The power of developers: evidence from California

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Abstract

The goal of this paper is to provide evidence on the influence wielded by the real estate industry on local housing policies. We study whether the representation in the city council of politicians with professions related to this industry (i.e., land developers, home builders, and real estate agents) influences the number and type of building permits issued and the growth in housing prices. We focus on the case of California during the period 1995-2019. We rely on a close-elections Regression Discontinuity Design for identification. We compare the marginally winning developers (non-developers) with the marginally losing non-developers (developers). We find that the entry of a developer in the city council increases the number of housing units permitted during the following four years by 65% and reduces the growth rate of housing prices during the same period by 1.7 p.p. The effect is larger for single-family homes and in places with smaller city councils, lower opposition to development, a large amount of vacant land, and hard-to-change land use regulations.

Keywords: local government, land-use policies, housing market

1. Introduction

Government regulations are considered and important driver of housing supply (Gyourko and Molloy, 20126). In the U.S. the local land-use regulatory environment has become stricter over time (Glaeser et al., 2005). Prior to the 1970s, the number of new housing units permitted annually was enough to tame housing price growth. In contrast, the later decades saw a reduction in permitting that coincided with a considerable increase in housing prices, pointing to supply constraints (Gyourko et al., 2013). This phenomenon has been more intense in coastal markets like California (see Figure A.1 in the Online Appendix), where the lack of new housing coupled with the raising demand for location in high amenity places is creating a serious housing affordability problem (Quigley and Raphael, 2005), and is ultimately harming economic growth (Hsieh and Moretti, 2017).

Who's to blame for these high housing costs? Clearly, local politics are partly responsible for this state of affairs. In the U.S., local officials are in charge of drafting and approving land-use plans and zoning ordinances. They are also responsible for the permitting process, and so they can selectively deny, or delay, permits for new development. In doing so they try to ensure their re-election by pleasing different voter and interest groups that care about development issues (Trounstine, 2018; Anzia, 2020). One of such groups is that of homeowner-voters, who are worried about the value of their home and are often successful in pushing local governments to restrict housing supply (Fischel, 2001). Environmental groups and liberal voters may also actively oppose development in some cases (Glaeser et al., 2005a; Kahn, 2011). At the same time, however, local governments must deal with coalitions of economic agents favoring development (the so-called 'growth machines' by Molotch, 1967). As discussed in Anzia (2022, p.183-186), the extant literature is inconclusive regarding which of these groups has more influence of the design of local land use policies.

The real estate industry is a key player in this coalition. The companies and/or the professions related to this industry (e.g., land developers, home builders, and real estate agents) have a 'large, direct, regular and economic stake' in city land use policies (Anzia, 2022, p.83). Moreover, compared to other local interest groups, that rarely care about other policy issues. It is not rare that they put a lot of effort in trying to influence city council decisions on that matter. They might do it alone, as indivi-
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duals or firms, or together (Bombardini and Trebbi, 2012); for instance, home builders and realtor associations tend to endorse specific candidates. They may also exert this influence indirectly, by providing campaign contributions, or directly, by educating candidates on issue related to land, by helping them organize the electoral campaign, or simply by running for office with a candidate of their own. Recent work by Anzia (2002) illustrates the importance of the direct channel. This idea is also backed by our database (more details below), which shows that around 11% of all candidates and also of city council members are connected to the real estate industry. Without denying the importance of the indirect channel, in this paper we are going to focus on the more direct one[1]. More concretely, we study what happens to housing supply when a developer wins a seat in the council.

But, once inside the council, are developers influential? Our hypothesis is that their presence in the city council will influence the number and type of building permits issued and, as a consequence, they might also affect the evolution of housing prices, at least for some housing types. To test these hypotheses, we use data for all the city council elections in California held during the period 1995-2017. We make use of electoral data at the local level, coming from the CEDA (California Electoral Data Archive). A good thing about California is that (due to the non-partisan nature of local elections) the profession of the candidate must be displayed in the ballot. This allows us to gather the information needed to classify candidates into developers and non-developers. For identification, we rely on a close-elections regression discontinuity design. We look at elections to city councils where a developer candidate faces a non-developer opponent and the vote shares of the two candidates that are close.

Here is what we find. First, the entry of a developer in the city council increases the number of housing units permitted during the following four years by 0.5 log points or a 65%. This means that the average city will increase the number of units permitted over a four-year period per 1,000 residents from 17 to 28[2]. These effects are stronger and more precisely estimated for single-family units. Second, in any case, multifamily units do react over a longer time horizon (two terms or eight years),

[1] We also focus on the direct channel because we had access to good quality data on the profession of candidates to city council. Data on campaign contributions is limited to a small subset of cities.
[2] A recent report suggest that the number of units permitted in the coming years in order to deal with the housing affordability crisis should multiply by three (McKinsey, 2016).

which suggest that more time is needed to design and implement these projects. Third, developers also impact the evolution of housing prices: the average annual growth rate of housing prices during the four years after the entry of the developer in the council drops by 1.7 p.p., that is from 5.4% to 3.7%. Moreover, this drop only happens in the case of single-family houses and for units in the top segment of the market. So, the important expansion in housing supply brought about by developers entering city councils might have a limited impact on housing affordability.

Fourth, we find that the results are driven by small city councils, where the probability that one single council member is pivotal is non-deniable. Moreover, developers, by focusing on a single issue (housing policy), they might have a higher ability to trade votes inside the council. Besides this, we also find that the influence of developers is also larger in the municipalities where the opposition to development (either inside the council or among voters) is low, and also in places that have a large amount of vacant land and hard-to-change land use regulations.

Contribution to the literature. The paper contributes to several strands of the literature. First, this paper is related to the literature that studies the political economy of local land-use regulations. Several papers study the role of different agents on land use regulations. For example, Fischel (2001) finds that homeowners oppose new housing because of its impact on the quality of life in the community and/or on housing values[3]. Brueckner and Joo (1991), Glaeser et al. (2005a) and Hilber and Robert-Nicoud (2013) provide theoretical analyses of the role of owners of undeveloped land and/or developers. Other papers study the role of the ideology of the party controlling the local government on a municipality's land-use policies. Kahn (2011) finds a negative association between the share of liberal voters and the number of housing permits issued in California's cities. Solé-Ollé & Viladecans-Marsal (2013) show that left-wing Spanish governments allow less land to be developed than comparable right-wing governments.

There are nearly no papers in the literature providing empirical evidence on the ability of developers to influence local land use and housing policies. An exception is the

[3] Some recent work on the effect of electoral institutions is also substantiating this hypothesis. For instance, the papers by Mast (2020) and Hankinson and Magazinnik (2021) show that the number of housing permits issued is largest in California cities with at-large (as opposed to by district) elections. The reason is that elected candidates in by-district elections are more compelled to follow the wishes of residents in the district who are opposed to new construction.

work by Solé-Ollé and Viladecans-Marsal (2012) that provides indirect evidence on the influence of developers in Spain: development is higher the lower the level of electoral competition because local politicians care less about the wishes of voters and can afford to accept bribes in exchange of building permits. The authors do not provide evidence, however, of any direct link between developers and the local council. This is what the California data will allow us to do. The recent book by Anzia (2022) do document a direct association between the perceived presence of developer interest groups in a city and permitting activity. Our work digs deeper on this issue, providing causal evidence on the influence of developers on local land use policies.

Second, the paper is also related to the literature on how politicians' characteristics impact policy outcomes. For example, when it comes to party ideology, Lee et al (2004) find that democrat congressmen roll-call votes score higher on a liberal scale. In the case of local governments, Ferreira and Gyourko (2009) show that the party of the mayor does not matter for fiscal policies in US cities. However, more recent papers find that the partisan identity of US mayors matters for this type of policy (Gerber et al., 2011, de Benediktis-Kessner and Warshaw, 2016) and also for housing policy (Benediktis-Kessner and Warshaw, 2022). Folke (2014) finds that the election of an extra council member in Sweden affects immigration and environmental policies. There are also many papers providing evidence for other traits, like education, gender and ethnicity. Besley et al. (2011) find that more educated leaders generate higher growth. Brollo and Troiano (2010) show that female mayors in Brazil are less corrupt. Beach et al. (2019) find that the election of a nonwhite candidates is associated with higher housing values in nonwhite neighborhoods but with lower values in the white ones.

In relation to profession, Bellemare and Carnes (2015) show that politicians with experience in farming are more likely to vote for farm subsidies. In the same way, Matter and Stutzer (2015) show that lawyers vote differently than other representatives on issues like tort reform. In the case of businessmen candidates Beach and Jones (2016) finds no effect on the levels of spending and taxation using data for California. However, more recently, Kirkland (2020) –using mayors' data for the whole US- does find that businessmen politicians have an impact on some policy outcomes, as e.g., the share of spending on infrastructures vs. redistribution or the reliance on user charges vs. taxes. More importantly, there are no works at all studying local housing

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policies and, more specifically, focusing on the effect of professions related to the real estate sector. This is an important omission, for two reasons: first, land use regulation is one of the main policy areas of local governments in the US, and second, developers have a very clear interest in this policy domain.

***Outline of the paper**.* In the next section we describe who are the developers and which is their role in local politics. This allows us to derive some theoretical expectations regarding their effect on local housing policies. In section three, we provide some institutional details, regarding how local elections work in California and also regarding the role of local governments on housing policies. In section four, we lay out our empirical strategy and describe the data. In section five, we present the results. The last section concludes.

2. Theoretical expectations

In this section, why discuss why the companies or professions related to the real estate industry may care about local policies and about getting elected to the city council. Then we look at the reasons that industry wields some influence over the decisions of the council and other local officials. This will help us derive some theoretical predictions for our empirical analysis. We start by enumerating the companies and /or occupations that are related to the real estate industry.

***What's a developer*?** Colloquially, we tend to identify the word 'developer' with the housing production industry. However, in practice there are other types of companies and professions that participate in this industry. The main two groups are *land developers* and *housing builders*. *Land developers* purchase large parcels of land and navigate the local regulatory system in order to obtain the building permits. They employ a team of consultants (e.g., civil engineers, architects, lawyers) that help design and execute the project. They raise finance for the site purchase and development costs, through a mix of their own cash and that of other investors. For single-family projects, land developers subdivide the main parcel into individual plots and build the infrastructure (i.e., roads, *sidewalks, water and sewer lines*). *Home builders* design and construct individual homes. They might either buy the serviced lots from developers or enter a construction contract with the developer. In this latter case, the developers are fully active over the construction stage. Moreover, large real estate development companies might have their own construction arm.

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There is still an additional group to consider, that of *real estate agents*. They are primarily engaged in buying or selling houses for others. They can be a worker in a real estate development company (in-house salesperson), an independent contractor, or someone that works for a real estate agency of brokerage. We can include also in this group the companies or professions that provide services that are essential for the commercialization of real estate, as appraisal services or mortgages.

***Which are the goals of developers*?** The profits of the first two groups, *land developers* and *home builders,* clearly depend on the amount of new construction. This is the group of agents whose objective function is more similar to that of the 'owners of undeveloped land' used in the theoretical literature (Brueckner and Jo, 1990; Hilber and Robert-Nicoud, 2013)[4]. Contrary to owners of developed land –that see how asset prices decrease when the supply expands- owners of undeveloped land gain with this situation because the increase in quantity compensates for the reduction in price. Clearly, we are not claiming that they are interested in unlimited growth. They are only 'relatively' more favorable to construction than homeowners.

That developers and home buildiers are interested in expanding the supply of housing is evident in many statements made by industry associations. For example, the National Association of Home Builders (NHAB) regularly lobbies the government to "enact policies that help home builders to expand housing supply, reduce the housing deficit and improve housing affordability for all Americans"[5]. The California Building Industry Association (CBIA) also urges governments to to "reduce barriers to home construction and ensure that California can produce the homes needed to achieve housing for all"[6]. These associations also urge their member to "identify, educate, and support candidates for elected office who are supportive of the building industry commitment to American dream of homeownership" (NHBA, 2020, p.10).

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[4] Notice that the two concepts are not totally equivalent. Owners of undeveloped land might be owners of farmland that sell to developers. Unfortunately, we don't have access to data regarding land ownership. However, developers also own land; they need to purchase it before they get the building permit. Once they are the owners of the parcel, they have the same incentives than the rest of landowners: push the local government for the rezoning of that parcel.

[5]https://www.nahb.org/news-and-economics/industry-news/press-releases/2021/07/nahb-urges-congress-to-enact-policies-to-help-builders-boost-housing-production.

[6] https://cbia.org/housing-for-all/. Some of the policy recommendations of this association involve a simplification of local land use regulatory frameworks and building codes and the enforcement of the obligations of local governments to supply land for development.

The goal of the last group, that of *real estate agents* is a little less clear, though. The profits of real estate salespersons and brokerage agencies depend on the number of housing transactions and on selling prices. Therefore, some level of activity might be sustained even without permits to build new houses. Also, they are not directly engaged in the process of getting the building permits. Notice, however, that also in this case there is evidence of the industry associations pushing for local deregulation. For example, the National Association of Realtors (NAR) states that “Cities having members on key committees, such as planning and zoning, tend to have a much more development friendly climate” (NAR, 2020, p.5), implying that a goal of the association is to ease local development.

***Why are developers powerful*?** The power of developers stems from three different sources. First of all, developers might buy the capacity to influence local housing policies by helping fund the campaign of candidates to city council (Leffers, 2017). However, there are some limits to the use of campaign finance. In small cities, campaigns are rather cheap. Also, many California cities have very strict campaign donation limits. Finally, large donations of money to candidates might backfire, signaling capture by interest groups, and harming her electoral chances (NBHA, 2017, p.23).

Second, the real estate industry has a substantial ability to organize its lobbying activities at various levels of government. The national associations play an important role, not just at the federal level, but also by providing guidelines and training to the state and local associations. The local associations work hard in identifying and educating candidates, and in supporting them and getting them elected (NRA, 2020). Since the industry is quite fragmented, its success is probably due to the commonality of interests among the members and on its geographic concentration. Some of the methods used to support their candidates do not make a heavy use of money. For example, the NHBA recommend using of ‘get out to vote’ techniques, by mobilizing members to get the number of votes (from family and friends) that are required to get elected in low turnout elections (NHBA, 2017).

Third, the ability to provide useful information about land use planning is also an important source of power. Notice that land use planning is a very complex issue that requires the continuous collaboration between local governments and the real estate industry (Leffers, 2017). This information might be provided by participating

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in public audiences regarding the approval of master plans and zoning ordinances, or by providing education and training to candidates to the city council (NBHA, 2017). Notice, however, that the best way to be able to have a say on policy design is direct participation in government. This can be achieved by appointing a member of the planning commission or by placing an industry member in the city council. The National Association of Realtors (NAR) clearly says "we encourage our members to participate in local government boards and commissions". Also, one of the NBHA recommendations to local HBAs regarding the recruitment of candidates for local office is to 'call on one of your own':

> "If many or your members are politically active, try to get them to take it a step further by getting them to run for state or local government. There is nothing better than to have state and local officials that understand the issues and can sympathize with them." (NHBA 2017, p. 15).

The recent book by Anzia (2022) also discussed at length the importance of these direct channels. It reveals the importance of lobbying activities and also of the endorsement, training and selection of candidates made by the real estate industry.

What constraints their power? First of all, the influence of developers might be constrained by political institutions. Campaign finance limits might control its ability to enter deals with council members. However, as we already mentioned, its power goes beyond the amount of money they can pour on local campaigns. Once they are elected, they are also constrained by the size of the council. The power of a developer might dilute in a large council and will be high in very small councils. They can also be constrained by voting geography. At-large elections may facilitate the obtention of votes needed to get into the council; however, cities with by-district elections may have very restrictive housing policies, meaning that the entry of a developer in the council may have a large impact. Another type of constraint is derived from the presence of other agents that also favor development. For example, developers can be more powerful if there are pro-growth council members (or less if there are other members that are opposed to the expansion of housing supply, as e.g., homeowners). They will be also less powerful if there is a high share of voters that are opposed to development. Finally, the lower the amount of vacant land and the harder to change are land use regulations, the more difficult for the developer will be to expand housing supply.

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3. Institutional framework

Local Elections. California state law establishes the main structure of municipal governments. Broadly, council members are elected for staggered terms of four years, with elections filling seats every two years. Besides of that, there are some institutional differences among cities. First, most cities (75.6%) have five-member councils, which is the minimum required by state law, while some big cities have a largest city council (e.g., Los Angeles city council has 15 members). Second, most cities also elect their city councils at-large (74.3%). Under this system, city council candidates are elected by a citywide electorate. The remaining cities elect its council members by district. Third, the electoral rule used is plurality (first-past-the post) in the vast majority of cities (96%); voters are allowed to select as many candidates are seats are being filled, and these seats are assigned to the candidates than rank higher in number of votes. The remaining 4% of cities use a run-off rule: if one candidate gets more than 50 percent of votes in the first round, she is elected; if no candidate overcomes this threshold the two with the most votes go to the second round. Fourth, the council-manager form of government is prevalent (94.5%), meaning that the council is responsible for establishing policy while an appointed manager is in charge of its execution. In most cases, the mayor is elected by the council and has no special powers.

Local housing policies. Land use in the United States is controlled by local governments. The US Constitution does not grant the federal government authority to regulate land, and the states have generally left this power to local governments (Gyourko and Molloy, 2015). There are two types of development decisions taken by California cities. The first one is the adoption by the city council of broad policies governing development, such as general plans and zoning ordinances. These are used to establish where construction is allowed, for which housing typologies (e.g., single-family, apartments), and many other details (e.g., lot sizes or building heights). The elaboration of these legal documents is time-consuming, and their effects on housing construction might happen many years after their approval.

The second one is the discretionary process of rezoning and of granting building permits. In California, property developers or owners who want to change the use of their land must go through the approval process with their local council. Development can legally proceed once the developers' application proposal is approved and a building permit is issued. The process of gaining local approval for the development of housing is seen as expensive, risky, and slow. The process can deter developers from getting started, can drive up the cost of development, and can result in rejections or downsizing of projects.

In principle, this review process is the responsibility of the Planning Commission, whose members are appointed. However, the final authority rests with the city council, which will have to decide in cases of disagreement among the members of the commission or during an appeals process. Moreover, council members wield indirect influence over the decisions of the commission through the appointment of its members. For instance, in councils of size five, each council member has the right to appoint one of the five members of the commission. The member of the commission tends to follow the guidelines of the council member that appointed her.

4. Data

***Identification of developers*.** The main source of data used to carry out this classification is the California Election Data Archive (CEDA), which provides the names, number of votes, and profession for every candidate in every local government election from 1995 to 2017. California electoral state law makes it mandatory for the candidate to state their profession[7]. We classify a candidate as being related to the real estate industry as one whose profession falls in any of three groups describe in section two (i.e., *Developers*, *Home builders* and *Real estate agents*) or that owns or works for a company whose activities also fall in these groups. We will also create two different categories, one for *Developers* and *Home builders* and the other for *Real estate agents*. The first category is plausibly more interested in new housing construction than the second one. Using this information, we selected the names of the professions that look related to any of the above groups. Additionally, for candidates whose connection with the real estate industry is not directly revealed by the profession[8] we rely on some auxiliary information sources (e.g., candidates' web pages, newspapers,

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[7] Figure A.1 in the Appendix shows the image of a ballot; the profession of the candidate ('real estate agent' in this case') is displayed right below the name.

[8] The professions considered in this group are: 'lawyer', 'attorney', 'manager', 'ceo', 'executive' 'managers', 'director', 'businessman', 'engineer', 'entrepreneur', 'consultant', and 'commissioner'. Some of these professions refer to consultants employed by developers and other to owners or managers of developer, home building or real estate companies.

and LinkedIn). The candidates will be coded as related to the real estate industry if they are specialized in activities related to the sector (e.g., 'real estate lawyer') or they own or work for company that belongs to the sector (e.g., 'construction firm').

Table A.1 in the Online Appendix provides the final list of words used to classify our candidates. The main professions considered in the first category (*Developers* and *Home builders*) are those that include the word 'developer', 'investor', 'builder' and 'contractor'; however, we also include here professions related to the consulting jobs used by real estate companies and firms (e.g., 'architects' and 'engineers'). The second category (*Real estate agents*) includes professions with the words 'real estate agent', 'broker' or similar. It also includes some professions that participate in the commercialization of houses, as 'appraiser' or 'mortgage broker'.

During the period we study 30,384 candidates ran for city council (see Table A.2 in the Online Appendix). Using the approach describe above, we have been able to classify 2,524 of these as unambiguously related to the real estate industry. This represents the 8,19 percent of the total number of candidates and 11,28 percent of those that we have been able to classify[9]. This suggests that these types of companies and/or occupations seem to be quite engaged with local politics in California. Table 1 presents some additional information that confirms this impression. The table shows that in 22 percent of the elections there is at least one developer running and that for each open seat there are 0.15 developer candidates running. Im-portantly, around 11 percent of these open seats are won by developers, and 47 percent of the developers running actually win a seat. This evidence suggests that developers both run and win in considerable numbers in city council elections.

[9] We have been able to classify 72.58% of the candidates. There are 8,455 candidates unclassified. Of these, 504 have occupations that might or might not be related to the industry (e.g., a plumber that might work in new construction or simply make repairs); these candidates will be eventually incorporated to the sample to run a robustness check. There are also 1,321 candidates with a known but unclassifiable profession. Some of these are bankers and financiers for which we have not been able to find whether their work is related to real estate loans or mortgages; others are attorneys and lawyers for which we also don't know whether their activities are related or not to the real estate. Finally, there are also 6,630 candidates that either do not specify the profession in the ballot or specify a government position as a profession (e.g., mayor, council member); for some of them we have not been able to recover the profession by looking at terms prior to winning office (e.g., they may have been in office for all prior terms for which we have information).

Table 1: Presence of developers in city council elections (1995-2017)

	Mean	SD	Min	Max	#Obs.
At least one developer running	0.219	0.441	0.00	1.000	8,769
#Developers running/ #open seats	0.153	0.343	0.00	4.000	8,769
#Developers winning / #open seats	0.112	0.324	0.00	1.000	8,769
#Developers winning/#Developers running	0.473	0.483	0.00	1.000	1,921

Notes: (1) Data from the 8.769 city council elections held in California during the period 1995-2017 (#Obs.=8.769) of which 1.921 had at least on developer running. (2) Data source: see definitions and data sources in Table A.4.

The sample that we will use in our empirical analysis includes all mixed elections where one of the two marginal candidates (the one winning the last seat or the runner off) is related to the real estate industry. The number of elections available is 937; in 461 the candidate is a *land developer* or a *home builder* and in 476 a *real estate agent*. Notice that the number of elections is smaller than the number of elections with developer candidates because we have to make sure that the developer is one of the marginal candidates and that she not competing against another candidate.

Outcome variables. Our main outcome variable is the number of permitted units. The source of this data is the U.S. Census Building Permits Survey. The data is available for most California cities for the period 1990-2020. We have information on the number of total units permitted as well as the distribution of new units between single-family and multifamily housing. Our dependent variable is units permitted because permitting is a political decision, whereas building completions are affected by exogenous factors such as internal financing. One issue with this data is that, coming from a survey voluntarily filled by cities, there are missing observations for some months and even years. Some of these missing values are imputed by the Census on the basis of prior trends, but others are simply not there, and it is difficult to know whether this is a zero or a missing. We minimize this problem by aggregating the number of permitted units over a longer time horizon. In our main specification we use the total

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number of units permitted over a period of four years after the election[10]. The fact that the election data is for the period 1995-2017 and the permit data for the period 1990-2020 means that we can compute the permit variable for the whole term of office and also for the prior term without losing any observation.

The second outcome variable we study is the average yearly growth in housing prices over the term of office. Data on housing prices is obtained from Zillow for the period 1996-2019. We use the Zillow Home Value Index (ZHVI) which is available at the city level. This index is available for single-family units and for condos, and for two market segments, top and bottom. The ZHVI is a hedonic price index and home values are estimated given the relative contribution of various home attributes in the sale price of similar homes in the area. There are two issues with this variable. The first one is that it measures the transaction prices of all types of units, old and new. Second, the data is not available for all California cities and all years. Although the selection into the database does not seem to be discontinuous at the vote threshold, the smaller sample suggest we should avoid specifications that further reduce the number of observations (e.g., by including lags of the variable). These issues call for more caution in the interpretation of the results.

Controls. We have collected information on a bunch of covariates (see Table A.2 in the Online Appendix for definitions and data sources). First, we obtained city-level economic and demographic controls both from the Census and from the American Community Survey. These include total population, median income, median gross rent, commuter share, homeownership rate, vacancy rate, the share of residents in each ethnic category (i.e., White, Black, Asian or Hispanic), and the share of residents with primary, secondary, or college education. Second, we have used geographical data to compute indicators of whether the city is close to the center of the urban area or to the coastline. Third, we use the information on the stringency and difficulty to modify land use regulations

[10] The number of zeros drops after this operation. However, there will be still some zeros when using finer categories of permits (e.g., multi-family permits); we will deal with this in our Regression Discontinuity Design by exploring whether there is a discontinuity in the extensive margin (i.e., having any permit versus having none) (see next section for details).

provided in Jackson (2018)[11]. Fourth, we also have information on the share of voters registered with different parties and the turnout rate in federal elections. The CEDA database also provides city-level institutional information on council size, voting geography, electoral rule, etc. This same database provides information at the candidate level: we know the gender, the ethnicity, whether the candidate is the incumbent, and whether she has prior political experience in other offices. We use campaign contribution data at the state level to compute the CF score (Bonica, 2014) for candidates to city councils. This allows us to classify them as Liberal or Conservative.

5. Methodology

Equation. Our empirical strategy is a close-elections regression discontinuity design (RDD). We will compare developers that won a seat in the council by a slim margin to developers than lost a seat also by a small margin. In close elections, the winner of these elections is randomly assigned to serve on the council, which allows us to identify the causal effect of the representation of real estate interests in the council on policy outcomes. One particularity that must be considered is that in many of the elections considered there is more than one seat to fill in the city council. Because of this, we will focus on the marginal candidates; that is, on the candidate that won the last seat to be filled and on the runner-up. We select those seats where one of the two candidates is related to the real estate industry and the other is not. This design can be understood as a though experiment, where we randomly pick one of the non-developer members of the city council and substitute it for a developer.

The estimated equation is the following:

$$\log u_{it}^{t+k} = \alpha_1 \mathbb{1}[Developer\ wins_{it} = 1] + \cdots$$

$$\ldots + \alpha_2 f(Vote\ Margin) + \alpha_3 * \mathbb{1}[Dev.wins_{it} = 1] * f(Vote\ Margin) + \cdots$$

$$\ldots + \rho \log y_{it-1}^{t+k} + \lambda_{jt} + \eta X_{it} + \mu Z_{it} + \varepsilon_{it} \tag{1}$$

The outcome variable $\log u_{it}$ is the natural logarithm of the cumulative number of units permitted between the year before the politician was elected and k years

[11] This information is too sparse to be used as an outcome; for the moment, we only used as a moderator, in order to study whether the influence of developers depends on the stringency of pre-existing regulations.

after that. The subscript i indicates the city, subscript t indicates the year, and k the number of years after the election. In the main results we will use k=4, that is the full term-of-office of the politician. However, we will also show results for shorter and larger time horizons. The variable is logged because the original variable is very skewed (see Figure A.2 in the Online Appendix), and the presence of very high values of the outcome could affect the stability of the estimates. This equation is also estimated for other outcomes; types of units permitted (i.e., single vs. multi-family) and housing price growth. In the case of housing prices, the variable used will be the growth rate of housing prices from year 0 to year k.

The variable $1[Developer\ wins_{it} = 1]$ is a dummy that is equal to one in cities and years where the new council member is a developer and won the elections and is equal to zero if the developer lost the election. The variable *Vote margin* represents the difference between the vote share of the developer and that of the competitor; this variable is positive if the real estate industry candidate wins. *Vote margin* enters through a flexible function *f(.)*. We use a local polynomial estimated on the optimal bandwidth, computed as per Calonico, Cattaneo, and Titiunik (2014), and which minimizes the mean squared error. In the robustness checks section, we also present results for a broad range of bandwidths. The parameter of interest, α_1, provides the causal impact of electing a candidate related to the real estate sector to the city council. In the main specification, we control for the lag of permitted units (i.e., cumulative number of units permitted in the previous term-of-office) and for Region x Time fixed effects (λ_{jt}), which should account for variations in the housing cycle across space and time. Adding these controls does not affect much the size of coefficient but increases efficiency[12]. The equation also includes city-level (X_{it}) and candidate-level controls (Z_{it}). The city-level controls include total population, median income, the share of residents in each ethnic and in each education category, as well as dummies indicating whether the city is the center of an urban area or close to the coast. The candidate controls include gender, education, experience and ideology.

[12] Notice that controlling for the lag of the outcome is similar to computing the dependent variable as the difference between two time periods. This is actually the procedure employed in some recent RD papers (see, e.g., deBendediktis-Kessner et al., 2016).

Estimation. Regarding estimation, we rely on a local polynomial of order one estimated with a triangular kernel using the MSE optimal bandwidth. In the robustness checks section, we will report estimates based on other polynomial orders and kernel types, and also estimates for a broad set of bandwidths. In the tables, we will report the conventional estimator and the bias-corrected standard error and confidence interval (Cattaneo et al., 2019). Standard errors are conservatively clustered at the county level (#counties=58); this takes into account that local housing markets tend to be more extensive than single cities.

A potential complication of the estimation of our equation is related to the fact that some cities have zero permitted units in some periods. We argue that this is not a real problem in our case; as we will discuss later, electing a developer has no effect at all on the extensive margin (whether any unit was permitted). In such a situation one needs not to worry about any selection bias and can estimate the equation dropping the zeros (Dong, 2019). Something similar happens with housing prices: the probability of being covered in the Zillow database is not different in places where a developer was elected.

Validity. To assess the validity of the regression discontinuity design we employ a series of placebo tests. First or all, following the recommendation of Eggers et al. (2015), we re-estimate our equation using lagged values of the outcome (e.g., the log of the number of units permitted during the prior term) as the dependent variable. Second, we also examine whether there is balance in pre-determined covariates, measured both at the city and at the candidate level. Third, we examine the density of the forcing variable to see if there is any discontinuity at the threshold, both visually and using the test proposed by Cattaneo et al. (2017).

6. Results

Main results: Housing Units. In this section we look at the effects of the election of a developer to the city council on the number of units permitted. We focus mainly on a period of four years, which coincide with the full term of office of the council member[13], although later on we will show also results at different horizons.

[13] For consistency, we exclude from the sample the council members elected for a period of just two years. It is not clear how these council members can affect permitting in the second part of

The regression discontinuity results are presented in Table 2. All the specifications in this table use local linear regression with a triangular kernel and the optimal band width, computed as per Calonico et al. (2014). The first column presents the raw estimates without any type of control. The second column controls for the lag of housing units and year-fixed effects. The third column includes city-level controls. In the fourth column, we add candidate controls (gender, ethnicity, incumbency, experience) and the fifth column includes all the controls at the same time. The point estimates are very similar in all these specifications. The estimates are, however, more precisely estimated when we control for lagged units and year fixed effects and, to a lesser extent, when we add the city-level controls.

Table 2: Effect of developers on Housing units permitted.

	Dep. Variable: log Housing units p.c.				
	(1)	(2)	(3)	(4)	(5)
RD Estimate	0.490	0.511	0.518	0.492	0.512
Pr >|z|	[0.059]	[0.011]	[0.006]	[0.034]	[0.006]
Robust c.i.	(-0.022, 1.190)	(0.087, 1.116)	(0.165, 1.012)	(0.157, 1.239)	(0.167, 0.988)
Mean dep. Var.	16.95	16.95	16.95	16.95	16.95
Bandwidth	0.125	0.140	0.124	0.125	0.119
#Observations	937	937	926	926	926
Effective #Obs.	511	541	505	471	482
Region x Time	No	Yes	Yes	Yes	Yes
Lag log Units	No	Yes	Yes	Yes	Yes
City controls	No	No	Yes	No	Yes
Candidate con.	No	No	No	Yes	Yes

Notes: (1) RD Estimates: triangular kernel with first-order polynomial fitted on the optimal bandwidth. (2) We report the Conventional RD estimates, the Robust 95% c.i. computed as per Calonico et al. (2014), and the robust p-value (Pr >|z|). Standard errors clustered at the county-level. (3) Dependent variable: log Housing units per capita during the full term of office of the council member (year 1 to 4). (4) Sample: full-term elections. Period: 1995-2019. (5) Municipal controls: logged population, coast dummy, CBD dummy, log income p.c., share of White, Asian and Hispanic population, share of population with primary, secondary and college education, share of democratic voters, and share of voters from other liberal parties. (6) Candidate controls: woman dummy, political experience dummy, ethnicity dummies (White, Asian and Hispanic), and the ideology score.

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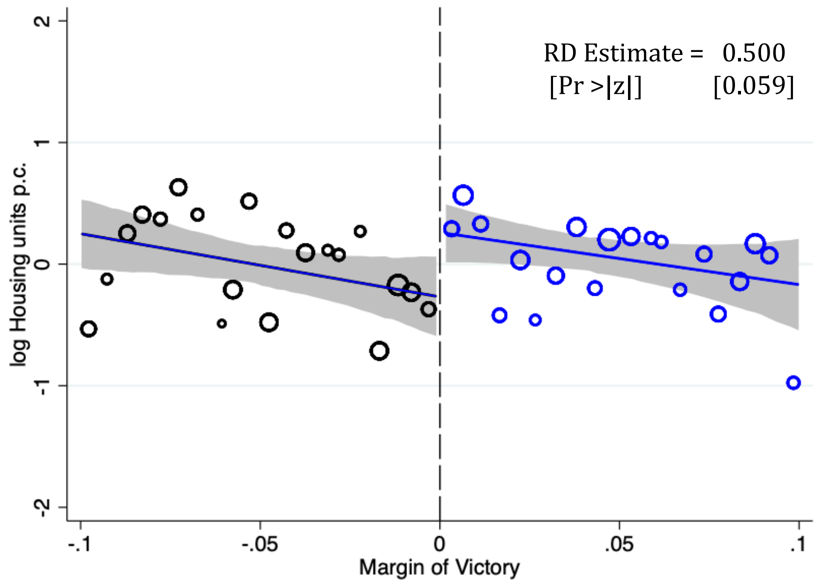
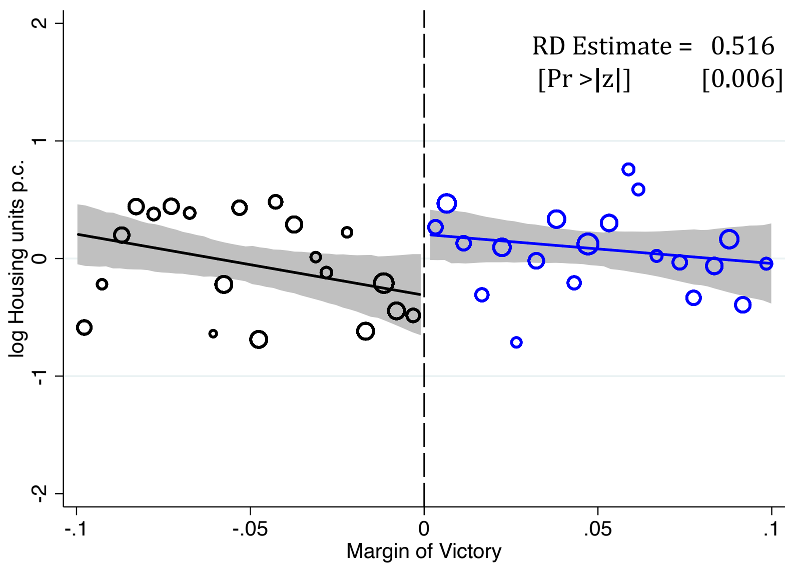
the term, because they will be out of office with a high probability. In fact, in most of these cases these council members decide not to run again. This means that the number of elections we will be considering here is not 668 but 585. In the robustness checks section, we will discuss the results obtained when using the whole set of elections.

Figure 1: Effect of Developers on Housing units permitted.

(a) First term (years 1 to 4)



(b) Two terms (years 1 to 8)



Notes: (1) Each point represents the sample average of the dependent variable for 0.5% bins of the Margin of Victory. (2) Dependent variable: logged number of total units permitted per capita during the first term of office of the council member (years 1 to 4) and during the first two terms after the victory (years 1 to 8); the variable is the residual of a regression against Region x Time f.e. and lagged log Housing units per capita (3) Sample of full-term elections. Period: 1995-2019. (4) The straight line is a first-order polynomial in the Developer's Margin of Victory. (5) The grey areas show the 95% c.i. and the box includes the RD point estimate and the robust p-value.

From the results, we see that during the four years' term after the win of a developer, permitted housing units increase by approximately 0.5 log points, or by a 65%. This amounts to an increase of 11 permitted units per 1,000 residents, from 17

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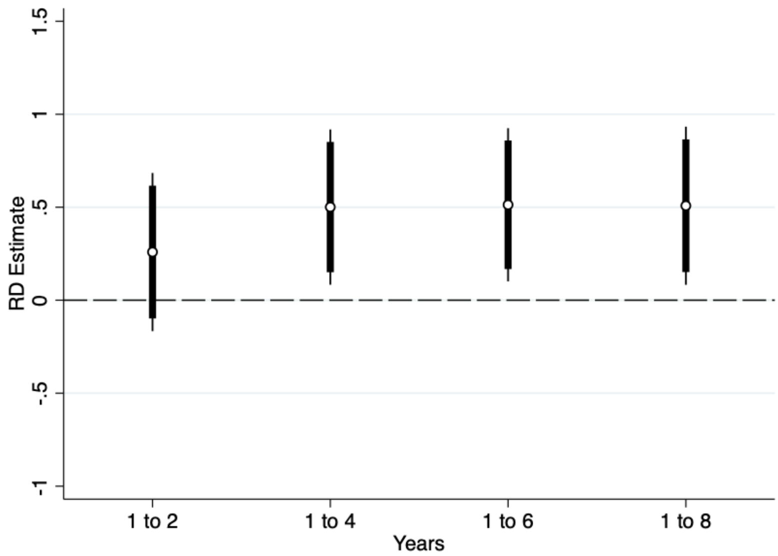
to 28. To place this quantity in perspective we should notice that the number of permitted units is an historical low in our sample. For instance, the number of permitted units per 1,000 residents was around 40 before 1990. Fixing the current housing affordability problem would probably require that housing production reverts to that level, which would require doubling the production of housing. In a recent study, a consultancy firm (McKinsey, 2016) gives a larger number, suggesting that housing production should at least multiply by three until 2025.

The discontinuity in housing units permitted around the cutoff is illustrated in Figure 1, which shows the plot between housing units issued and the forcing variable. The top panel reports the results for a time horizon of four years and the bottom one for a time horizon of eight years (two terms of office). Both graphs provide evidence of a clear and sizeable discontinuity: cities marginally to the right of the cutoff (i.e., those with a developer elected to the city council) permit the construction of more units than those marginally to the left (i.e., cities where a developer is not elected).

Figure 2:
Persistence of the effect on Housing units permitted.



Notes: (1) Dependent variable: logged number of total units permitted per capita; the variable is the residual of a regression against Region x Time f.e. and lagged log Housing units p.c. The figure displays the results for the cumulative number of permitted units over a given period of time (i.e., first two years, first four years, etc.). (2) RD Estimates: triangular kernel with first-order polynomial. (3) 95% and 90% c.i. displayed; standard errors clustered at the county-level. (4) Sample of full-term elections. Period: 1995-2019.

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The bottom panel of Figure 1 shows that the difference is still there eight years after the election of the developer. Figure 2 provides a more detailed account of the persistence of the effects of electing a developer to city council. We show results for the log of the number of units permitted the first two years after the election, the first four years, first six years, and first eight years. Notice that the effect after just two years is small and not statistically significant. However, the effect is large and statistically significant after four years and is still there at longer horizons. It seems, therefore, that although it takes some time for the developers to be able to influence the issuance of building permits, their impact is prolonged in time.

Validity checks: falsification tests. In order to validate our RD design, we perform two types of falsification tests. First of all, we examine, whether, near the threshold, treated units are similar to control units in terms of observable characteristics. The idea is that, if units lack the ability to precisely manipulate the value of the forcing variable, there should be no systematic differences between units with similar values of the forcing variable (Cattaneo et al., 2019). Therefore, units just above and just below the threshold should be similar in all variables that could not have been affected by the treatment. According to Eggers et al. (2015) the main candidates to perform a falsification test like this are lagged values of the outcome variable.

Table 3: Effect of Developers on *lagged* Housing units permitted.

	Dep. Variable: *lagged* log Housing units p.c.				
	(1)	(2)	(3)	(4)	(5)
RD Estimate	0.078	0.056	-0.001	0.050	0.014
Pr >|z|	[0.955]	[0.924]	[0.998]	[0.839]	[0.950]
Robust c.i.	(-0.451, 0.607)	(-0.431, 0.544)	(-0.443, 0.442)	(-0.434, 0.535)	(-0.421, 0.448)
Mean dep. Var.	16.20	16.20	16.20	16.20	16.20
Bandwidth	0.120	0.131	0.122	0.128	0.119
#Observations	585	585	576	576	576
Effective #Obs.	615	546	482	506	474
Region x Time	No	Yes	Yes	Yes	Yes
City controls	No	No	No	No	Yes
Candidate con.	No	No	No	Yes	Yes

Notes: (1) Dependent variable log Housing units per capita in the prior term of office (years 0 to -3). (2) See Table 1.

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In Table 3, we present the results of such a test for our main outcome variable, the number of housing units. In none of the specifications we find an effect of the number of housing units permitted in the term prior to the entry of the developer in the council (years 0 to -3). The coefficient is very small and the p-value around 0.9 or larger. Therefore, our results are not due the fact that developers have a higher chance of winning in places with more construction in the years previous to the election. A similar falsification test might be carried out by testing for a discontinuity in other covariates that are determined before the treatment is assigned– which can be called pre-determined variables. The results for the city-level covariates are reported in Table A.5. All point estimates are small with p-values ranging from 0.257 to 0.987. In other words, there is no empirical evidence that these predetermined covariates are discontinuous at the cutoff.

A second type of falsification test examines whether, close to the threshold, the number of observations below the threshold is substantially different than the number of observations above. The underlying assumption is that, if candidates do not have the ability to precisely manipulate their vote share, the number of treated observations above the threshold should be similar to the number of controls observations below it. To test for manipulation, we examine the histogram and, more formally, we test for the continuity of this variable at the cutoff (see Figure A.6 in the Online Appendix). Neither of the two tests reported suggest any evidence of manipulation.

Validity checks: confounded treatments. Another treat to identification is posed by the chance that other treatments are activated at the right of the threshold. This could happen if, for example, the developers have different characteristics (plausibly correlated with the preferences for/against development) than the rest of candidates. To assess this possibility, we test for discontinuity in the candidate-level covariates: ethnicity, gender, incumbency status, experience, and ideology. The results of these tests are reported in Table A.6. One of the covariates, the dummy indicating whether the candidate is white or not, seem to be unbalanced. The percentage of Whites is 18 points larger for developers than for non-developers, with a p-value of 0.063.[14] This is due to a

[14] The point estimates for the other ethnicities are negative and large, especially for Blacks and Hispanics. The p-values are larger than 0.1 but this might be caused by the lack of power of the test (given the small numbers of developers with each of these ethnicities).

mechanical effect derived from the fact that developers are disproportionally White. However, notice that this affects the interpretation of the results, which might be picking the compound effect of several treatments: being a developer and being White at the same time. We do a couple of things to dispel this doubt. First, notice that being White is correlated with other traits, as being rich, owning a home, or living in the suburbs. This means that we should expect that white candidates will try to deter the issuance of building permits. Therefore, if anything, we might be underestimating the real effect of electing a developer. Second, in the robustness checks section we show that the results don't change when we restrict the sample to mixed elections involving a developer and a non-developer of either the same ethnicity.

Robustness checks. The results presented above are statistically significant and quantitatively meaningful. Moreover, they are robust to several robustness checks. First, we show that the estimated coefficient is fairly stable when we employ a broad range of bandwidths (Figure A.7 in the Online Appendix). The coefficient is less precisely estimated as we approach the threshold and is a bit smaller for large bandwidths.

Second, we show that the results do not change much when we employ other kernels and/or a polynomial of order two. The results do not depend at all on the type of kernel; the coefficients are larger and less precisely estimated when using a polynomial of order two. In accordance with the suggestion by Pei *et al.* (2020), we compute the MSE for each of these cases. We find that the local linear specification performs better in terms of MSE than the second order polynomial.

Third, we also show that our results do not depend much on the way we have selected our sample. In Table A.7 we show that the coefficient is similar and statistically significant when: we include in the sample other professions for which we have some doubts regarding whether there are related or not to the real estate industry; we add to the sample the short-term elections; we exclude from the sample the runoff elections; when we look at mixed election involving developers and non-developers of the same ethnicity; and when we exclude from the sample the cities that report data on campaign contributions.

Finally, in Table A.8 we report the results for the extensive margin; here we repeat the estimations of Table 2 using a linear probability model, with the dependent variable being a dummy equal to one if there has been at least one unit permitted during the term,

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and zero otherwise. The coefficients estimated are rather small and they are not statistically significant at conventional levels. This provides support for the decisions to estimate our RD equation excluding from the sample the observations with zeros.

Additional results: Housing typology. Table 6 shows the regression discontinuity results for different types of units. We differentiate between single-family and multi-family units. Multi-family buildings have more than one unit; the US Census data allow us to differentiate also buildings with two units, with three or four units, and with five or more units. This latter category is usually interpreted as referred to apartment buildings. Apartments tend to be more affordable than single-family houses and tend to be occupied by less affluent people. The other categories might refer to semi-detached houses or townhouses. These types options have less front and backyard square footage than detached single-family homes; they have also less privacy and are in general more affordable[15].

Table 6: Other outcomes: Typology of construction

	Dep. Variable: log Housing units p.c.				
		Multi-family units			
	Single-family units	Total	2 units	3-4 units	≥5 units
	(1)	(2)	(3)	(4)	(5)
RD Estimate	0.504	0.404	-0.026	0.597	0.421
Pr >|z|	[0.016]	[0.128]	[0.906]	[0.175]	[0.200]
Robust c.i.	(0.109, 1.076)	(-0.152, 1.207)	(-1.015, 0.899)	(-0.339, 1.865)	(-0.320, 1.533)
Mean dep. Var.	13.94	3.82	0.24	0.43	3.14
Bandwidth	0.119	0.133	0.133	0.148	0.141
#Observations	858	464	464	464	464
Effective #Obs.	356	265	265	265	265
Region x Time f.e.	Yes	Yes	Yes	Yes	Yes
Lag log Units p.c.	Yes	Yes	Yes	Yes	Yes

Notes: (1) RD Estimates: triangular kernel with first-order polynomial fitted on the optimal bandwidth. (2) We report the Conventional RD estimates, the Robust 95% c.i. computed as per Calonico et al. (2014), and the robust p-value (Pr >|z|). Standard errors clustered at the county-level. (3) Dependent variable: log Housing of units permitted per capita during the term in each category (1 to 4 years). (4) Sample: full-term elections. Period: 1995-2019.

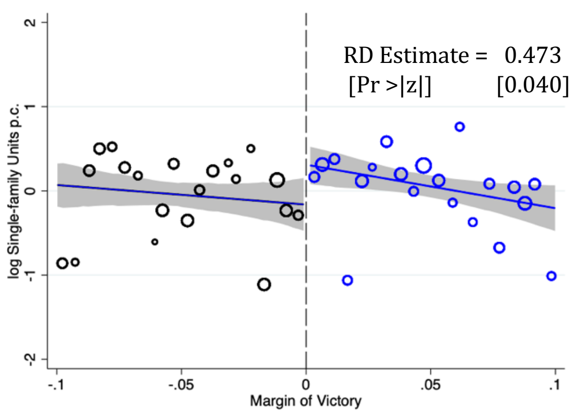
[15] This obviously holding constant square footage and quality. We have no information about this, so we don't know whether the new permitted apartment units are affordable options or luxury condos. The results regarding the effects on housing prices will tell something about this.

The results in Table 6 suggest that the effects of electing a developer are stronger for single-family than for multi-family units. The effect on single family units is equal to 0.5 log points –identical than the effect on total housing units- with a p-value=0.016. The coefficients on three-to-four unit permits and on apartment units is quite large (approximately 0.6 and 0.4 log points but it is not statistically significant at conventional levels (the p-value is 0.175 and 0.200, respectively). The discontinuity around the threshold is shown in Figure 2 for single and multi-family houses, and for two different time horizons: four and eight years (as we did for total units). Panels (a.1) and (b.1) display graphically the results already commented from Figure 4 for the four-year horizon. Panels (a.2) and (b.2) display graphically the results for single and multi-family units for the eight-year horizon.

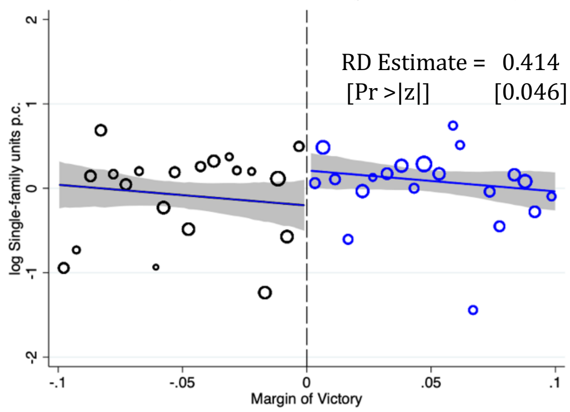
Figure 2: Effect of Developers on the Typology of construction

(a) Single-family units

(a.1) First term (years 1 to 4)

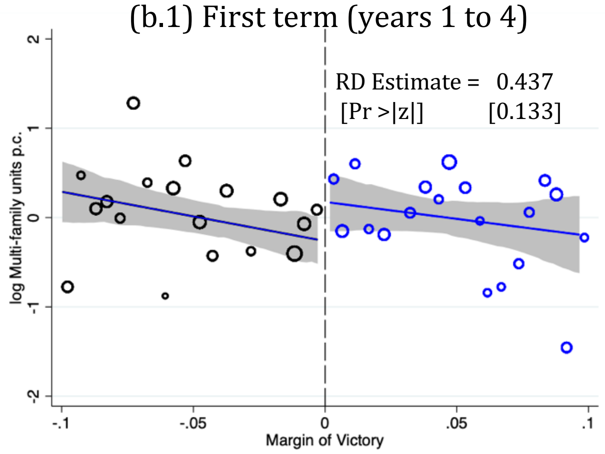


(a.2) Two terms (years 1 to 8)

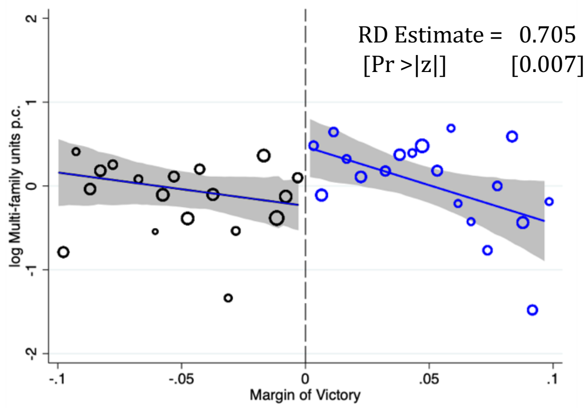


(b) Multi-family units

(b.1) First term (years 1 to 4)



(b.2) Two terms (years 1 to 8)



Notes: See Figure 2.

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The result for single-family units is similar than when considering just four years. Remarkably, however, the estimated discontinuity for multi-family houses is much larger when we consider a longer time-horizon[16]. The coefficient is now equal to 0.7 log points, or an increase of a 100% in the number of permitted units. This means that the election of a developer to the council will increase the number of permitted multi-family houses per 1,000 residents by just 3 units during an eight-year period (that is, from 3 to 6 units). This is a small portion of the overall increase in housing units caused by the entry of a developer in the council; moreover, the increase comes with a considerable delay. This might be due to the higher complexity of the projects, to the higher local regulatory burden imposed on these projects (that may be difficult to overcome and or reform by developer councilmen), and also by the complexity of dealing with affordable housing subsides (Hoyt and Schuetz, 2020).

Additional results: Housing price growth. We also have some results for the growth rate of housing prices, computed as the difference between log prices in the year of the election and four years later. The series of housing prices we have are shorter than those of permitted units, and the number of cities covered is also small. Because of this we abstain to do any exercise that would further reduce the number of observations that can be used for the estimation[17]. Even after this precaution, we think the results obtained on housing price growth have to be interpreted with some care. Notice, for instance, that prices might be affected by politics through other channels.

Table 7 shows the results of the RD design obtained when using housing price growth as an outcome. We report results for all units, single-family units and condos, and top and bottom market segments. The results indicate that the entry of a developer is associated with a decrease in the growth rate of housing prices of 1.7 p.p., that is from 5.4% to 3.7%. The discontinuity in the growth rate of housing prices around the cutoff is illustrated in Figure A.9 in the Online Appendix.

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[16] Figure A.5 in the Online Appendix shows the full dynamic results for cumulative periods of two years, both for single and for multi-family units. The plot for single-family units looks very similar to that of total units already shown in the paper. In the case of multi-family housing, however, the effect is large and significant for periods up to six and up to eight years. The effect for periods up to four and, specially, up to two years is also large, albeit not statistically significant. This might be due to heterogeneity in the traits of multi-family projects; for example, some developers find a delayed multi-family project on the table after taking office and decide to speed up the approval.

[17] nder So, we don’t control for lagged price growth and we don’t look at longer time horizons.

This drop is even larger in the case of single-family units, with a drop in the annual housing price growth rate of housing prices of 2.4 p.p., that is from 5.5% to 3%. Notice that developers have no effect at all on the growth of condo prices (the coefficient is virtually zero and the p-value very large). This is consistent with lack of a statistically significant impact of developers over the supply of condos over this time horizon. However, it might also be due to the fact that developers concentrate their efforts on high-quality condo projects, leaving aside the construction of affordable apartment buildings[18]. The results by market segment tell us that only the prices of the top segment (of the more expensive units) are affected by the entry of a developer in the council; the effect of the growth rate of the bottom segment units (the most affordable ones) is unaffected. All this suggest that even though developers are effective in boosting housing supply and reducing prices, they may fail to do it for the most affordable segments of the market.

Table 7: Other outcomes: Housing price growth

	Dep. Variable: Δlog Housing price				
		By Housing type		By Market segment	
	All	Single-family units	Condos	Bottom	Top
	(1)	(2)	(3)	(4)	(5)
RD Estimate	-0.017	-0.024	0.002	-0.005	-0.016
Pr >|z|	[0.039]	[0.014]	[0.873]	[0.591]	[0.033]
Robust c.i.	(-0.034, 0.001)	(-0.049, -0.005)	(-0.025, 0.030)	(0.061, 0.940)	(-0.030, -0.001)
Mean dep. Var.	0.054	0.055	0.053	0.058	0.051
Bandwidth	0.096	0.081	0.144	0.129	0.111
#Observations	600	600	432	440	425
Effective #Obs.	273	243	216	212	220
Region x Time f.e.	Yes	Yes	Yes	Yes	Yes
Lag log Units p.c.	Yes	Yes	Yes	Yes	Yes

Notes: (1) RD Estimates: triangular kernel with first-order polynomial fitted on the optimal bandwidth. (2) We report the Conventional RD estimates, the Robust 95% c.i. computed as per Calonico et al. (2014), and the robust p-value (Pr >|z|). Standard errors clustered at the county-level. (3) Dependent variable: yearly average increase in log Housing price ($/m^2) during the term of office (1 to 4 years). (4) Sample: full-term elections. Period: 1998-2019.

[18] In fact, developers have been accused of building only 'luxury condos' (see e.g., "Why Are Developers Only Building Luxury Housing?" https://www.strongtowns.org/journal/ 2018/7/25/ why-are-developers-only-building-luxury-housing).

Additional results: Developer type. Here we look at the effect of each of the two main categories highlighted in the paper: *Developers* and *Home builders*, and *Real estate agents*. The results reported in Table 8 indicate that the impact of both groups is positive and statistically significant. However, the impact of *Developers* and *Home builders* is very large, equal to 0.98 log points, or a 170% increase in the number of units. This represents an increase of 13 units per 1,000 residents, from 19 to 32. In contrast, the impact of *Real estate agents* is smaller, equal to 0.4 log points, or a 50% increase in the number of units. This represents an increase of 8 units per 1,000 residents, from 16 to 24. The difference between the effect of the two groups suggests that *Real estate agents* care (relatively more than the other group) about the possible depressing effect that increasing housing supply have on prices.

Table 8: Developers vs. Real estate agents

	log Housing units p.c.		Housing price growth	
	Real estate agents	Developers & Builders	Real estate agents	Developers & Builders
	(1)	(2)	(3)	(4)
RD Estimate	0.389	0.981	-0.010	-0.031
Pr >|z|	[0.048]	[0.000]	[0.336]	[0.007]
Robust c.i.	(0.007, 0.906)	(0.515, 1.179)	(-0.041, 0.014)	(-0.064, -0.099)
Mean dep. Var	16.09	18.77	0.048	0.051
Bandwidth	0.101	0.100	0.154	0.108
#Observations	476	461	303	297
Effective #Obs.	154	137	143	130
Region x Time f.e.	Yes	Yes	Yes	Yes
Lag log Units p.c.	Yes	Yes	Yes	Yes

Notes: (1) RD Estimates: triangular kernel with first-order polynomial fitted on the optimal bandwidth. (2) We report the Conventional RD estimates, the Robust 95% c.i. computed as per Calonico et al. (2014), and the robust p-value (Pr >|z|). Standard errors clustered at the county-level. (3) Dependent variable: log Housing of units permitted per capita during the term (1 to 4 years) or log Housing price growth during the term. (4) Mean dependent variable: units per 1000 inhabitants. (5) Sample: full-term elections. Period: 1995-2019.

Moderators. In this section we explore several factors that might contribute to enhance or mitigate the influence of developers inside the city council –the moderators. With this aim we perform several heterogeneity analyses by splitting the sample according to the values of these moderator variables. The results of this section should be taken with a

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pinch of salt. The main reasons are that the moderators might be correlated with other variables that affect the power of developers; this means that it will be hard to attribute the difference between sample only to the moderator we are studying.

Table 9: Moderators: Political institutions

	Dep. Variable: log Housing units p.c.				
		Council size		Election geography	
	Full sample	=5	>5	At large	By district
	(1)	(2)	(3)	(4)	(5)
RD Estimate	0.511	0.714	0.105	0.559	0.469
Pr >|z|	[0.011]	[0.003]	[0.572]	[0.016]	[0.053]
Robust c.i.	(0.087, 1.116)	(0.270, 1.337)	(-0.345, 0.791)	(0.150, 1.120)	(-0.016, 1.065)
Mean dep. Var	16.95	19.07	10.37	18.93	10.79
Bandwidth	0.140	0.108	0.074	0.070	0.138
#Observations	937	698	235	687	249
Effective #Obs.	541	374	167	245	123
Region x Time f.e.	Yes	Yes	Yes	Yes	Yes
Lag log Units p.c.	Yes	Yes	Yes	Yes	Yes

Notes: (1) RD Estimates: triangular kernel with first-order polynomial fitted on the optimal bandwidth. (2) We report the Conventional RD estimates, the Robust 95% c.i. computed as per Calonico et al. (2014), and the robust p-value (Pr >|z|). Standard errors clustered at the county-level. (3) Dependent variable: log Housing of units permitted per capita during the term (1 to 4 years). (4) Sample: full-term elections. Period: 1995-2017.

First of all, in Table 9 we study the effect of political institutions. More concretely, we look at the effect of council size and electoral geography. In columns (2) and (3) we report the results councils of size five (which is the default and more prevalent one) and for larger councils. The results indicate that the effects are only found in small councils, where the estimated coefficient is quite large: 0.7 log points or a 100% increase in the number of units. In these small councils, votes might be frequently be blocked, which gives more power to a single council member. Also, the focus of the developer on a single issue (expanding housing supply and/or easing regulatory constraints) confers him an extraordinary bargaining power vis a vis other council member (whose policy interests might be more fragmented). See Folke (2014) for a discussion of this possibility in relation to the influence of green parties on local councils in Sweden.Finally, recall also that in these small councils each councilmember appoints one member of the planning

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commission, which is going to act in concert with him[19]. In columns (4) and (5) we report the effects of the voting geography, comparing cities with at-large vs by-district elections. The theory tells us that at-large elections might be more prone to special interest capture while by-district ones are more affected by parochialism. The results of Table 9 indicate that this is the case. Notice, however, that the difference between the two coefficients is rather small[20].

Table 10: Moderators: Political preferences

	Dep. Variable: log Housing units p.c.				
		Council member preferences		Voter preferences	
		Anti-development		Anti-development	
	Full sample	<=Median	>Median	<=Median	>Median
	(1)	(2)	(3)	(4)	(5)
RD Estimate	0.518	0.605	-0.150	0.981	0.159
Pr >|z|	[0.006]	[0.013]	[0.773]	[0.003]	[0.782]
Robust c.i.	(0.165, 1.012)	(0.149, 1.265)	(-0.949, 0.706)	(0.387, 1.822)	(-0.334, 0.778)
Mean dep. Var	16.95	17.65	15.55	16.47	17.32
Bandwidth	0.124	0.127	0.132	0.171	0.108
#Observations	937	468	469	469	468
Effective #Obs.	495	247	247	247	247
Region x Time f.e.	Yes	Yes	Yes	Yes	Yes
Lag log Units p.c.	Yes	Yes	Yes	Yes	Yes

Notes: (1) RD Estimates: triangular kernel with first-order polynomial fitted on the optimal bandwidth. (2) We report the Conventional RD estimates, the Robust 95% c.i. computed as per Calonico et al. (2014), and the robust p-value (Pr >|z|). Standard errors clustered at the county-level. (3) Dependent variable: log Housing of units permitted per capita during the term (1 to 4 years). (4) Sample: full-term elections. Period: 1995-2019.

Second, in Table 10 we look at the effect of political preferences. The idea is that the power of the developer might depend on whether the rest of councilmembers and/or the voters are also relatively pro- or anti-development. It is not obvious how to proceed in our case; for instance, we don't know whether councilmembers are homeowners or renters, and we also don't know whether they have been endorsed by environmental groups,

[19] This does not happen in larger councils (e.g, as in Los Angeles, with a council of size 15), where the members of the planning commission are voted in the council.
[20] Moreover, the voting geography is correlated with other variables. For instance, most cities in California have both a council of size five and at-large elections.

community associations, or other NIMBY groups. However, we know from the literature that opposition to construction might have a racial origin; hence, we will measure the size of the 'Anti-development' coalition inside the council as the summation of the number of councilmembers who are non-developers but are white less those that are developers. We divide our sample in two groups, depending on whether the share of this coalition is smaller or larger than the sample median. The results are presented in columns (2) and (3) and suggest that the effect of the marginal developer is larger in places where the anti-growth coalition is smaller. In columns (4) and (5) of Table 10 we explore the effect of voter preferences. In some cities there might be a large proportion of voters who are opposed to development. This might be the case of suburbs with a large proportion of whites and homeowners and commuters. To check this possibility, we compute an indicator of 'Anti-development' voters as the average of the shares of the three aforementioned groups. We divide our sample in two groups: cities with low and high values of this indicator (i.e., below or above the sample median). We find that the effect of an additional developer is restricted to the sample that has a low share of voters that are anti-development[21]. So, the influence of developers is limited by the presence of many voters that dislike development.

Finally, in Table 11 we explore the ability of housing supply constraints to limit the influence wielded by developers. The idea is that developers might make a difference in places where the amount of vacant land is large or whether land use regulations are harder to change. Land use regulations are more difficult to modify in places that require either voter consultation or supermajorities in the council. The data comes from Jackson (2018). The results are reported in Table 11. Columns (2) and (3) investigate the effect of the amount of vacant land: the effect is larger in cities with a lot of vacant land. Columns (4) and (5) reports the results related to approval requirements. The effect of developers only appears in cities without hard-to-change land use regulations. All this suggest that developers have a hard time in expanding housing supply in places without vacant land or that are more heavily regulated.

[21] Notice that the three variables using in the construction of this index are balanced at the threshold. So, the results are not caused by developers winning with less frequency in places with a lot of voters opposed to development.

Table 11: Moderators: Housing supply constraints

	Dep. Variable: log Housing units p.c.				
		% Vacant land		Approval rules	
	Full sample	<=Median	>Median	YES	NO
	(1)	(2)	(3)	(4)	(5)
RD Estimate	0.518	0.313	0.529	0.319	0.522
Pr >|z|	[0.006]	[0.242]	[0.094]	[0.550]	[0.024]
Robust c.i.	(0.165, 1.012)	(-0.247, 0.976)	(-0.106, 1.345)	(-0.710, 1.334)	(0.079, 1.104)
Mean dep. Var	16.95	17.98	16.23	16.61	17.01
Bandwidth	0.124	0.183	0.120	0.161	0.150
#Observations	937	463	469	141	796
Effective #Obs.	309	283	265	72	467
Regions x Time f.e.	Yes	Yes	Yes	Yes	Yes
Lag log Units p.c.	Yes	Yes	Yes	Yes	Yes

Notes: (1) RD Estimates: triangular kernel with first-order polynomial fitted on the optimal bandwidth. (2) We report the Conventional RD estimates, the Robust 95% c.i. computed as per Calonico et al. (2014), and the robust p-value (Pr >|z|). Standard errors clustered at the county-level. (3) Dependent variable: log Housing of units permitted per capita during the term (1 to 4 years). (4) Sample: full-term elections. Period: 1995-2019.

7. Conclusion

In this paper we have studies the influence wielded by politicians related to the real estate industry (which we colloquially call ‘developers’) on local housing policies. Most of the literature focus on the role of homeowner-voters and yet there is not strong evidence their preferences are different than those of renters (Hankinson, 2018; Marble and Nall, 2021). We show that real estate interests are well represented in local elections in California: 11 percent of the candidates running for local council are developers. Moreover, in 22 percent of elections there is at least one developer running, and 11 percent of open seats are won by developers. These are no small numbers and provide a proof that this industry is quite involved in city politics in California. We discuss in the paper the reason why developers are interested in running for local office, which are related both to the impact of local policy on their activity and on the ability to exert influence if elected.

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The main purpose of the paper, however, is to provide direct evidence regarding the ability of developers to influence local housing policy if elected to the city council. The findings of the paper do indicate that developers are quite influential. First, the entry of a developer in the council is followed by an increase of a 65% in the number of units permitted in the city during the full term of office. This might be a large number, but it is not enough to compensate for the actual California shortage of housing. Second, over this time horizon, the effects are stronger for single-family than for multi-family units. However, the reaction of multi-family housing is stronger at longer time horizons. This is due to the fact that these projects are more complex but also to the fact that developer have to fight against stricter land use regulations in this case. Third, the entry of a developer also has an effect over the growth rate of housing prices, which drops by 1.7p.p. over the term of office, from 5.4% to 3.7%. However, this reduction is restricted to single-family units and to the top segment of the market; prices of condos and of units in the bottom segment of the market are not affected at all. This casts some doubts about the effects on housing affordability of the expansion in housing supply generated by the entry of a developer in the city council.

Fourth, these effects are moderated by important economic, institutional and political factors. First, they happen basically in cities with small councils, where one single councilmember might become pivotal, especially if it has very intense preferences over policy. Of course, this effect is reinforced when the anti-development coalition inside the council is small and/or when voters are strongly opposed to construction. Second, the effect is much weaker in places without a large amount of vacant land or where it is difficult to change land use regulations.

Overall, our findings are quite mixed. The mean impact of developers on housing supply is large in absolute terms but less so in absolute terms. Also, developers are able to shift local housing policies in the direction to allow development, with some effect on housing affordability, but only in places where the obstacles to the expansion of the housing supply were not that great to start with.

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Appendix: Additional Figures and Tables

Figure A.1: Evolution of the number of units permitted

Figure A.2: Example of profession information in a ballot

Figure A.3: Histogram of council size

Figure A.4: Histogram of outcome variable

Figure A.5: Persistence of the effect by Housing typology

Figure A.6: Manipulation test

Figure A.7: Sensitivity to bandwidth choice

Figure A.8: Robustness: RD specification

Figure A.9: Effect of Developers on Housing price growth

Table A.1: Words used to identify professions related to the real estate industry

Table A.2: Share of developers as candidates to city council

Table A.3: Performance of developers in city council elections

Table A.4: Variable definitions and data sources

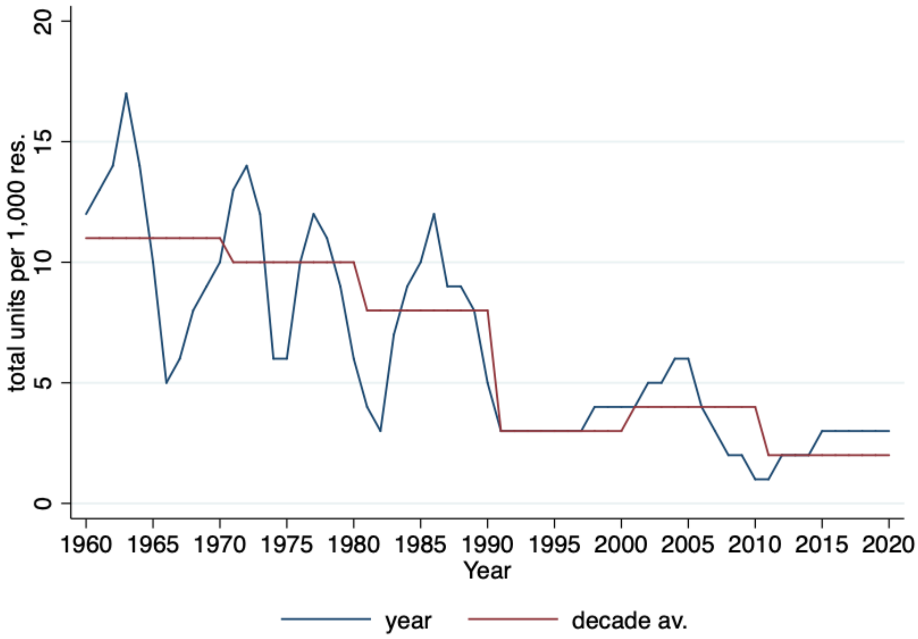
Table A.5: Covariate balance: City characteristics

Table A.6: Covariate balance: Candidate characteristics

Table A.7: Robustness: Sample selection

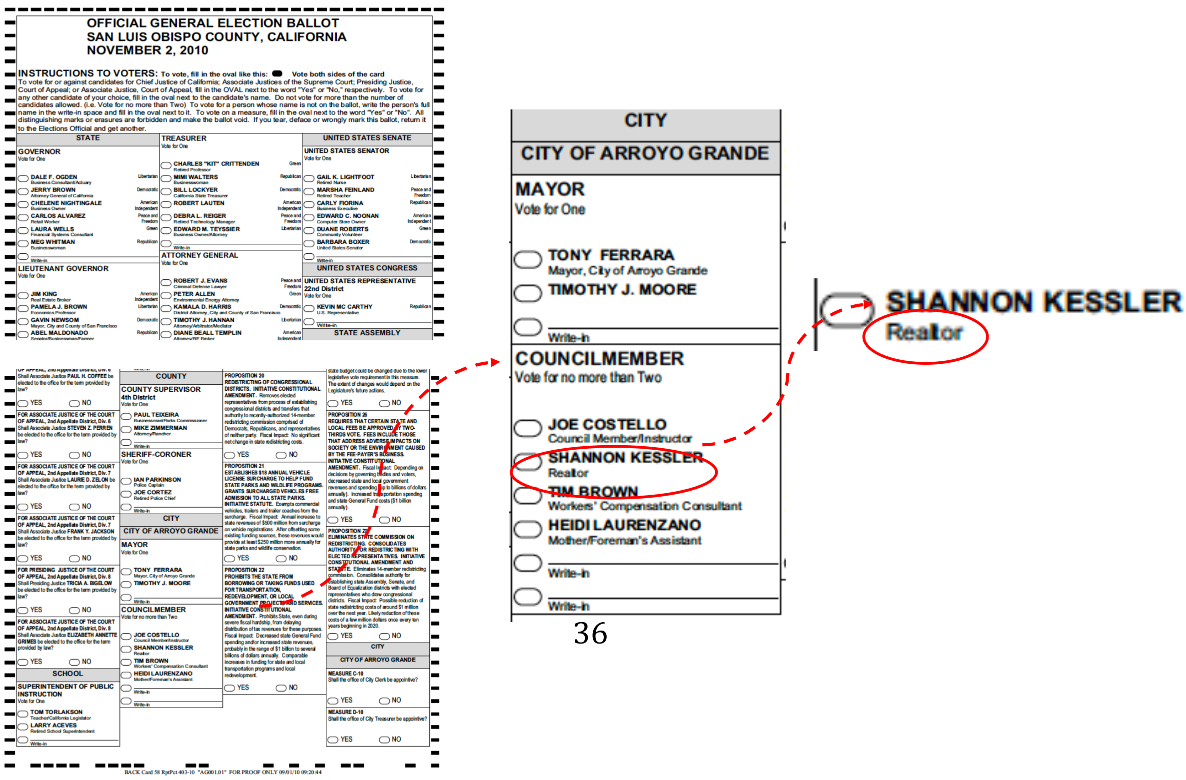
Table A.8: Extensive margin

Figure A.1:
Evolution of the number of units permitted



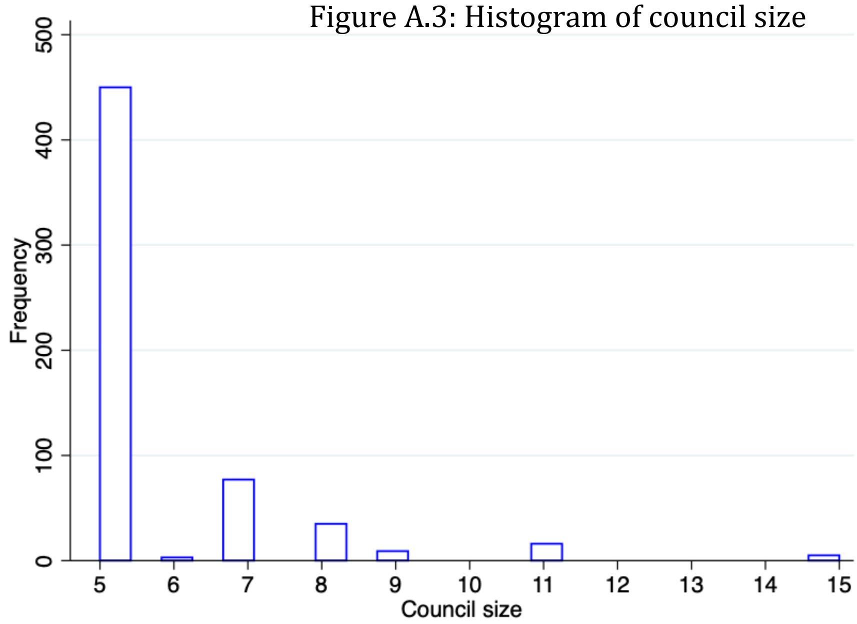
Notes: (1) California 1960-2020; (2) Variables expressed per capita x 1000. The blue line is the year value and the red line is the decadal average. (3) Source: US Census, Building Permits Survey.

Figure A.2: Example of profession information in a ballot



Notes: (1) The figure shows a ballot for the 2018 City council elections of the City of Arroyo Grande (San Luis Obispo county). One of the candidates (Shannon Kessler) reports the profession of Realtor.

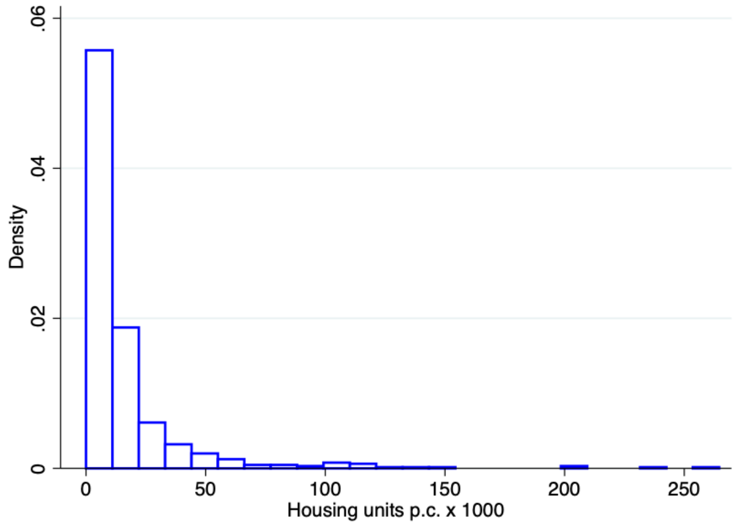
Figure A.3: Histogram of council size



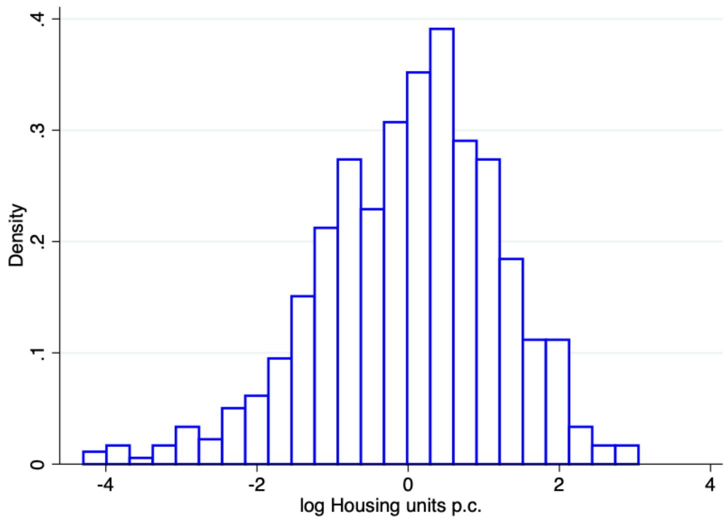
Notes. Number of seats in the council.

Figure A.4: Histogram of outcome variable

(a) Housing units p.c.



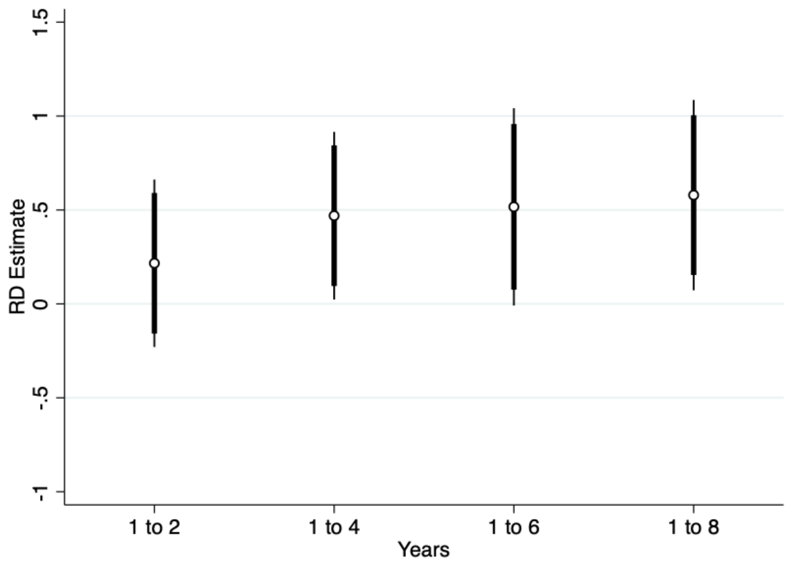
(b) Log Housing units p.c.



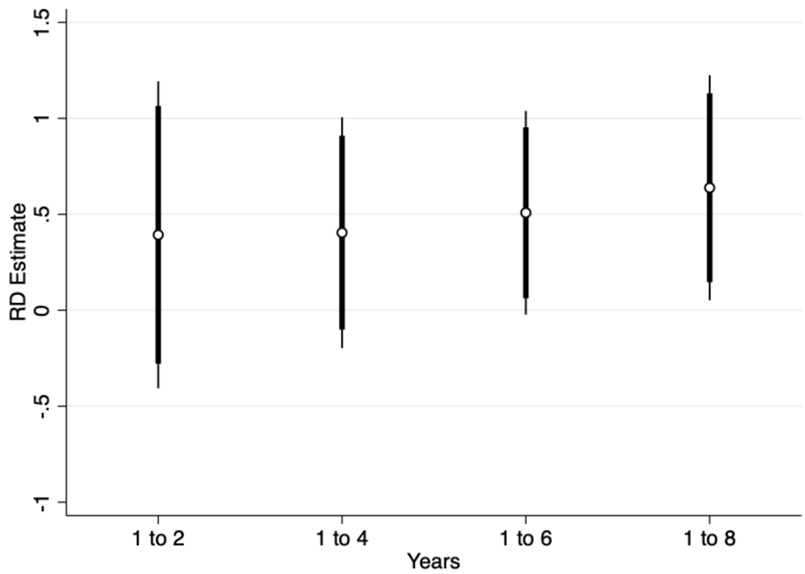
Notes: (1) Panel (a) show the histogram of the number of Housing units permitted per 1000 residents; Panel (b) shows the logged value of this variable. (2) Sample: full-term elections (#obs.=937).

Figure A.5: Persistence of the effect by Housing typology

(a) Single-family units



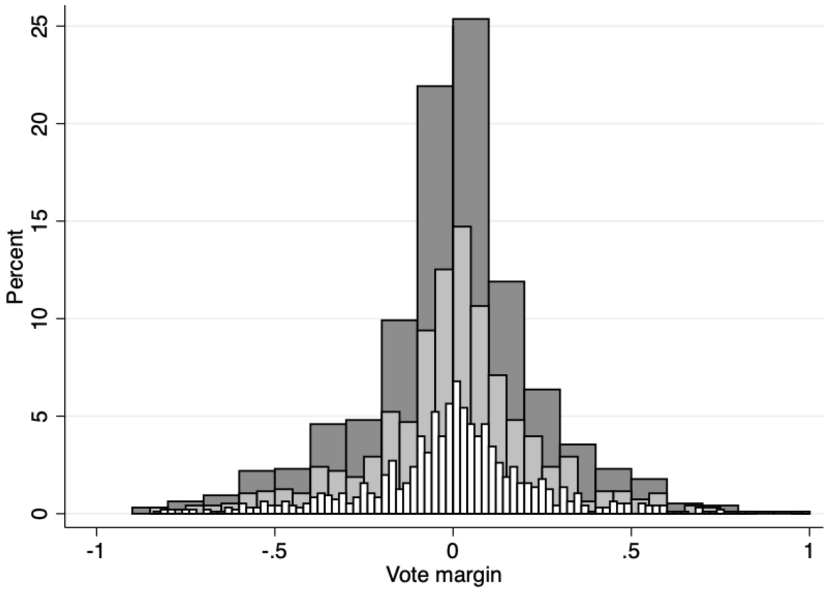
(b) Multi-family units



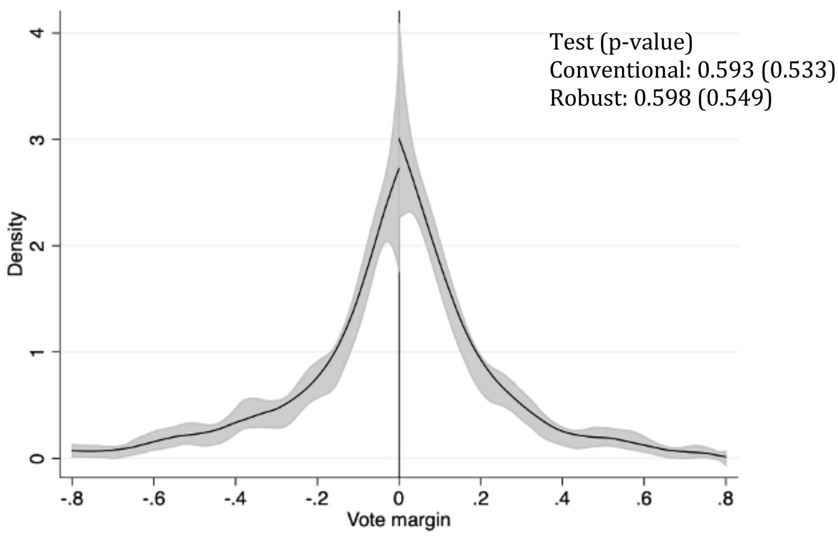
Notes: (1) RD Estimates: triangular kernel with first order polyno-mial fitted on the optimal bandwidth. (2) 95% and 90% c.i. displayed; standard errors clustered at the county-level. (3) Dependent variable: logged number of total units permitted per capita a cumulative period (years 1 to 4, 1 to 8, and so on); the variable is the residual of a regression against Region x Time f.e. and lagged logged units p.c. (4) Sample of full-term elections. Period: 1995-2019.

Figure A.6 Manipulation test

(a) Histogram

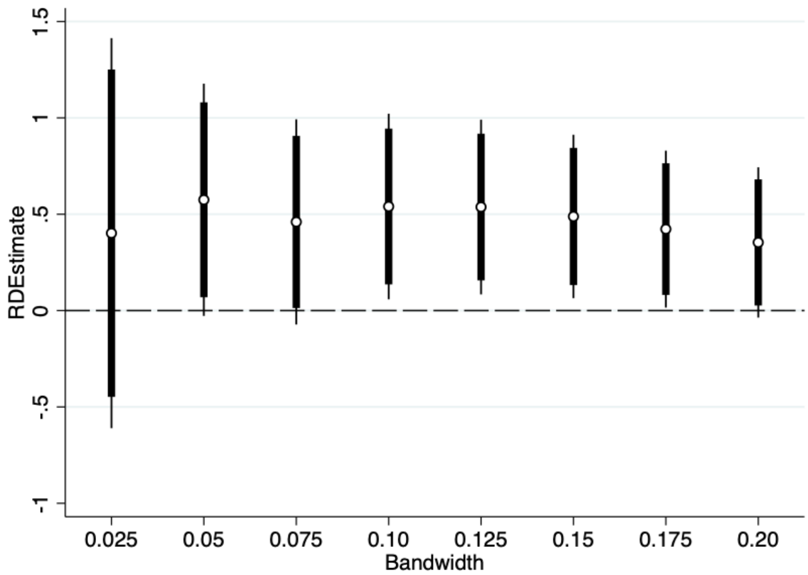


(b) Cattaneo et al. (2017)



Notes: (1) Panel (a) shows the histogram of the forcing variable for bins of size 10%, 5% and 1%. (2) Panel (b) shows the result of the Cattaneo et al. (2017) test for the default options; we report in the box the value of the conventional and robust tests and the p-values.

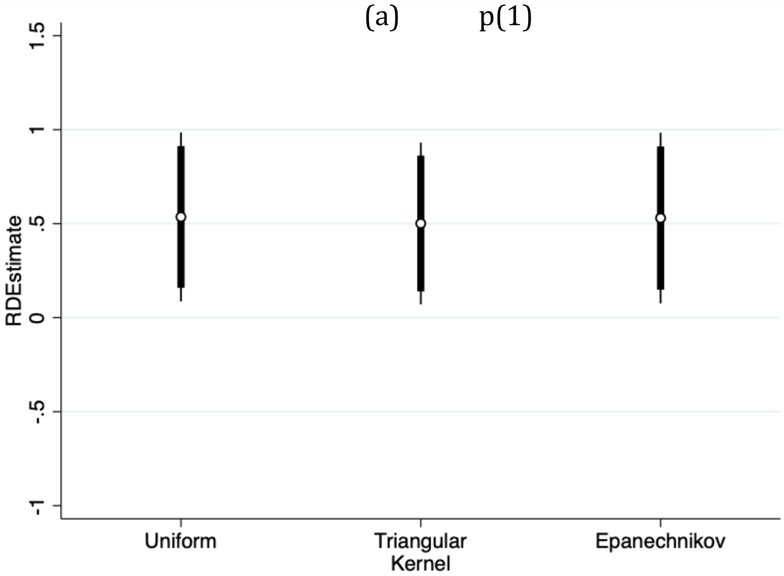
Figure A.7: Bandwidths



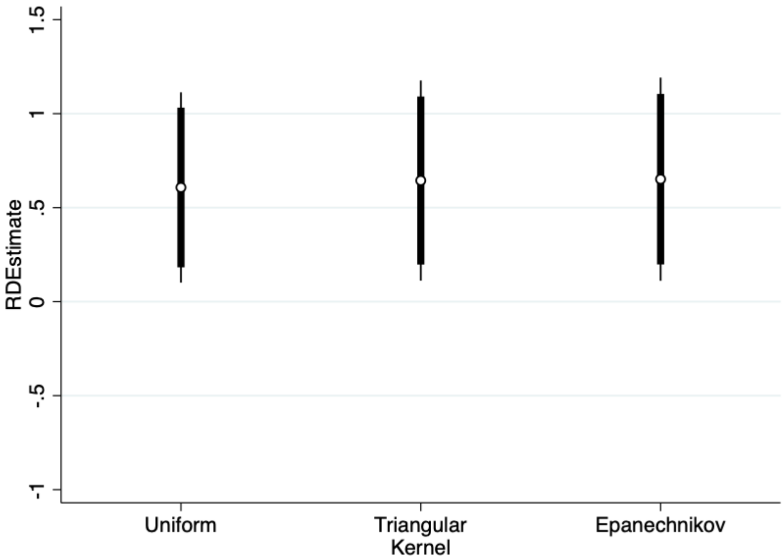
Notes: (1) RD Estimates: triangular kernel with first order polyno-mial fitted on the optimal bandwidth. (2) 95% and 90% c.i. displayed; standard errors clustered at the county-level. (3) Dependent variable: logged number of total units permitted per capita during the full term of office (years 1 to 4); the variable is the residual of a regression against Region x Time f.e. and lagged logged units p.c. (4) Sample of full-term elections. Period: 1995-2019.

Figure A.8: Robustness: RD specification

(a) p(1)

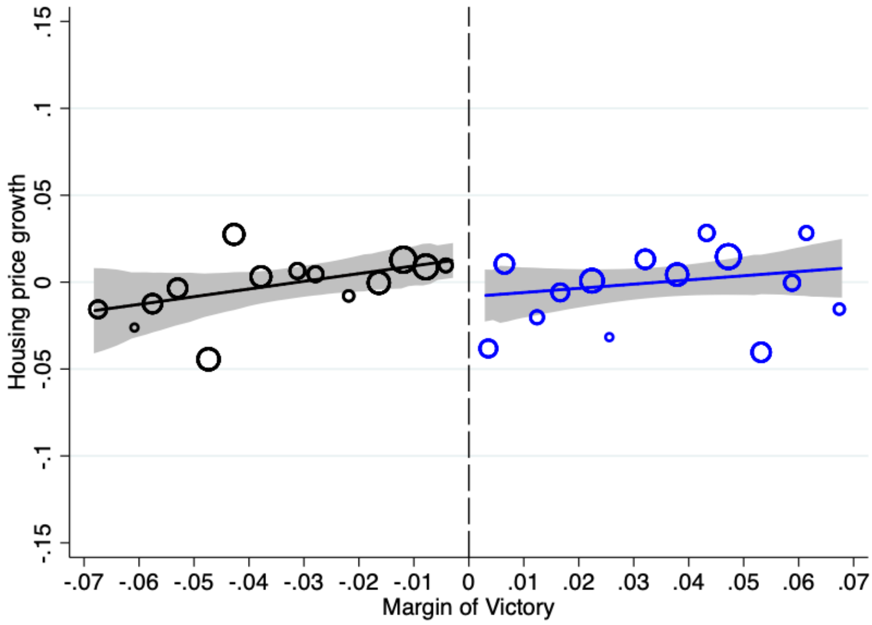


(b) p(2)



Notes: (1) Panel (a) reports the results for different types of kernel of fitting a local polynomial of order one on the optimal bandwidth. Panel (b) reports the same results for a polynomial of order two. (2) RD Estimates: triangular kernel with first-order polynomial. (3) 95% and 90% c.i. displayed; standard errors clustered at the county-level. (4) Dependent variable: logged number of total units permitted per capita during the full term of office (years 1 to 4); the variable is the residual of a regression against Region x Time f.e. and lagged logged units p.c. (5) Sample of full-term elections. Period: 1995-2019.

Figure A.9: Effect of Developers on Housing price growth



Notes: (1) Each point represents the sample average of the dependent variable for 0.5% bins of the Margin of Victory. (2) Dependent variable: Δlog Housing price during the first term of office of the council member (years 1 to 4); the variable is the residual of a regression against Region x Time f.e. and lagged log Housing units per capita (3) Sample of full-term elections. Period: 1995-2019. (4) The straight line is a first-order polynomial in the Developer's Margin of Victory. (5) The grey areas show the 95% c.i. and the box includes the RD point estimate and p-value.

Table A.1:
Words used to identify professions related to the real estate industry

Real estate developers & Home builders	*Real estate agents*
'Developer'	'Real estate agent'
'Property developer'	'Realtor'
'Real estate developer'	'Real estate broker'
'Affordable housing developer'	'Commercial property broker'
'Builder'	'Property investor'
'Homebuilder'	'Property manager'
'Contractor'	'Real estate investor'
'Civil engineer'	'Real estate appraiser'
'Architect'	'Mortgage broker'
'Construction firm'	'Mortgage banker'

Table A.2:
Share of developers in the candidates to city councils, 1995-2019

Candidate category	# Candidates	% Over total	% Over class.
Non-developers	19,855	64.39	88.72
Developers	2,524	8.19	11.28
Land dev. & builders	1,276	4.14	5.70
Real estate agents	1,248	4.05	5.58
Total classified	22,379	72.58	100.00
Unclassified	8,455	27.42	
Unclear relationship	504	1.63	
Unclassifiable profession	1,321	4.28	
Unknown profession	6,630	21.50	
Total # of candidates	30,834	100.00	

Notes: The table reports the number of candidates running at city council elections in California for the period 1995-2017 classified in different categories according the relationship between her profession (or the activity of her company). Source: Own elaboration using data from the 'California Elections Data Archive' (CEDA) and several auxiliary information sources (web pages, newspapers, LinkedIn).

Table A.3:
Performance of developers in City Council Elections, 1995-2017

	Mean	SD	Min	Max	#Obs.
At least one developer running	0.219	0.441	0.00	1.000	8,769
#Developers running/ #open seats	0.153	0.343	0.00	4.000	8,769
#Developers winning / #open seats	0.112	0.324	0.00	1.000	8,769
#Developers winning/#Developers running	0.473	0.483	0.00	1.000	1,921

Notes: The table reports several indicators that measure the importance of developers as candidates running in city council elections and its rate of electoral success.
Source: Own elaboration using data from the 'California Elections Data Archive' (CEDA) and several auxiliary information sources (web pages, newspapers, LinkedIn).

Table A.4: Variable definitions and data sources

Variables	*Definition*	*Source*
(a) Outcome variables		
Housing Units	Number of units permitted, total, and by building size (1,2, 3-4 and more than 5)	U.S. Census Bureau Building Permits Survey (1990-2019)
Housing price	Median price per square foot, for all houses, for single-family and condos, and for the top and bottom segment of the market	Zillow House Price Data (1996-2019)
(b) Economics and demographics		
Median income	Household Median Income	U.S. Census Bureau. American Community Survey (ACS) (1990. 2000. 2010-2019)
%Homeowners	% living in owned properties	
%Commuters	% working outside the city	
Rent	Median gross rent	
% Vacant houses	% of vacant houses	U.S. Census Housing Vacancies and Homeownership (CPS/HVS) (1990. 2000. 2010-2017)
% White	% of white population	U.S. Census Current Population Survey (1990. 2000. 2010-2017)
% Black	% of black population	
% Asiatic	% of Asian population	
% Hispanic	% of Hispanic population	
% Primary	% with primary education	
%Secondary	% with secondary education	
%Some college	% with some college	
%College	% with college education	
Population	Resident population	U.S. Census population estimates.
Land Area	Total land area of the city	Own calculations using GIS
CBD distance	Distance in km to CBD	Own calculations using GIS
Coast distance	Distance in km to Coast	Own calculations using GIS

Table A.4 (continued):

Variables	*Definition*	*Source*
	(c) City-level political variables	
Council size	Number of seats in the council	
l(Charter=1)	One if charter city (i.e., cities that have additional laws regarding municipal affairs that are different from state statutes), zero if not	
l(Mayor elected=1)	One if the mayor is directly elected, zero if council-selected	California common cause (1995-2017)
l(At large=1)	One if electoral geography is at large, zero if it is by-district	
l(Plurality=1)	One if plurality rule used, zero if runoff	
% Margin	Difference between the vote share of the developer and that of the competitor	Own calculations using California Election Data Archive (1995-2017)
% Vote democrat	% of individuals registered as Democratic political party	
% Vote republican	% of individuals registered as Republican political party	Voter Registration Statistics: California Secretary of State (1999-2017)
% Vote other liberal	% of individuals registered as other liberal parties (besides of democrats)	
%Federal turnout	Historical voter participation in statewide general elections.	Voter Participation Statistics: California Secretary of State(1995-2017)
	(d) Candidate-level variables	
l(White=1)	One if candidate is white, zero if not	
l(Black=1)	One if candidate is black, zero if not	Coded using the wru package in R (Imai. K.. & Khanna. K. 2016).
l(Asian=1)	One if candidate is Asian, zero if not	
l(Hispanic=1)	One if candidate is Hispanic, zero if not	
l(Woman=1)	One if woman, zero if male	Hand coded based on list of male and female names
l(Incumbency=1)	One if the candidate is the incumbent, zero if not	California common cause (1995-2017)
l(Experience=1)	One if the candidate has prior political experience, zero if not	
l(Conservative=1)	One if the candidate is Conservativa, zero if Liberal (CF score >0)	Bonica (2014) CF score, own calculation for candidates to city councils

Table A.5: Covariate balance: City characteristics

Variables	Coeff.	Pr >|z|	Robust c.i.	Bandw.	#Obs.	#Eff. ob.
log Population, t0	0.042	0.905	(-0.712, 0.863)	0.138	937	550
log Land area, t0	0.060	0.900	(-0.702, 0.798)	0.129	937	525
l(Coast=1)	-0.007	0.920	(-0.649, 0.585)	0.156	937	579
l(CBD=1)	0.009	0.892	(-0.540, 0.621)	0.121	937	498
Log Income p.c., t0	-0.112	0.292	(-0.424, 0.127)	0.141	884	3269
log Housing price, t0	0.003	0.987	(-0.415, 0.422)	0.234	733	396
log Rent, t0	-0.073	0.451	(-0.383, 0.170)	0.210	426	265
%Vacant houses, t0	-0.035	0.257	(-0.126, 0.032)	0.085	779	440
% Homeowners, t0	0.139	0.692	(0.794, -0.527)	0.175	734	252
% White, t0	0.046	0.646	(-0.157, 0.253)	0.124	937	565
%Asian, t0	-0.146	0.582	(-0.731, 0.411)	0.175	937	568
%Hispanic, t0	-0.132	0.273	(-0.457, 0.130)	0.128	937	611
%Black, t0	0.031	0.976	(-1.015, 1.047)	0.203	937	656
% Primary edu., t0	-0.080	0.616	(-0.299, 0.177)	0.219	937	682
%Secondary edu., t0	0.024	0.620	(-0.120, 0.202)	0.128	937	482
%Some college edu., t0	0.002	0.873	(-0.136, 0.160)	0.148	937	518
%College edu., t0	0.025	0.999	(-0.320, 0.326)	0.139	937	547
%Vote democrat, t0	0.038	0.661	(-0.164, 0.258)	0.169	937	602
%Vote other liberal, t0	0.059	0.713	(-0.460, 0.672)	0.116	937	485
%Vote republican, t0	-0.018	0.833	(-0.289, 0.233)	0.159	937	579
%Federal turnout, t0	0.012	0.695	(-0.058, 0.039)	0.173	937	563
Council size	0.001	0.989	(-0.128, 0.130)	0.115	937	485
l(Charter=1)	0.130	0.600	(-0.508, 0.866)	0.108	937	469
l(Mayor elected=1)	-0.030	0.487	(-0.111, 0.053)	0.092	937	426
l(At large=1)	0.108	0.448	(-0.206, 0.467)	0.178	937	623
l(Plurality=1)	0.015	0.926	(-0.244, 0.222)	0.093	937	429

Notes: (1) RD Estimates: triangular kernel with first-order polynomial fitted on the optimal bandwidth. (2) We report the Conventional RD estimates, the Robust 95% c.i. computed as per Calonico et al. (2014), and the robust p-value (Pr >|z|). Standard errors clustered at the county-level. (3) All variables are standardized expect those in logs.

Table A.6: Covariate balance: Candidate characteristics

Variables	Coeff.	Pr >|z|	Robust c.i.	Bandw.	#Obs.	#Eff. Ob.
l(White=1)	0.181	0.063	(-0.012, 0.442)	0.116	937	390
l(Asian=1)	-0.722	0.284	(-2.400, 0.704)	0.259	937	680
l(Hispanic=1)	-0.435	0.219	(-1.507, 0.345)	0.173	937	577
l(Black=1)	-0.922	0.205	(-2.665, 0.601)	0.188	937	643
l(Woman=1)	-0.056	0.755	(-1.387, 1.009)	0.149	937	568
l(Incumbent=1)	0.173	0.324	(-0.188, 0.569)	0.134	937	533
l(Experience=1)	0.044	0.757	(-0.789, 1.085)	0.149	937	555
l(Conservative=1)	0.070	0.989	(-0.136, 0.149),	0.159	937	574
Ideology CF Score	0.014	0.268	(-0.013, 0.268)	0.162	937	580
l(Ideology CF Score=missing)	-0.070	0.381	(-0.249, 0.082)	0.177	937	587

Notes: (1) RD Estimates: triangular kernel with first-order polynomial fitted on the optimal bandwidth. (2) We report the Conventional RD estimates, the Robust 95% c.i. computed as per Calonico et al. (2014), and the robust p-value (Pr >|z|). Standard errors clustered at the county-level. (3) All variables are standardized expect those in logs.

Table A.7: Robustness checks: Sample selection

	Add related professions	Add short term elections	Exclude Runoff elections	Only same ethnicity candidates	Exclude cities with campaign contributions
	(1)	(2)	(3)	(4)	(5)
RD Estimate	0.398	0.431	0.477	0.495	0.502
Pr >|z|	[0.042]	[0.032]	[0.024]	[0.045]	[0.050]
Robust c.i.	(0.018, 0.928)	(0.042, 0.965)	(0.017, 1.077)	(0.016, 1.065)	(0.013, 1.180)
Bandwidth	0.125	0.139	0.110	0.114	0.121
#Observations	711	668	572	482	512
Effective #Obs.	379	376	245	245	273
Region x Time f.e.	Yes	Yes	Yes	Yes	Yes
Lag log Units p.c.	Yes	Yes	Yes	Yes	Yes

Notes: (1) RD Estimates: triangular kernel with first-order polynomial fitted on the optimal bandwidth. (2) We report the Conventional RD estimates, the Robust 95% c.i. computed as per Calonico et al. (2014), and the robust p-value (Pr >|z|). Standard errors clustered at the county-level. (3) Dependent variable: log Housing of units permitted per capita during the term (1 to 4 years). (4) Sample: full-term elections. Period: 1995-2019.

Table A.8: Extensive margin

	Dep. Variable: l(Units>0)				
		Multi-family units			
	Single-family units	Total	2 units	3-4 units	≥5 units
	(1)	(2)	(3)	(4)	(5)
RD Estimate	0.035	0.016	0.034	0.080	0.048
Pr >|z|	[0.159]	[0.849]	[0.717]	[0.329]	[0.577]
Robust c.i.	(-0.014, 0.084)	(-0.171, 0.219)	(-0.163, 0.238)	(-0.087, 0.279)	(-0.156, 0.237)
Bandwidth	0.116	0.140	0.159	0.197	0.146
#Observations	937	937	937	937	937
Effective #Obs.	474	527	585	659	568
Region x Time	Yes	Yes	Yes	Yes	Yes
Lag log Units p.c.	Yes	Yes	Yes	Yes	Yes

Notes: (1) RD Estimates: triangular kernel with first-order polynomial fitted on the optimal bandwidth. (2) We report the Conventional RD estimates, the Robust 95% c.i. computed as per Calonico et al. (2014), and the robust p-value (Pr >|z|). Standard errors clustered at the county-level. (3) Dependent variable: dummy equal to one if the number of units permitted during the full term of office (1 to 4 years) is positive. (4) Sample: full-term elections. Period: 1999-2016.