], and Fallis and Smith [2021] find evidence that rent controlled units decline in rent relative to uncontrolled units. Mense et al. [2017] finds

evidence that rent control raises land values from higher prices due to higher anticipated rents in new development which are exempted from rent control.

Due to the passage of statewide rent control in California, I can compare the transaction prices of impacted multi-family housing buildings before and after the passage of rent control relative to the prices of buildings that experience no change in rent control. I estimate well-identified effects of rent control on building prices and recover the implied cost to a landlord. The existing work that is most similar to my paper and approach is Mense et al. [2017] who uses a similar strategy to estimate the effect of a short term rent cap applied to high growth German cities. My paper differs from theirs because I focus on a different market, a policy with a longer and more certain lifetime, and convert my estimates into quasi-structural terms.

This project uses California's statewide rent control law, AB 1482, passed in mid-2019 which applies rent control to almost all multifamily buildings that are 15 years old or older and some rented single-family homes. The law allows rent to increase by up to 5% plus inflation capped at 10% over the prior year for existing tenants. A landlord can set the rent for new tenants at any price the market will bear. The law will sunset after ten years and baseline rents are based on early 2019 contracts to avoid pre-implementation increases. This generates variation across similar properties in their exposure to the law. Properties that are already under rent control or will not be 15 years old prior to 2030 are unaffected under this law. Most buildings effected by the policy are effected for 10 years but a small number of buildings are only effected for some years.

I evaluate this policy using a differences in differences approach over 2017 though February 2020. I estimate the relative change in the transaction prices of impacted multiple family home buildings sold in select California counties before and after AB 1482 is passed relative to buildings already subject to rent control. My estimates are consistent with a small effect of this rent control policy on the value of owning rental housing. My preferred specifications suggest newly rent controlled buildings had a .6% increase in price relative to buildings with no changes with similar results holding in both Los Angeles and the Bay Area. This is consistent with this expansion of rent control as typically non-binding and therefore if made permanent unlikely to substantially reduce housing supply in California.

1 Background

1.1 Californian Rent Control

Rent control has a long history in America. The first major form of rent control occurred during World War II as part of wartime price controls. After the war, most areas (with the exception of New York City) abolished these rules ending local rent control. Rent control remained rare until the 1970s when a "second-generation" rent control movement began to establish itself in a number of major coastal cities and nearby towns.[1]

California's second generation rent control occurred mostly in cities in the Los Angeles and Bay Area regions. This occurred due to high inflation, political radicalism, and the passage of Proposition 13 in California.[2] Proposition 13 is a statewide ballot initiatives that lowered landowner's property taxes and reduced how much they could rise and was passed, in part, on promises that landlords would pass (some of) these saving to tenants. Following an apparent failure of landlords to pass on these savings, support for rent control rose and in the late 1970s and into the 1980s a number of cities established rent control.[3]

These rent control programs share a set of common features that persist to the day. They usually only applied to existing rental housing and often excluded single family homes, condominium units for rent, and some small apartment buildings (2-4 units). Each jurisdiction established a cap on the percentage rent could be raised each year usually as function of inflation. There are some exceptions that allowed landlords to bank unused rent increases and allowed additional increases after major building improvements or in times of financial instability for the landlord. In addition, some jurisdictions (eventually all) practice "Vacancy Decontrol" where when a renter moves out (voluntarily) the landlord can choose to rent at any price the market will bear for the new tenant. Rent control was usually accompanied by increased rights for tenants and "Vacancy Decontrol" is usually limited to voluntary moves by tenants to discourage landlords from pushing out rent controlled tenants. Not all laws initially included "Vacancy Decontrol" but in 1996, the Costa-

[1] Arnott [1995]
[2] Arnott [1995]
[3] Arnott [1995]

Hawkins Act required all rent control laws to include "Vacancy Decontrol".

During the recent housing crisis, a number of cities have added rent control policies. Alameda City, Beverly Hills, Culver City, Inglewood, and unincorporated Los Angeles County all adopted rent control laws. Around the same time, a pair of state wide initiatives that would allow for the removal of "Vacancy Decontrol" and made more units eligible for local rent control failed. In response to increased demand for rent control, SB 1482 was passed and signed into law as a relatively loose form of rent control in September, 2019. It was formed as a last minute compromise bill between tenant activists and landlords. It left existing and new local rent control rules intact and only impacted buildings that were not already covered under local rules.

AB 1482 expanded rent control statewide in California on relatively generous terms to landlords. The law covers all buildings that are at least 15 years old with multiple units[4] with exemptions for public housing. In 2020, all building built prior to 2006 are covered and in 2021 all buildings built prior to 2007 are covered. AB 1482 will expire at the end of 2029. A landlord cannot raise the rent by more than the minimum of 5% plus the local CPI and for a total no more than 10%. Outside of extreme fluctuations in CPI, this is a looser regulation than existing local rent control rules which are left intact. In addition, AB 1482 adds "Just Cause" eviction requirements to covered buildings. These are rules that limit the reasons a tenant can be evicted, limit when "Vacancy Decontrol" applies, and can mandate a relocation fee for certain kinds of evictions. Like with the rent increase cap, local rules that are more stringent are left intact.

Table 1 lists the dates of rent control implementation and basic features of each city's rent control regime. This list covers the four counties I use in this study which contain most local rent control laws in California. The table shows the date each city first passed rent control, the types of buildings covered, and how much rent is allowed to rise each year under normal circumstances. Eligibility for rent control is more complicated because in many cities (some) units built to replace demolished covered units are also controlled, small partially owner-occupied buildings are sometimes exempted, and most public and income-restricted housing is excluded from rent control. In many cities, landlords who do substantial renovation, provide new services, or are in financial distress can

[4]Single family housing rented by companies with at least ten units for rent are also included and duplex's with one owner occupied unit are exempted.

Table 1: Local Rent Control Laws in Selected California Counties

City	(1) Date Passed	(2) Eligibility	(3) Allowed Annual Increase
Alameda County			
Alameda	2016-3-1	Two or more units built prior to February 1, 1995.	70% of CPI change if between 1% and 5% with banking.
Berkley	1980-6	Two or more units built prior to June, 1980.	65% of CPI for Oakland MSA.
Hayward	1983-09-13	Two or more units built before July 1, 1979.	5% with banking of unused increases up to 10%.
Oakland	1980	Two or more units built prior to 1983.	CPI for Oakland with banking of unused increases up to 10%.
Los Angeles County			
Beverly Hills	2017-01-24	Two or more units built prior to 1996.	Maximum of 3% or CPI for Los Angeles.
Culver City	2019-08-01	Two or more units built prior to 1996.	Maximum of CPI for Los Angeles.
Inglewood	2019-03-05	Five or more units built prior to 1996.	Maximum of 3% or CPI for Los Angeles.
Los Angeles City	1979	Two or more units built prior to 1978.	3% to 8% depending on CPI for Los Angeles.
Los Angeles Unincorporated	2018-12-21	Two or more units built prior to 1996.	3% or equal to CPI for Los Angeles up to 8%.
Santa Monica	1979	Two or more units built prior to to 1980.	75% of CPI for Los Angeles.
West Hollywood	1985-01-27	Two or more units built prior to July 1, 1979.	75% of CPI for Los Angeles.
San Francisco County			
San Francisco	1979-6-13	Two or more units built prior to June 13, 1979.	60% of Bay Area CPI.
San Mateo County			
East Palo Alto	1988-4	Two or more unit properties built prior to 1988.	80% of Bay Area CPI up to 10%.

apply to the city to raise rent above the limits.

Broadly most of the rent control laws were passed in 1979-1980s with a second smaller group around 2018. The Bay Area laws tend to be a bit older and a bit stricter towards allowed rent increases than in Los Angeles. The City of Los Angeles (and county) have the least restrictive policy allowing between 3 and 8 percent increases in rent. Most of the other policies limit increases to consumer price index changes or a fraction of consumer price index changes. Most policies apply to all multifamily housing built before passage with some exceptions for partially owner occupied buildings. All of these policies are much stricter than AB 1482 in practice with lower allowed rent increases.

1.2 Rent Control Economics

In this paper, I estimate how the implementation of rent control impacts the value of rental housing. To help understand estimated effects and interpret my results, I provide a simple valuation model of rental housing. The goal of this model is to explain why rent control policies implemented in future years impact building prices now and how to convert from specific estimation of AB 1482's effects to more general estimates of the impact of rent control.

AB 1482 has no direct effect on new construction since it sunsets prior to any new building becoming eligible for rent control. However, once the bill passed the long-run impact of rent control should be capitalized into existing building prices.[5] I model the valuation of a rental building as a function of construction costs, annual profits, a discount factor, and the impact of rent control. I set up the valuation to model new construction and existing buildings.

Take an economic agent who is considering building rental housing. For a potential project, they are considering if they should build a building that will generate annual profits normalized to 1 in each period starting at $t = 1$ and has a construction cost of C paid at $t = 0$. The value, V_0 at the time of construction is the present value of future rents minus the construction costs. Using

[5] Arnott [1995], Mense et al. [2017]

standard summation rules with a conventional discount factor, β, this is written as follows.

$$V_0 = \overbrace{\beta \frac{1}{1-\beta}}^{\text{Present Value of Rent}} - C \tag{1}$$

If V_0 is positive, the agent will find it profitable to construct today and enjoy the benefits of the rent moving forward. The model for when the building already exists is simpler and just consists of the present value term.

$$V_1 = \overbrace{\frac{1}{1-\beta}}^{\text{Present Value of Rent}} \tag{2}$$

I can show how V_0 or V_1 would change if a particular rent control policy were to be implemented. I assume that a rent control policy would be anticipated to have a constant multiplicative effect on returns denoted as d. d is weakly negative as a building's value should not increase under rent control. Equation 2 would simply have it numerator be "$1 - d$" if there was a permanent rent control policy that reduce short-run profits by a constant percentage. More complicated policies can be entered in a similar way.

I assume that the impact of rent control on returns is the same in the first year of control as the last year. This is an simplification as if rent control leads some renters to obtain persistently below market returns these effects will be larger in the 10th year of rent control than the first. This concern is smaller if the policy is relatively loose due to a higher allowed rate of annual increase and/or vacancy decontrol. Both of these policies tend to lead to rents that are less likely to be extremely far from market levels. If controlled rents can increase at rates close to market rates saving for tenants may be relatively small and will shrink during times of low price growth. Likewise, vacancy decontrol resets rents to market rate when a new tenant takes over a unit which means only long-run tenants can build up large saving relative to market rate and if most tenants are short to medium term costs to landlords will be similar within a few years of rent control and in the long run.

With the assumption of an appropriate discount factor, β, I can determine what the effect rent control of stringency d would have on the value of existing or new buildings. I can also easily modify equation 1 to allow for rent control that only applies to buildings of a particular age or

older. This allows for me to determine how impacted property owners are by rent control and if it can meaningfully reduce the incentive to provide new and maintain existing rental housing.

I estimate a value of d corresponding to AB 1482 and examine how variations of it could impact rental profits and housing supply.

2 Data

I build a dataset of property transactions in Los Angeles and the Bay Area. This includes Alameda, Los Angeles, San Francisco, and San Mateo Counties covering most of both regions and including all California cities with widespread rent control outside of Santa Clara County[6] at the time of AB 1482 passage. I build my dataset from three groups of files obtained from each county or city in the county. Lists of all buildings with multiple family housing and the characteristics of those buildings including size, unit counts, year built, and location. A list of each transaction date and price of a rental building within each county. Last, for jurisdictions that had a pre-AB 1482 rent control program, a list of which buildings were covered under the existing programs or the rules for determining if so. I prefer an explicit list of controlled buildings which allows me to account for complicated eligibility rules with little error. These files are combined to create a dataset where each observation is the sale of a buildings with its sale price, date of sale, building characteristics, and if the building was subject to rent control prior to AB 1482.

I define treatment as any building that gains any rent control due to the passage of AB 1482. Buildings that gain rent control are different than those in the control group. Most control buildings (ninety-nine percent) were covered under pre-existing rent control and the remaining one percent are too new for AB 1482 to apply to them. Table 2 lists how many transactions are observed as treated or control in each county and in cities with at least 175 transactions in the estimation window. Looking at counties, Los Angeles County has roughly equal numbers of treated and control buildings. The three Bay Area counties tend to have overwhelmingly treated or control buildings. Alameda and San Francisco Counties have overwhelming majorities of control buildings while most

[6]Santa Clara county was unwilling to provide the relevant records at a modest cost in response to a public records request.

Table 2: Frequency of Treated and Control Transaction by Location

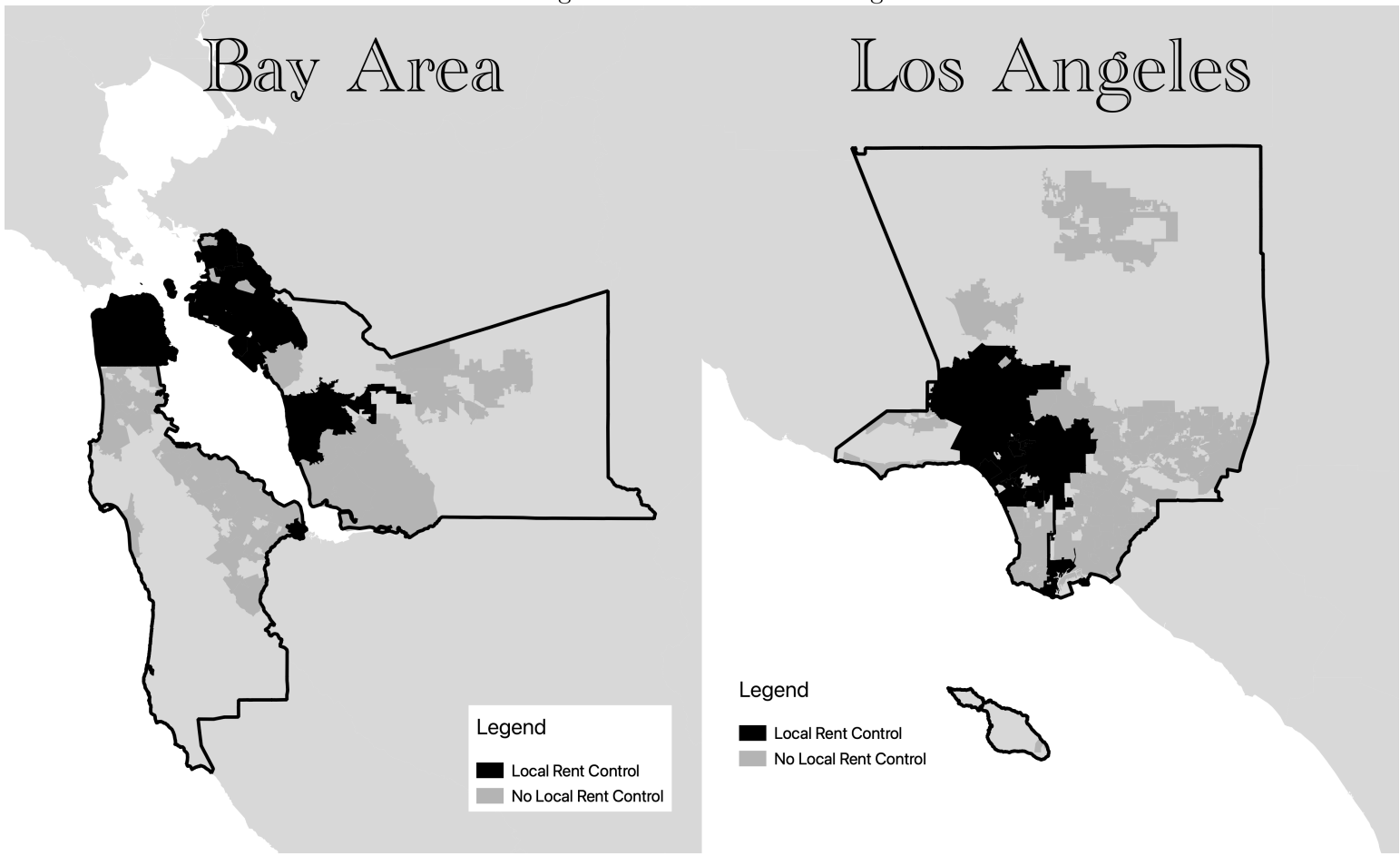
Location:	(1) Treated	(2) Control	(3) Total
County			
Alameda	607	2,054	2,661
Los Angeles	6,602	7,627	14,229
San Francisco	41	1,697	1,738
San Mateo	594	17	611
Selected Cities			
Berkeley	103	294	397
Glendale	282	1	283
Hayward	91	94	185
Long Beach	1,336	0	1,336
Los Angeles	653	7,243	7,896
Oakland	44	1,505	1,549
Pasadena	245	2	247
San Francisco	41	1,697	1,738
Santa Monica	28	166	194
West Hollywood	12	163	175
Other Cities	5,009	230	5,239

This table displays the number of treated and control transactions in each county and in all cities with 175 or more transactions in the estimation sample. "Other Cities" contains all cities/unincorporated areas not listed above.

buildings in San Mateo are treated. This pattern of geographic variation continues within counties. Large cities like Los Angeles, Oakland, and San Francisco with pre-existing rent control have 90% plus of buildings treated while cities like Long Beach or Pasadena without pre-existing rent control have almost no control units.

In Figure 1, I show which cities already had stricter rent control and are mostly unaffected by AB 1482. In the Bay Area, the cities of San Francisco, Oakland, Berkeley, Hayward, and East Palo Alto are already had rent control. The remaining portions of Alameda and San Mateo broadly gain rent control. In Los Angeles, the City of Los Angeles, West Hollywood, Beverly Hills, and a couple other cities have existing strict rent control. During the time of the study, unincorporated Los Angeles County, Inglewood, and Culver City adopt rent control policy that is stricter than AB 1482 and are excluded from the study. In both regions, treatment status is geographically clustered with areas overwhelmingly having treated or control units which precludes adopting controls for specific neighborhoods but the use of region or city level fixed effects is possible as in cities like Berkeley where about a quarter of transacted buildings gain rent control from AB 1482.

Figure 1: Location of Existing Rent Control



Depicted areas are included in the study except for unincorporated Los Angeles County, Inglewood, and Culver City who changed local rent control laws during the study.

The differences in geography also occur in the characteristics of the buildings. In Table 3, I compare the characteristics of treated and control transacted buildings. I report the means for those fully treated and control buildings alongside a T test for the difference in means. There is about a half a million dollar gap in the value of a treated and control building in the data. This appears to be driven by differences in the characteristics of the buildings. I list "Universal Characteristics" that are observed in all counties which indicates treated buildings are larger, have more units, and are more recently built. Note that while treated buildings are newer they are still around 70 years old on average. Most of the multiple family housing was built prior to the mid 1960s. I also report the mean characteristics of a number of variables only observed in some counties. Means are calculated only for buildings with observed values. The "Additional Characteristics", only observed in some counties, are mostly consistent with above with treated buildings more likely to have a pool, slightly more rooms, are shorter, and have similar assessed values. The shorter but larger buildings likely is due to strict zoning and treated buildings in suburban locations. There are meaningful differences in the characteristics of buildings impacted by AB 1482 and those that were not. These differences motivate controls for building characteristics in the regression analysis.

3 Model

My model is a difference-in-difference model placed within a hedonic price model. Due to the heterogeneity of my units and that this is a repeated cross section, I rely heavily on adjusting for observed characteristics of the sold properties to reduce noise and omitted variable issues. The model takes the functional form.

$$log(Price_{i,t}) = \gamma_c + \lambda_t + \delta Treated_c * After_t + X\beta + \epsilon_{it} \tag{3}$$

Borrowing the notation in Angrist and Pischke [2009], γ_c is an indicator for if the building gains rent control over the policy change. λ_t is a period fixed effect for each month. X is controls for the characteristics of the buildings including the year the apartment building was built. Some treated buildings are only subject to rent caps during some of the years the policy is in effect. Impacts on these building's prices will be smaller since they experience less years of rent control and the years they experience it are further in the future. As a robustness check, I assign them a partial

Table 3: Characteristics of Treated and Control Transactions

Variable:	(1) Treated	(2) Control	(3) T
Outcomes			
Sale Price	2,091,813	1,588,774	5.46
log(Sale Price)	13.96	13.81	10.75
Always Present Characteristics			
Square Feet	5,590	4,619	4.84
Bedrooms	9.32	6.52	12.75
Bathrooms	7.56	6.12	6.58
Units	6.32	5.37	4.59
Year Built	1950	1932	42.66
Lot Size (Yd^2)	1,172	765	13.44
Observations	6,529	9,321	
Sometimes Present Characteristics			
Pool	0.037	0.032	1.78
Rooms	18.92	16.05	1.98
Stories	1.65	2.05	-10.22
Log(Assessed Value)	13.23	13.25	-1.17

This table displays the mean characteristics of treated and control buildings along with a T-test for the difference in means.

treatment variable equal to the percentage of time treated by the policy.

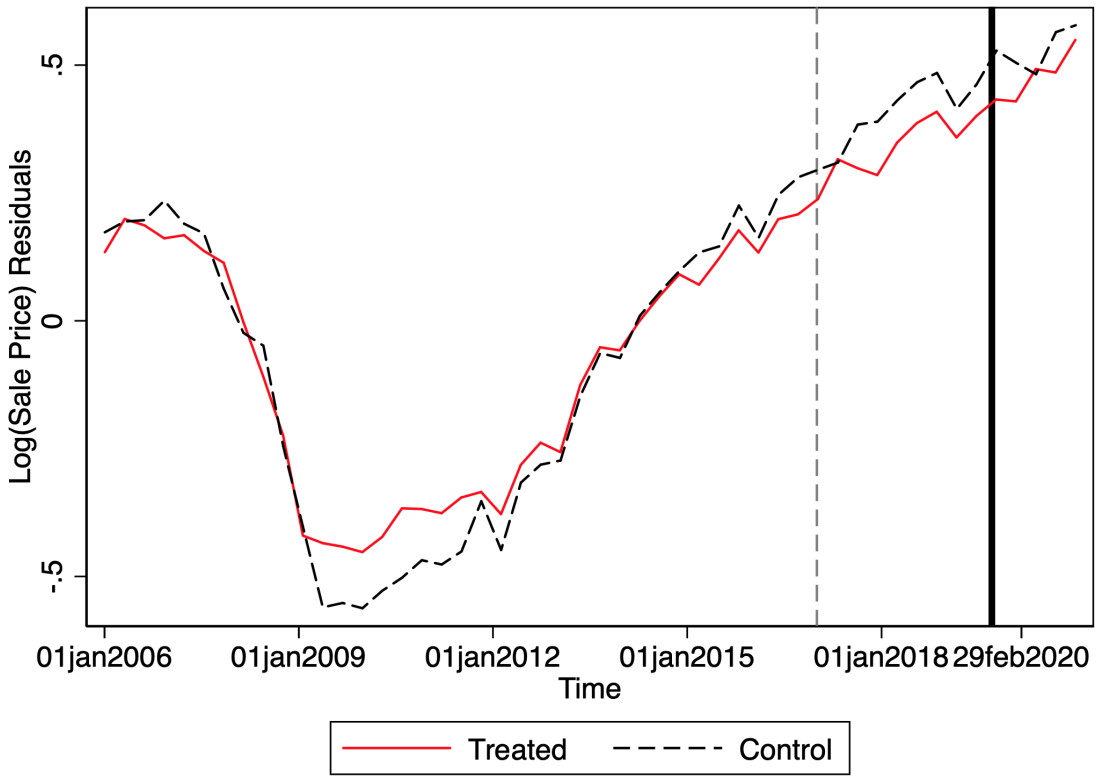
I want to estimate δ which is the change in the price of buildings that gain rent control after passage relative to those that have no change in rent control status. The β's adjust for the hedonic characteristics within X. I estimate this model using data from January 2017 through February 2020 to avoid impacts from the coronavirus pandemics and resulting eviction moratoriums and rent freezes.

3.1 Model Assumptions

The key assumption is that absent AB 1482's rent control expansion rent controlled and not rent-controlled buildings in California would of had the same trends in prices. While I cannot directly test this assumption, I can compare pre-AB 1482 trends in prices adjusted for characteristics and demeaned. For Los Angeles and San Mateo Counties, I plot demeaned monthly average residuals for all buildings that are fully or partially treated by the policy from 2006 through the end of the estimation window. Figure 2 shows the treated transactions on a red line and the control on a black dashed line. The pattern shows broadly similar trends as both fell by about half during the Great Recession and rose constantly ever since. However, there is a difference in the slope of the treated and control building's prices. The treated buildings have prices that fall and increase slower than control buildings. In the area to the right of the dotted line, any difference in trends appears to be small so I consider this assumption reasonable.

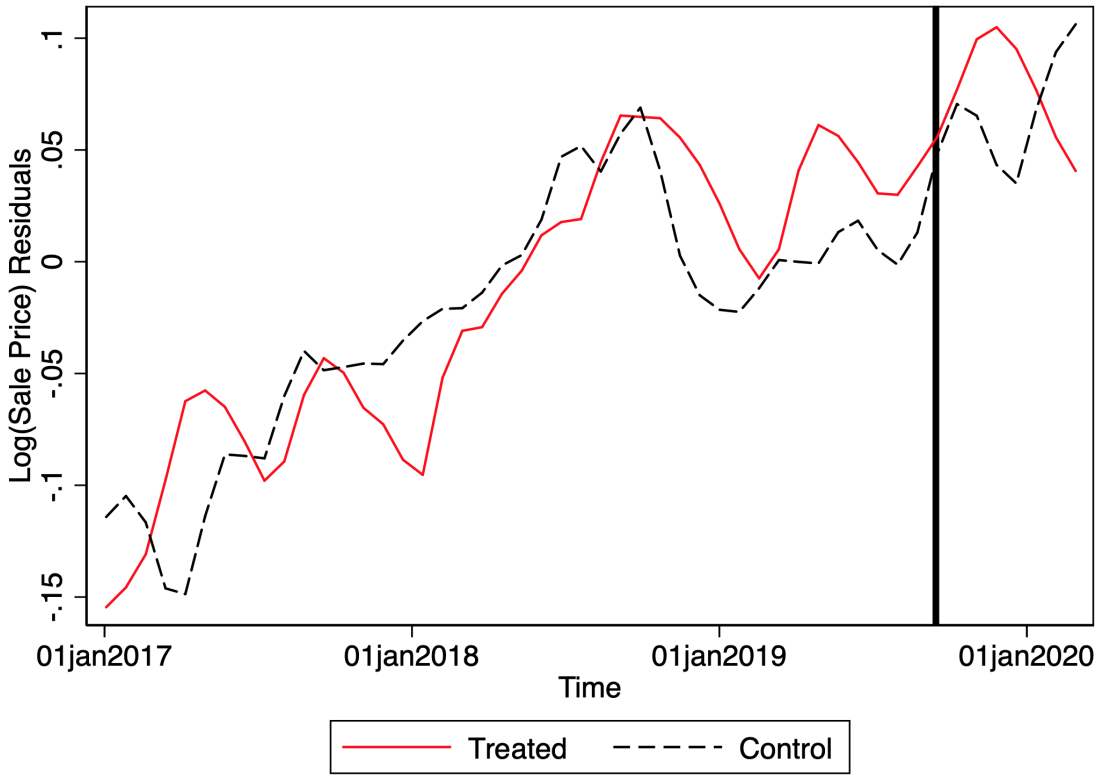
In Figure 3, I plot the average residual log sale prices of treated and control buildings over the study in the estimation window. The relative residual prices have similar trends before and after the policy shift, rising at roughly the same rate. This is consistent with my identifying assumption that given controls, trends in treated and control buildings are similar. The impact of policy appears small or none as there is no atypical jump in around treatment. I repeat this exercise with the Bay Area and Los Angeles data separately in Figure 4. Both regions confirm the above findings, that trends are highly similar prior to treatment and there does not appear to be a large effect of the policy. The Bay Area figure shows little data for control buildings in early 2017 because the Alameda transactions start in mid 2017 and San Francisco data begins in 2018. Given

Figure 2: Long Run Trends in Treated and Control Sale Prices



This plots the residual log prices of all sold buildings smoothed with a triangle kernel and 60 day bandwidth. This figure only includes Los Angeles County transactions and San Mateo County trends due to data availability. I exclude Beverly Hills, Inglewood, and unincorporated Los Angles County as they experience changes in rent control over the time frame. The vertical line marks the September 2019 passage of AB 1482 and all periods to the right of the dashed line are in the estimation sample.

Figure 3: Trends in Sale Prices of Treated and Control Buildings



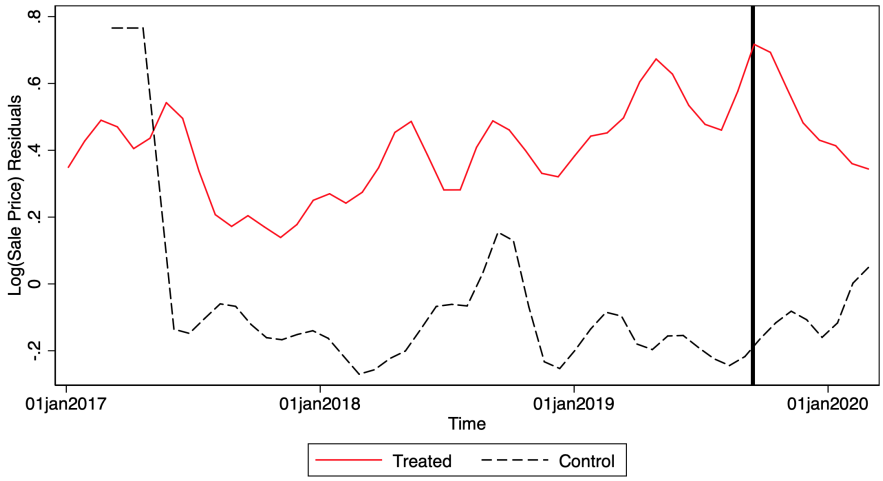
This plots the residual log prices of all sold buildings smoothed with a triangle kernel and 60 day bandwidth. The vertical line marks the September 2019 passage of AB 1482 and all periods to the right are after treatment.

my control variables, the patterns of housing price growth are similar across treated and control buildings and my identification assumption is credible.

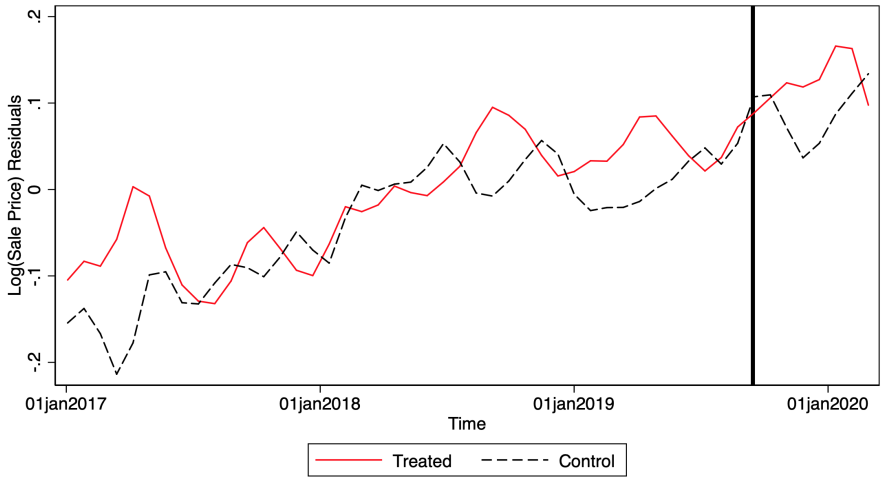
An additional concern is that I only observe the prices of buildings that are sold and which buildings are sold could be impacted by the passage of rent control. I address this concern by examining the monthly market volume to see if there is a substantial change in the volume of apartments sold around the announcement/passage of the policy or a permanent shock the sales volume afterwords. If there appears to be little to no change in the market volume, that would suggest that selection in to sale is mostly unchanged. I report these results below in the results section.

4 Results

Figure 4: Trends in Sale Prices of Treated and Control Buildings by Region



a. Bay Area



b. Los Angeles

This plots the residual log prices of all sold buildings smoothed with a triangle kernel and 60 day bandwidth split by region. The vertical line marks the September 2019 passage of AB 1482 and all periods to the right are treated. Bay Area data is vary sparse prior to July 2017.

Table 4: Effect of Rent Control on Sale Prices of Multiple Family Housing

	(1)	(2)	(3)	(4)	(5)
Variables:	Base	Partial Treatment	Fully Treated Only	Los Angeles	Bay Area
Treated*After	.006	.006	.007	0	-.031
	[-.031, .043]	[-.031, .044]	[-.031, .044]	[-.037, .037]	[-.13, .069]
After	.221	.221	.219	.19	.766
	[.151, .292]	[.151, .292]	[.148, .29]	[.115, .265]	[.521, 1.011]
Treated	.026	.026	.025	.007	.11
	[.009, .043]	[.009, .043]	[.007, .042]	[-.011, .025]	[.066, .154]
N	19,236	19,236	19,087	14,229	5,007

Brackets contain 95% confidence intervals.

4.1 Impact of AB 1482 on Apartment Building Values

I show the results of the model in Table 4. All regressions are run with robust standard errors and feature the same control variables. Column (1) contains the base model which includes all transactions with a little under a fifth occurring with or after the passage of AB 1482. The coefficient of interest is "Treated*After", $\hat{\delta}$, which has a point estimate of a .6% rise in transaction prices. The confidence interval stretches from a three percent decline to a four percent rise in value. These results are consistent with rent control reducing relative real estate prices by low single digits or not at all. I can rule out rent control meaningfully increasing the value of owning rental housing on theoretical grounds and large declines on empirical grounds but cannot rule out a very modest negative effect of the policy based on this initial result.

I obtain similar results in column (2) and (3) where I assign buildings that gain rent control for less than 10 years partial treatment or exclude them respectively. The coefficients and confidence intervals shift by no more than a tenth of a percent. In columns (4) and (5), I break out the results by region and find that in column (4), Los Angeles County has a point estimation of zero in the value of rental housing and the Bay Area reports a negative coefficient of 3.1 percent. There appears to be no major difference in effect sizes across regions.

Table 5: Robustness Over Cross and Within City Variation

	(1)	(2)	(3)	(4)	(5)
Variables:	Base	Trimmed	Trimmed Los Angeles	Trimmed Bay Area	City FE
Treated*After	0.006	0.028	0.033	-0.070	-0.004
	[-.031, .043]	[-.052, .108]	[-.067, .134]	[-.238, .099]	[-.037, .029]
After	0.221	0.203	0.200	1.082	0.219
	[.151, .292]	[.109, .297]	[.103, .297]	[.695, 1.469]	[.153, .284]
Treated	0.026	0.098	0.231	-0.037	0.098
	[.009, .043]	[.04, .156]	[.145, .316]	[-.112, .037]	[.06, .135]
N	19,236	8,958	8,265	693	19,236

Brackets contain 95% confidence intervals.

The variation used in the main regression is both within and across cities. I test the robustness of my primary results by running a set of regressions where I only include transactions in cities that have at least five percent of transactions from treatment and five percent from control. I refer to this as "Trimmed". This effectively eliminates cities like San Francisco where 98% of buildings are control and cities like Long Beach where all transactions were treated. These results are in Table 4.1 with column (1) reporting baseline coefficients as a comparison. Column (2) reports the results for both regions and columns (3) and (4) report Los Angeles and the Bay Area in separate regressions. The coefficients are very similar to those in Table 4. The results in columns (2) and (3) driven by Los Angeles City show that newly controlled buildings increased in value by about 3 percent. The Bay Area results show a 7% decline in value after gaining rent control. I conduct one other regression, column (5), where I include city fixed effects but do not limit the data to city with substantial treatment variation. The result is -.4 percent. I do not use smaller geographic fixed effects due to the relatively small number of observations per census tract. These results are broadly consistent with my baseline results but with less precision.

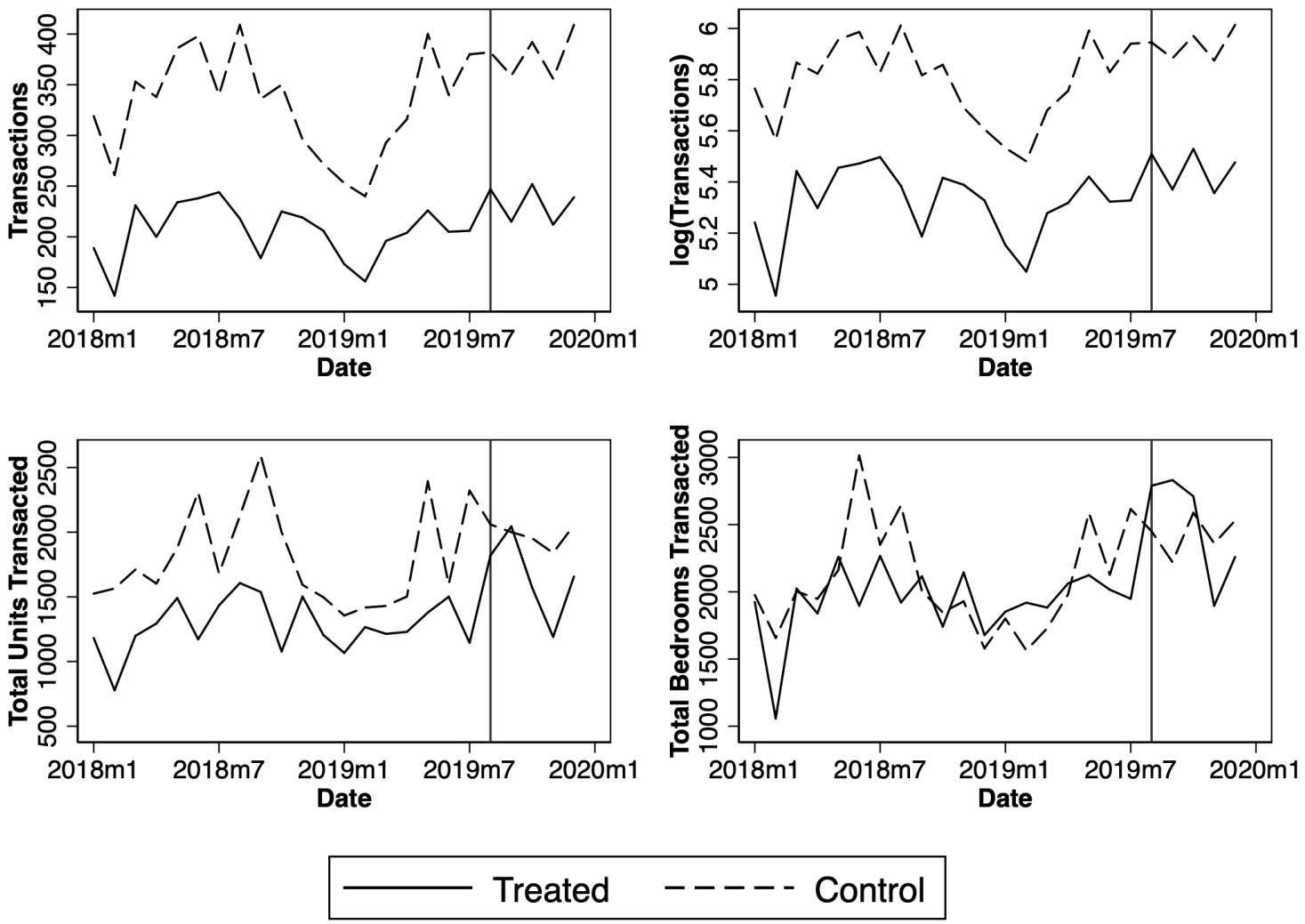


Figure 5: Sales of Impacted Apartment Buildings, 2018-2019

Transactions is the number of buildings sold each month and log(Transaction)s in the natural log of transactions. Total Units and Total Bedrooms reflect the number of units or bedrooms contained in the transacted buildings.

Table 6: Estimated Change in Market Volume After AB 1482

	(1)	(2)	(3)	(4)
Variables:	Transactions	log(Transactions)	Units	Bedrooms
Treated*After	-23.3	-.02837	156.4	125.1
	(18.24164)	(.05468)	(196.23076)	(220.00448)
Treated	-126.2***	-.47416***	-502.9***	-125.6
	(7.44712)	(.02232)	(80.11087)	(89.81645)
Mean	207	5.32	1,305	1,973
N	48	48	48	48

Brackets contain 95% confidence intervals.

The near zero effects could be driven by a shift in the frequency of rental building sales around or after AB 1482. To test this, I compute total market volume in 2018 and 2019.[7] In Figure 5, I plot four measures of market volume: the number of transactions, the log of the number of transactions, the number of apartments in sold buildings, and the number of bedrooms in sold buildings. All are measured as a count/sum calculated across all counties for fully-treated and control units.[8] For all four measures, there does not seem to be an unusual shift in the number of buildings sold either around the time the policy was announced and passed nor a shift in the relative number of buildings sold after the policy passes. This is supported by Table 6 which reports the results of a simple differences in differences estimation of the market volume change from AB 1482. All measures report a ten or less percent shift in transaction volume from AB 1482 passage. The estimation is imprecise but it is not consistent with a major shock to market liquidity that could obscure a price shift.

Put together, the evidence is consistent with a small to zero on the value of multiple

[7] I exclude 2017 and the first two months of 2020 as my data is incomplete for some counties during those periods.

[8] Buildings that are covered for some but not all years of the policy are excluded.

family housing for landlords. The estimation of a small to zero effect of AB 1482 is then consistent with a world where landlord's profits are largely unaffected by the policy. On possible explanation for this could be that AB 1482 was expected to allow the overwhelming majority of rent increases landlord's would anticipate making in the absence of this rent control policy.

4.2 Is the Policy Binding?

The results above all report small or no negative effects of rent control on rental housing prices. One reason for rent control to not impact the value of housing if the policy not binding. In other words, if landlords can raise rents under rent control by as much as they would otherwise rent control should not impact short-term profits and thereby not impact asset value.

To see if AB 1482 is non-binding, I want to compare the anticipated rents landlords would charge with and without AB 1482. This is not directly observable so I assume they build their beliefs by observing historic rent changes in their and nearby apartments. Then, I evaluate if historic rent changes would be allowed under AB 1482. If so, then landlords were likely to anticipate that AB 1482 would not reduce the rent they change and unlikely to significantly impact their profits.

I need two pieces of information, the annual change in rents and the local change in the consumer price index to evaluate if the policy is binding. Ideally, I would have the distribution of changes in rent year to year in one or more unregulated markets. However, this sort of data is broadly unavailable.

I obtain the CPI growth rates for Los Angeles, San Diego, and San Francisco along with the western US rate for the remainder of California. I obtain measures of typical rent for one and two bedroom apartments from three sources. I use median rent calculated by the Department of Housing and Urban Development's Office of Policy Development and Research, microdata from the American Community Survey via IPUMS, and Craigslist individual listing prices used in Pennington [2020] for the greater Bay Area.[9] From the last two sources, I compute annual median rents at the county level for 1-2 bedrooms separately by year.

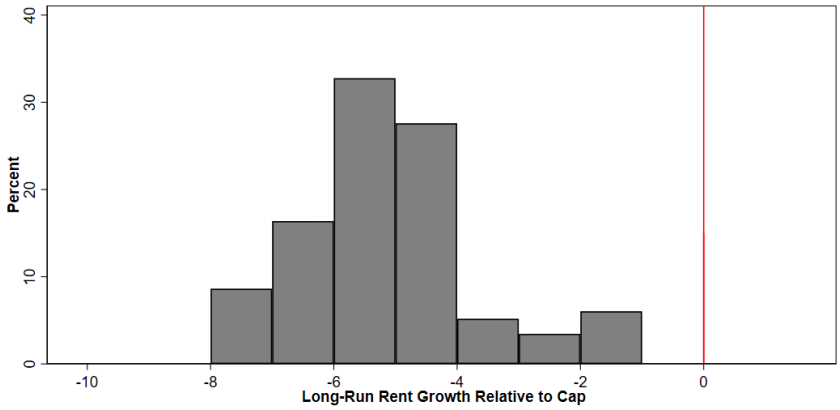
[9]Counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma.

I compute long run typical rent changes for each combination of bedrooms and county between the years 2007 and 2017. I use typical changes over a decade as opposed to computing annual changes in each year for two reasons. First, all three data sources appear to lack precision in estimating annual changes in rent. When computed annually the rates swing wildly and implausibly with double digit percentage rises followed imminently by double digit percentage falls in rents without clear reasons such as a recession. In addition, the three data sources are inconsistent with each other. Even in counties with large numbers of microdata observations, growth rates calculated across the three sources are highly different from one another with correlations of approximately .06. Second, even if rent growth is slightly above the cap one year it is less important if it is below the cap next year and the landlord can return to market pricing within a year. In this case is the policy is binding but only slightly. Both of these factors lead me to use the typical growth over a decade to evaluate if and how binding is the policy in the medium to long term.

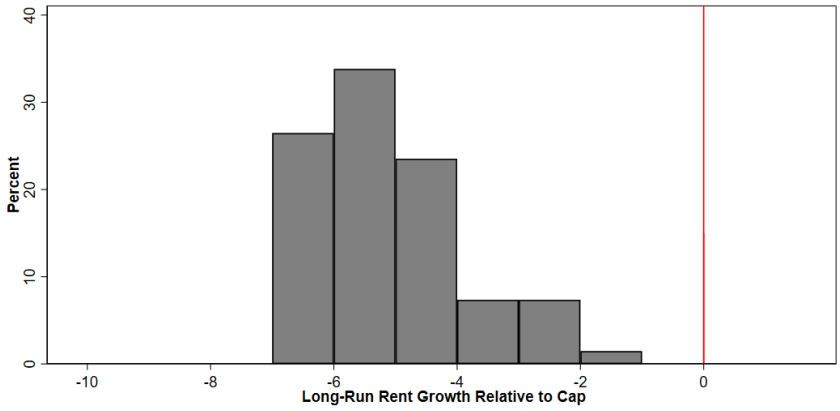
In Figure 6, I plot the distributions of county level changes in the median rents of one and two bedroom apartments relative to the ceiling generated by AB 1482. Negative numbers indicate that for a county bedroom pair the typical change in median rents is below the cap. In panels A and B, in every California county the typical median growth rate is well below the rent growth cap allowed by AB 1482. Panel C contains the Craigslist data from the Bay Area and like above every county-bedrooms pair is below the cap but they are closer than in panel A or B. This is likely due to two factors. First, rent growth was higher in Bay Area counties than the rest of the state in all three datasets. Second, the prices advertised on Craigslist are likely coming from new rental contracts that are at market rate due to vacancy decontrol. Panels A and B average contracts subject to (more likely to be) binding rent control and should have lower growth rates in several counties. This pattern shows up in the data as ACS and HUD data have on average about a one percentage point lower rental price growth in greater Bay Area counties.

The lack of detectable effect on price and evidence that the policy would not of been binding in the prior years suggests that landlords anticipated that AB 1482 would not of been binding in the future.

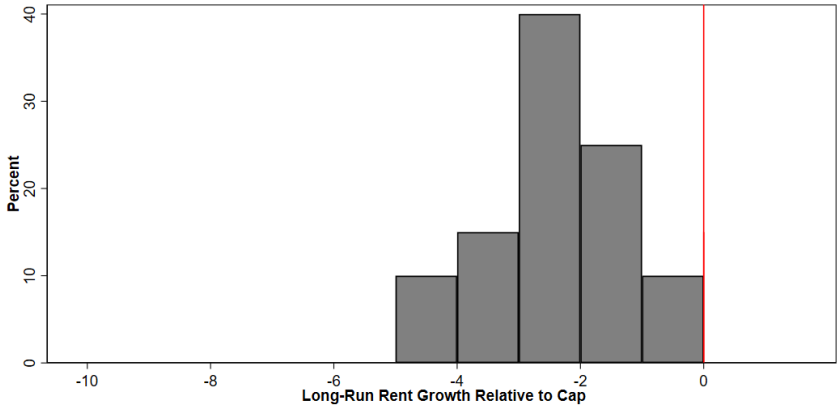
Figure 6: Rent Changes Relative Allowed Increases



A. Statewide from Housing and Urban Development



B. Statewide from American Community Survey



C. Greater Bay Area from Craigslist

A: Data from HUD Office of Policy Development and Research ; B: American Community Survey data via IPUMS; C: Pennington [2018]

Table 7: Impact of Permanent Rent Control on New Rental Housing Values

Variables:	(1) Base	(2) Partial Treatment	(3) Fully Treated Only	(4) Los Angeles	(5) Bay Area
$\hat{d}$	0.015	0.015	0.017	0.000	-0.077
	[-.077, .107]	[-.077, .11]	[-.077, .11]	[-.092, .092]	[-.324, .172]
$\hat{\triangle}$	0.007	0.007	0.008	0.000	-0.036
	[-.036, .05]	[-.036, .051]	[-.036, .051]	[-.043, .043]	[-.15, .08]

All values calculated based on discount factor $\beta = .95$. Brackets contain 95% confidence intervals.

4.3 Policy Implications

The results are broadly consistent with AB 1482 being a non-binding level of rent control unlikely to have a large direct impact on the supply of new housing. Table 7 use the valuation model, described above, to recover the estimated annual cost of rent control. I simply rescale the difference in differences coefficient by the proportion of the buildings value obtained from the period AB 1482 is in effect to obtain d and its confidence interval.

$$d(\hat{\delta}, \beta) = \frac{\hat{\delta}}{1 - \beta^{10}} \tag{4}$$

I also compute $\hat{\triangle}$ which would be the impact of AB 1482 on the value of new construction if the policy would be made permanent and newly constructed multiple family housing would be subject to rent control once it was 15 years old. Since the estimated coefficients are approximately zero, the policy effects are approximately zero as well. I cannot rule out (low) single digit effects on annual returns, $\hat{d}$, or the value of newly constructed buildings, $\hat{\triangle}$ but unsurprisingly non-binding rent control does not substantially impact the real estate returns. Since, AB 1482 has a small effect on returns, similar policies should not have large negative effects on supply as very few buildings would be no longer profitable.

Given that AB 1482 is non-binding and has little to no effect on returns it seems to follow

that it should not help renters since they pay essentially the same rent in expectation with or without the regulation. However, AB 1482 may have an insurance value where it protects tenants from extreme rent changes. In Dougherty [2020], households in Redwood City, San Mateo County faced a rent increase of 45% over one month following a change in the ownership of their apartment building.[10] Here, AB 1482 would be binding in the short to medium term. Given San Mateo County's historical CPI, it would take between four and five years if AB 1482 was in effect to increase rent by 45%. While this would lead most of the tenants to leave the complex over those years it would give them more time to adopt to the change and find a new home that is more affordable, increase income, and/or relocate out of the region.

This situation would entail substantial losses to landlords from regulation but if large shocks like this are rare the typical landlord would experience low expected costs. Only landlords for whom large increases in rent for existing tenants are central to their business model would incur major costs. Tenants would benefit from more predictable future costs of housing and it would encourage investing in communities due to a reduced moving rate. This would help to provide renters with one of the major benefits of home ownership: certainty.

5 Conclusion

Binding rent control is believed to reduce the profits of landlords and lead to a reduction of the quantity of apartments supplied. I examine if AB 1482, a recent expansion of rent control in California reduced the value of owning rental property. The rent control expansion did not reduce the value of newly controlled building with a preferred estimation of about a .6% increase in the value of newly controlled building relative to unaffected buildings and this is consistent with little to no anticipated effect. I find that the policy is plausibly non-binding because AB 1482 allows allowed landlords to raise rents at rates similar to historical uncontrolled rent changes. Therefore, this policy is an example of a generally non-binding price ceiling that could improve overall welfare in the rental housing market.

[10] While writing this paper, I experienced a similar change where renewing my lease would of increased rent by 40% after my apartment complex changed owners.

References

Edward L Glaeser and Erzo F P Luttmer. The Misallocation of Housing Under Rent Control. THE AMERICAN ECONOMIC REVIEW, 93(4):26, 2003.

Alastair McFarlane. Rent stabilization and the long-run supply of housing. Regional Science and Urban Economics, 33(3):305–333, May 2003. ISSN 01660462. doi: 10.1016/S0166-0462(02)00031-5.

Andreas Mense, Claus Michelsen, and Konstantin A. Kholodilin. The Effects of Second-Generation Rent Control on Land Values. AEA Papers and Proceedings, 109:385–388, May 2019. ISSN 2574-0768, 2574-0776. doi: 10.1257/pandp.20191023.

Richard Arnott. Time for Revisionism on Rent Control? Journal of Economic Perspectives, 9(1): 99–120, February 1995. ISSN 0895-3309. doi: 10.1257/jep.9.1.99.

David P. Sims. Out of control: What can we learn from the end of Massachusetts rent control? Journal of Urban Economics, 61(1):129–151, January 2007. ISSN 00941190. doi: 10.1016/j.jue.2006.06.004.

Rebecca Diamond, Tim McQuade, and Franklin Qian. The Effects of Rent Control Expansion on Tenants, Landlords, and Inequality: Evidence from San Francisco. American Economic Review, 109(9):3365–3394, September 2019. ISSN 0002-8282. doi: 10.1257/aer.20181289.

Brian J. Asquith. Do Rent Increases Reduce the Housing Supply under Rent Control? Evidence from Evictions in San Francisco. Technical report, W.E. Upjohn Institute, February 2019.

Dirk Early and Jon Phelps. Rent Regulations' Pricing Effect in the Uncontrolled Sector: An Empirical Investigation. Journal of Housing Research, 10(2):267–285, January 1999. ISSN 1052-7001, 2691-1337. doi: 10.1080/10835547.1999.12091948.

Andreas Mense, Claus Michelsen, and Konstantin A Kholodilin. Empirics on the causal effects of rent control in Germany. page 44, 2017.

George Fallis and Lawrence B Smith. Uncontrolled Prices in a Controlled Market: The Case of Rent Controls. page 9, 2021.

Joshua D. Angrist and Jörn-Steffen Pischke. Mostly Harmless Econometrics: An Emperiricist's Companion. Princeton University Press, 1st edition, 2009. ISBN 978-0691120355.

Kate Pennington. Does building new housing cause displacement?: The supply and demand effects of construction in san francisco. JMP, 2020.

Kate Pennington. Bay Area Craigstlist Rental Housing Posts, 2000-2018. Technical report, 2018. URL $github.com/katepennington/historic_bay_area_craigslist_housing_posts/blob/master/clean_2000_2018.csv.zip$.

Conor Dougherty. Golden Gates: Fighting for Housing in America. Penguin Books, 2020. ISBN 9780525560227.