The Effects of Land Use Policies and Political Drivers on the Price of Housing in California

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By Connor Leahy

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Advisor: Robert Wassmer, PhD

Executive Summary

The high cost of housing in California is depressing the state's economy and driving up rates of homelessness (Christopher, 2022). The main reason for the high cost of housing in California is decades of under-developing housing stock to keep up with the state's growing population (LAO, 2015). This study attempts to understand what supply-side factors may be contributing to this underdevelopment. This research paper utilizes hedonic regression analyses to understand what local land-use policies and political drivers are contributing to the high cost of housing in California. The causal mechanism for these high costs is reduced residential development, contributed to, or caused by these policies. The data for this study comes from the American Community Survey 2015-2019 5-year summary and a 2018 Residential Land Use Survey (RLUS) conducted by the Terner Center for Housing Innovation. The RLUS responses collected from jurisdictions have been matched with the median housing price of the same jurisdictions, square mileage and population size of jurisdictions have been controlled for.

The necessity of this study is based on the numerous negative effects of the high cost of housing in California. These extremely high costs, second highest in the nation, are the cause of many negative externalities that harm the well-being of all Californians and the state's economy as a whole (Christopher, 2022). The high cost of housing drives up rental prices and forces would-be home buyers into the rental market, driving up rental prices and causing a wholly unaffordable housing market. The cost of housing is also driving an uptick in the rate of homelessness in California, contributing to commute times which increases greenhouse gas production, and stunting the economic attainment of young people (Christopher, 2022; Schuetz, 2019). The research presented in this paper attempts to explain how we can mitigate these problems.

This study consists of a detailed introduction, a literature review that discusses other relevant studies, and several sections explaining the process and results of the hedonic regression analyses found in this study. The literature review consists of three central themes which relate to the explanatory variables utilized in the regression analyses. These themes are NIMBYism, impact fees, and housing regulations in California. These studies utilize regression analyses and qualitative studies to explore

further the myriad effects of political drivers and housing policies that drive up housing prices in California.

My initial assumptions, prior to conducting the regression analyses in this paper, were that the variables that indicate a high level of constraint on the housing development process would correlate positively with housing prices, indicating that prices go up in jurisdictions that experience these constraints. I also expected the inverse to be true, being that places that indicated high levels of developable land or encouraging zoning polices to have consistently lower housing prices, meaning that median housing prices drop where residential development is likely to be higher. My final regression analyses utilized the natural log of my dependent variable, median housing prices, to answer my central research question: what political drivers and housing policies correlate with higher housing prices?

Overall, the multiple regression results indicate that the answer to my central research question is that a lack of developable land supply and public opposition to housing development are the highest indicators of higher housing prices in California. This effect is in line with other studies discussed in this study's literature review and elsewhere. The causal mechanisms for these results are likely that the hinderance of no new land on development and the expression of political will in planning meetings, local voting habits, and other mechanisms for exerting political will result in lower housing development levels.

There are several policy implications that are worth consideration based on the results of the regression analyses discussed in this study. The conclusion of this paper discusses in depth the policy implications of the statistically significant variables, of which there are sixteen. These policy discussions are broken into three themes being variables with positive correlative effects, variables with negative correlative effects, and results with correlative effects that are the inverse of what was expected. These discussions provide robust insight into how to use public policy to improve the housing crisis in California and what future research directions can benefit this field of study.

Introduction

Background

The cost of housing in California contributes significantly to the state's poverty rate, with four out of ten California households having unaffordable housing in 2017 (Kimberlin, 2019). The definition of unaffordable is the cost of housing being 30% of a household's spending (Schaeffer, 2022). These high housing costs in the state contribute to other systemic issues in California and pose a problem of equity and efficiency (Kimberlin, 2019; Christopher, 2022). Housing costs tend to be most burdensome on renters and people of color, with two-thirds of individuals experiencing housing unaffordability in California being people of color and up to forty-five percent being Latinx (Kimberlin, 2019). The cost of housing can result in individuals and families choosing to live in stressful situations such as doubling up and or choosing to live further away from their work, resulting in longer commute times. These issues, informed and exacerbated by the unaffordable housing market, overly affect people of color in California (Kimberlin, 2019). These choices are economically inefficient for the state in the long term as doubling up can negatively impact the educational attainment of children in these living situations, and long commute times have negative environmental impacts (Schuetz, 2019). These twin issues of equity and efficiency are only the tip of the iceberg of the many negative long-term economic externalities that the high cost of California housing contributes toward.

The many negative impacts of California's housing affordability crisis are why I have chosen to analyze alterable drivers of the state's high housing prices in depth. In the remainder of this introduction, I will explain in greater detail the history of California's housing shortage. I will then outline the institutions that design and control the housing market in the state and how they contribute to high housing costs. Thirdly, I will outline in depth some of the various

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negative outcomes and economic externalities that are the result of the state's housing affordability crisis. Finally, I will discuss the political drivers behind California's housing prices before explaining the overall direction of this research paper.

History

The issue of housing affordability stems from decades of housing underdevelopment, especially in coastal areas (Legislative Analysts Office, 2015). Demand for housing in California has been rising alongside immigration and birth rates for the last decade, but housing development has remained relatively stagnant during this time (Christopher, 2022). Figure 1, below, displays how the state's annual population growth has outpaced housing development since 2011. It was only in 2018 that the state began to eat into the dearth of its housing supply.
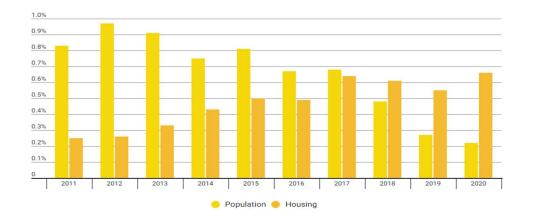

Figure 1: Annual Percentage Change in CA Housing and Population (Christopher, 2022, p.1).

Figure 1 only captures the tail end of the underdevelopment problem in California. In reality, the state has been underproducing the necessary amount of housing to keep up with its increasing population and demand since the early 1990's (Lens, 2020). This is unusual; markets do not typically respond to increased growth with decreased production which demonstrates the dysfunction as the heart of the California housing market. This leads us to the central research

question this paper seeks to answer *what political drivers and housing policies correlate with higher housing prices after controlling for the demand factors of population size and the size of a jurisdiction being studied?*

Politics

The average cost of housing in California is the second highest in the nation, being only slightly behind Hawaii; the geographic relationship between explored in detail in Figure 2 below.
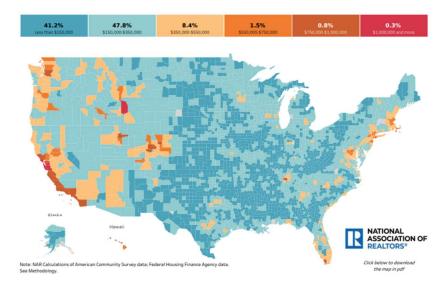

Figure 2: Geographic Heat Map of Housing Prices (National Association of Realtors, 2022)

Many economic factors contribute to the expensive California housing market. The contributing factors to these prices are both supply-side (number of homes, number of sellers, etc.) and demand-side (median resident income, population size, education level of residents, etc.). Important to note is the political unacceptability of policies to stifle housing demand in the CA, in fact the state pursues policies that encourage. Thus, politics dictates an examination of how to raise the state's housing supply.

California's local planning authorities, their constituencies, and the polices they enact have the largest effect on the supply side factors. California's growing economy, growing population, and labor market changes affect demand side factors. In a market where it is deemed desirable to

keep housing prices low, if demand is rising, supply must increase at an even greater rate. California's housing market has been subject to an increasingly large demand that continues to outpace supply. Supply is controlled by development and is continually held back by political drivers and land use policies that restrict developers from meeting the housing demand through new development. The reasoning behind this is twofold.

The first reason housing development remains sluggish is due to the low revenue generated through local property taxes. Local governments have reason to discourage low-income and affordable housing. These types of housing do little to contribute to the tax base of localities while attracting residents that are likely to require expensive government services. The second is that homeowners have a vested interest in reducing housing production in their neighborhoods. The political phenomenon commonly known as Not In My Backyard or NIMBYism is a movement that seeks to reduce or prevent increased housing development. This political driver is common in the wealthy enclaves of California, where residents hope to keep the local town character intact. NIMBYism is also a common political driver for homeowners who have their long-term wealth tied to the price of their home (Wassmer & Wahid, 2019). I will explore these political factors in my literature review, and in the next section, I will describe the negative effects of California's housing shortage.

Institutions

Land use regulations instituted by local planning bodies control the rate and shape of a region's residential development growth. The planning decisions of these local bodies throughout California have created a dysfunctional housing market, one that is unresponsive to the high demand for an increased housing supply (Elmendorf, 2021). Demand for housing has continued to rise alongside California's growing population, but production has remained sluggish. The

reason for this market dysfunction is policies that discourage increased housing development throughout the state (Elmendorf, 2021). The state government has taken small steps over the course of the last two decades to encourage housing production, but these policies have only recently begun to match the level of resistance to development that is displayed by local planning authorities and their constituents. This research paper seeks to distinguish which policies and political drivers reduce or prevent development, and which policies have the greatest impact in this regard. The findings of this study provide insight into what policies and political factors the state and local governments should attempt to mitigate.

Economic Externalities

The high cost of housing in California causes a plethora of externalities that harm the economic well-being of average Californians and the state's economy as a whole. These externalities threaten the future of the state's economy and safety, as long daily commutes that are caused by the housing shortage contributes greatly to the state's greenhouse gas emissions (Kammen &Wiener, 2019). One of the major negative externalities of high housing costs is the correlation with increased rates of homelessness. The rates of people experiencing homelessness in California have climbed steadily alongside rising home costs, with the dual crises of homelessness and housing affordability reaching a new height in the wake of the Coronavirus pandemic. Recent estimates put the number of individuals experiencing homelessness in California at around 160,000 (Christopher, 2022). This count represents individuals who live unsheltered outside or within shelters. However, this number is likely an undercount, as the experience of homelessness is difficult to quantify utilizing traditional statistical methods and individuals.

Homelessness creates dire long-term negative health, economic, and social consequences for those that experience this condition. Aside from the moral consequences of homelessness on society, homelessness also creates burdensome economic consequences. Localities and the state government continue to spend more on housing, services, and environmental restoration to mitigate homelessness and ameliorate its consequences (Christopher, 2022). Homelessness is also an issue of racial justice as an outsized number of black and indigenous Californians become homeless in the state. Unsurprisingly, most Californians list homelessness as one of their top political concerns, further stressing the need for housing policies that address the affordability crisis and low housing supply to stem the tide of individuals losing their housing (Thomas, 2022).

The issue of housing affordability weakens the state's economy in the long and short term. The unaffordability of housing threatens the economic growth of low-income, millennials, and "Gen Z" Californians, as housing prices deny these groups the long-term financial benefits of homeownership. In addition, the high cost of housing drives up rental prices, and would-be buyers are forced into the rental market, further straining low-income Californians. This leads to a dearth of talent, immigration, and a rise in emigration, as Americans and Californians look for more affordable places to build their careers and settle down. The high cost of housing causes Californians to spend less on necessities and luxury goods. These factors affect the long-term economic growth of the state, which depends on its residents' income and fiscal health to fund its tax revenue and the ability of industries to grow their revenue, among other negative effects (See Figure 2 below).

Housing hurting state economy

$53 billion
Consumption spending lost because of CA housing costs.

$85 billion
Economic activity related to construction lost because of CA housing costs.

$5 billion
State spending on services related to homelessness

Figure 2: Economic Externalities of California Housing Costs

(Christopher, 2022, pg.1)

Why should the Government get involved?

The land use policies of local governments have contributed to the large housing shortage in California. These policies are, by and in large, the result of constituent resistance to new housing developments. The state government has become increasingly more active in the fight against the housing shortage in California, but their efforts remain contested by localities that want to retain control of local planning decisions. I hope the research will further provide evidence as to why local governments should work with the state government to increase the supply of housing in their region.

While local governments and their constituencies tend to be averse to new housing developments, there is overwhelming evidence to suggest that their decisions are hamstringing the long-term economy of the state. Working with the state government provides local governments with the opportunity to plan for their economic future while utilizing the state's pool of resources. Local constituencies continue to grow more frustrated with the homelessness crisis in California. If local governments work to explain to their constituencies how increases in housing production benefit them and reduce homelessness, there may very well be a reduction in

the NIMBY attitudes of homeowners. In this paper, I hope to shine a light on what land use policies have the greatest impact on housing prices in California and present a path forward to improve the California housing market. Below I will explain the contents of the remainder of this report and the methods I have used to analyze land use policies and their effects on the California housing market.

What is in the remainder of this report?

In this paper, I use OLS regression analyses to assess the effects of public opinion, development fees, and zoning restrictions on California housing prices. The housing price variable I am using is a continuous variable of median housing prices in different cities throughout California. This data comes from the American Community Survey (ACS) 2015-2019 5-year summary. The ACS is also the source of demand-side data used for control variables. In addition, I will be utilizing data collected by the Terner Center for Housing Innovation via their 2018 Residential Land Use Survey or RLUS to form my explanatory variables. The RLUS responses are collected at the individual city level and have matched with the individual housing price data from the ACS. The Terner Center received survey responses from only 271 jurisdictions, which has reduced the amount of data available for comparison. The lack of response was most often due to a lack of resources or knowledge on behalf of those who received the survey. The regression analyses in this paper focus on the effects of supply-side factors on housing prices via the causal mechanism of reduced housing production. I utilize demand-side factors as a control for their possible outsized effect on regional housing prices.

In the following section, I will review the literature relevant to housing prices and land use policies in California to provide background for the housing problem and introduce literature that is supportive of my thesis. In the section titled regression model, I will go over the origin of

the data I will be using for my regression analyses, describe the dependent and explanatory variables, and describe the results I expect from running my regression analyses. In the section labeled data details, I will outline the specific features of my variables using tables. In the section labeled regression analyses, I will summarize the results of my regression analyses and what information can be extrapolated from these results. In the section labeled results and findings I will explain the initial takeaways from my research findings. Finally, I will conclude with my thoughts on future research directions and the policy recommendations based on this empirical analyses that could be pursued to reduce median home prices in California.

Literature Review

In the following literature review, I explore the three important themes that describe factors that help contribute to delayed housing production and a general housing shortage in California: (1) NIMBYism, (2) impact fees, and (3) zoning regulations.

NIMBYism (Not In My Backyard)

For decades California has not been building the number of homes that it needs to keep up with its growing population (Christopher, 2022). The solution is simple: build more housing. However, some Californians, known as NIMBYs, do not wish to see rates of housing development rise, especially if they are built in their neighborhood or even cities. The phenomenon is known as a 'not in my backyard' attitude or NIMBYism and has been a growing political motivation among home-owning Californians. I will further explore the roots of NIMBYism through the first study reviewed below.

The roots of NIMBYism as a political motivation are quite simple; new housing would increase the supply of housing and drive down prices. Falling home prices would hurt current homeowners who want to protect the price of their large assets, i.e., their home. A study

conducted by Wassmer & Wahid (2019) focuses on showing the effect of increased affordable housing development on housing prices in Sacramento, California. The authors use their hedonic regression analysis as a jumping-off point to unpack the roots of NIMBYism and further the discourse of possible solutions to the negative externalities of increased affordable housing development experienced by homeowners.

Wahid and Wassmer (2019) use a hedonic regression analysis to study the effect of affordable housing development on current housing prices in the city of Sacramento, CA. The authors reviewed housing prices derived from Multiple Listing Service (MLS) data during 2013. The authors then use neighborhood characteristic data collected via the American Community Survey over the 5-year period between 2011 and 2015. Finally, the authors use these data sets to simulate an increase in affordable housing by comparing the MLS data with an increase in neighborhood characteristics that are associated with higher rates of affordable housing. The results show that the selling price of a home is negatively correlated with an increase in neighborhood characteristics such as household size, the poverty rate among residents, and the rate of individuals who are living without a high school degree. Put into numeric terms, a one-degree increase in average household size, education less than high school, and rate of poverty results in a reduction of home selling price by $17,280, $11,208, and $12,329, respectively. In order to contextualize this effect, it is important to understand that at the time of this study, the median home price was $358,300. This indicates the importance of mitigating the effect of these factors on home prices, as these effects would be felt by median-value homeowners in Sacramento County.

Wassmer & Wahid's study reveals that homeowners have an economic incentive to prevent affordable housing development. This incentive results from negative impacts on median

home prices when affordable housing is added to census tracts that currently lack these types of developments. The motive for homeowners to prevent affordable housing development is substantiated by the findings of the Wassmer & Wahid study. These findings also raise the question of how exactly NIMBYs prevent development. Scholars have long documented the use of CEQUA lawsuits to prevent and delay development projects.

McNee & Pojani (2020) conducted their study on the housing market in the City of San Francisco, where a once vibrant and diverse community is now defined by the incredibly white and wealthy tech industry and boasts the most expensive housing market in the country. The authors reviewed footage provided by the San Francisco Planning Commission and found that individuals that dominate these meetings are older, whiter, and wealthier than the city residents overall. These individuals spoke from a NIMBY point of view about planning decisions, actively fighting against any new development proposal. This study shows how NIMBY activists are able to drown out the voices of those who stand to benefit from affordable housing development during the decision-making process, including those who would choose to move to a region if affordable housing is available.

Impact Development Fees

California has the highest impact development fees, on average, in the United States, with two-bedroom apartments being $15,555 and single-family housing fees being $23,455 (Britschgi, 2020; Christopher, 2022). Impact development fees are charged to developers to mitigate the cost of the increase in public utility services created by a new housing development/residents. They are a common tool used by local governments constrained in their use of more general tax instruments (Mathur, 2013). Impact fees are a necessary part of the local planning and development process in California as these fees have come to make up for revenue

lost due to tax code changes made in the eighties. This has led to impact fees skyrocketing in California, with the fees for developing a single-family home in California recently reaching $23,455, which is three times the national average (Britschgi, 2020). Many housing scholars are examining ways to mitigate the negative externalities of exacting impact fees; one such scholar is Shishir Mathur.

Mathur's (2013) article examines the effect that various types of impact fees have on the price of homes in King County, Washington. By using data from the King County tax assessor's files from 1991-2000, which documents the individual impact fees levied and home sale prices, Mathur creates a hedonic regression analysis for aggregate and individual fees. Mathur's regression coefficient shows that for every $1 increase in aggregate impact fees, there is an increase of $1.51 in the price of a home. The causal mechanism for this increase is developers simply passing on the cost of the fees to the consumer. When disaggregated, the effect of different fees on housing prices is stark, with park fees creating an increase in the home price of $10.57 for every $1 dollar increase. Other fees had either a negative or non-significant effect on housing prices (Mathur, 2013).

This study has unique policy implications for the use of impact fees: namely that planners should consider how the use of different impact fees to fund local services can create varying negative externalities on cities by driving up development costs (Mathur, 2013). The use of impact fees has risen as a consequence of Prop 13, which has forced localities to increasingly utilize impact fees as a source of revenue (Christopher, 2022). The Mathur study findings further implicate the need to reform the property tax code in California or to mitigate the exaction of impact fees and the long-term negative impacts of these exactions on the California housing market.

The Mathur study is bolstered by a qualitative study conducted by the Terner Center for Housing Innovation (Decker, 2019). Housing policy researchers surveyed 40 jurisdictions and conducted ten in-depth case studies throughout California to better understand how municipalities use impact fees. This study found that impact fees exaction schedules throughout California differ greatly between localities. The differences in fee schedule design and pricing structure increase the cost of development and the difficulty of receiving approval for development (Decker, 2019). This occurs due to the extra labor that goes into navigating these different schedules and bureaucratic development approval processes found in different localities. These studies suggest that California localities should consider how they can make it easier for developers to pay impact fees and navigate the development approval process to increase the rate of housing development in California.

Zoning Regulations

Zoning regulations dictate what kinds of housing get built and where cities throughout the country utilize these regulations to organize the housing development process. Zoning regulations, such as parking requirements, residential density allowances, and urban growth boundaries, act as guidelines for housing developers but can also be a hindrance to developers attempting to build more affordable housing stock in a high-demand marketplace. This is the case in California, where zoning regulations are utilized as a tool to delay or deny necessary housing development projects (Christopher, 2022). Zoning regulations are not inherently negative, but certain regulations inhibit housing production either by design or accident. The studies reviewed in this final section attempt to uncover which zoning regulations correlate with a reduction in development and how changing regulations can increase housing production in California.

The first study reviewed in this section is by C.J. Gabbe (2019), entitled *Changing Residential Land Use Regulations to Address High Housing Prices*. Gabbe assessed areas of Los Angeles that made zoning changes between the years 2000 through 2016 to see how these changes have impacted the urban environment. Gabbe's study revealed that the city was rezoned for higher densities which allowed for significant increases in the available land for development. Los Angeles upzoned a small percentage of its single-family zoned land to other single-family, multifamily, or commercial designations. Los Angeles also saw more than 1,200 acres upzoned, changing this land to a designation in which at least 50 housing units must be built per acre. These are positive changes, and the study reviewed after Gabbe's supports the importance of these changes. However, these changes are the result of property owners' decisions or small-scale plans focusing on specific regions in the greater Los Angeles area. Gabbe's work fails to explicitly capture the effect of zoning changes on the rate of production, but his study does provide insight into the specifics of the regulations hindering the housing market. Gabbe's study ends with a few key policy recommendations that fall in line with recommendations made by other land use scholars. Gabbe argues the state should continue to intercede on the local level by abolishing zoning practices that reduce affordable housing development and making minute changes that encourage development overall (Gabbe, 2019).

The final study reviewed for this literature review focuses on how cities throughout the state restrict housing production through prohibition and process. UCLA researchers utilized data from Terner Center Residential Land Use Survey and 540 housing elements from cities throughout the state to measure the effect of land use policies on housing (Lens, 2020). They created an index of policies that prohibit housing production, including a combination of different zoning set-asides and growth caps, and measured this index against the number of

permitted developments. The researchers utilized an ordinary least squares regression model to measure the effect these variables have on each other. They found that a one standard deviation increase in their prohibition index is associated with a 10 percent decrease in approved housing permits. This study failed to show that an increase in the process index, a measure of hoops developers has to jump through, decreased permitting. The implications of this study are that cities should focus on increasing their zoned capacity if they wish to increase housing permit approval (development) rates. The findings of this study, however, should be considered with some level of skepticism. Certain factors, such as the size and relative density of the city in question, are not controlled for. The failure to control for these factors brings into question the overall accuracy of the regression model and the study findings overall.

Literature Review Conclusion

The literature reviewed throughout this paper shows that there are many underlying factors contributing to housing underdevelopment and the resulting affordability crisis. This crisis is the result of factors such as NIMBY political activism, stringent land use regulations, and high/confusing impact fee exactions. The rest of this paper will focus on a hedonic regression study that will unpack what effects NIMBY political activism, stringent land use regulations, and high impact fees have on housing prices in California. In the next section, I will explain in detail the data I have used to create a regression model that will specifically examine.

Regression Model

The dependent variable used in this regression study is the median housing price in cities across California. This variable consists of 240 different median home prices of cities and census-designated places throughout the state which I then pair with land use survey data that makes up my explanatory variables. The survey conducted by the Terner Center received more

than 240 responses, but a series of missing demand side data has lowered the number of possible observations within individually conducted regression analyses. The dependent variable comes from the American Community Survey, which is run by the American Census Bureau, and collects data points about a sample of American communities every year. I chose to use housing price data from the 2015-2019 ACS 5-year summary to account for any individual years that may have some sort of major outlier. The 5-year summary overlaps with the data that I used to create my explanatory variables, which I will describe in greater detail below.

The primary data source for my explanatory variables is a survey conducted by the Terner Center for Housing Innovation. In 2018 the Terner Center distributed a residential land use survey to planning departments, regional housing experts, local government employees, and housing authority employees representing different California cities. This survey consists of questions that help detail the land use policies of given cities and the political and process barriers to housing development in the localities they help govern. The survey was sent to local housing officials, with 271 jurisdictions responding for a response rate of 50%, representing 70% of California's population. My regression analyses utilizes their responses to this survey to directly compare land use policies to the median home prices of their city to understand what relationship, if one exists, home prices have with the policies and political drivers discussed in earlier sections of this paper. Local land use policies can restrict the development of housing in a community and thus are expected to drive up prices by lowering the supply. Home prices in a specific community are also determined by the demand for the available homes in said community. Thus, it is also necessary to control the demand side of market influence through demographic measures that differ across communities.

The key supply-side explanatory variables and demand-side control variables of my regression analyses are organized into categories that match my literature review; these categories are defined in greater detail below and are as follows:

Median Home Price = f (Housing Supply [Local Attitudes toward Property Development, Zoning Laws, Development Fees] and Housing Demand [Size and Socio-Economic]) where,

Local Attitudes toward Property Development= Public Opposition Delays Development, Public Opposition Constrains Development, Growth Management Constrains Development, Citizens Oppose Development, Public Officials Oppose Development, Inclusionary Affordable Housing Not Required/ Encouraged.

Zoning Laws= Little land zoned for single-family housing, Ordinance for ADUs, Urban Growth Boundary Exists, Residential Zoning is Restrictive, Elected Officials Approve Single-Family Projects, By-Right Development Illegal, Size Limit for Single-Family By-Right Development, By-Right Not Allowed, Developable Land Supply Constrains Development, Parcel Details Constrains Development, Single-Family Zoned Land Supply Constrains Development, Zoning Standards Constrain Development.

Development fees and practices= Single-Family Project Fees above $25,000, Impact fees Constrain Development, New Land Annexed Recently, Land Annexed for Residential Development, Yearly Home Development Limit, Slow Approval for Single-Family Projects, CEQA Constrains Development, CEQA Review Delays Approval, Single-Family Projects face CEQA Lawsuits, Environmental Review Slows Single-Family Approval, No Recent Single-Family projects with 150+, No Recent Multifamily Projects with 150+, Approval Process Length Constrains Development, Permit Process

Length Constrains Development, No Density Bonus Ordinance, No Consultant for

Housing Element Update, Slow Approval for Affordable Projects.

Size Demand Controls= square miles of a jurisdiction, population size.

Socio-Economic Demand Controls= median income, percentage with a Bachelor's or

more, percentage without a high school diploma, percentage with less than 75k income.

All of these variables and their descriptions can also be found in Table 1 in the next

section. The factors expected to influence the local supply of housing in the jurisdictions studied

are captured by the variables listed above. These variables were created from the questions asked

in the Terner Center's survey. These survey questions are often presented in the form of a Likert

scale, allowing for five or six possible responses to a particular question. I have taken the

individual survey responses and transformed them into dummy variables in which the responses

that were the most extreme on a likert scale are equal to 1, and the other responses are equal to

zero. The individual dummy variable, the question that produced the data to make the variable,

and the responses on the likert scale were changed to a one, can be found in tables 3 and 4, found

in the following section. All other responses were set to zero. The likert scales used for these

variables range from one through four to one through seven, representing a sliding scale with

extremes on either end. A detailed explanation of what these transformed dummy variables

represent, beyond what their names relay, can be found in Appendix Tables 1 through 4. The

data used in this study includes several continuous variables, which are the median housing price

dependent variable and all demand side controls, displayed in Table 4.

The data collected for use in this study has several limitations that indicate the need for

more research in the future and may call into question any significant findings from this study.

These limitations are that the data in question is heavily subject to political influence, as the

individuals who answered these questions are public employees and are therefore subject to public backlash should their answers be scrutinized. These individuals were also restricted by personal knowledge and time to find the information necessary to answer these questions. For these reasons, many questions were left with a blank response within the Terner Center's survey, even by cities that answered other survey sections in full. Second, the number of observations is low for a study of this kind. The Terner Center only received responses from around half of the individual jurisdictions out of the 539 in California, this number is accurate to the year of study, resulting in 271 unique survey responses. Certain cities were further excluded from this study due to the fact that the ACS median home price listing is unreliable. This unreliability is consistently found among cities with median home prices over two million dollars, skewing the data toward lower-priced cities. I will further explore the specifics of the individual variables in the following section.

Data Details

This section uses four tables, found below, that further detail the data that I will utilize for my regression analyses. Tables 1 and 2 contain descriptive statistics for all variables analyzed using regression analyses. As noted in the previous section, there are many variables that are missing observations compared to what is desirable for a regression study of this nature. These variables also have disparate numbers of observations because certain jurisdictions did not respond to certain survey questions, leading to these inconclusive responses being dropped from the overall variable or considered as a negative response. This results in the mean and standard deviation of these variables being between one and zero. The other two variables, the median home price, and the demand-side variables, are continuous and have a mean, standard deviation, min, and max that reflect these differences. Appendix Tables 1 through 4 describe every variable

analyzed using regression analyses, which readers may find easier to understand than the list of variables presented above; please find that below the references section.

Table 1: Descriptive Statistics

Variable	Observations	Mean	St. Dev.	Min	Max
Median Home Price	240	13.11	0.56	$138,500	$1,901,900
Public Opposition Delays Development	264	0.36	0.48	0	1
Little Land Zoned for Single-Family Housing	271	0.32	0.47	0	1
Ordinance for ADUs	271	0.68	0.47	0	1
Residential Zoning is Restrictive	271	0.07	0.26	0	1
Urban Growth Boundary Exists	271	0.35	0.48	0	1
New Land Annexed Recently	271	0.22	0.42	0	1
Yearly Home Development Limit	271	0.08	0.27	0	1
Elected Officials Approve Single-Family Projects	270	0.27	0.45	0	1
By-Right Development Illegal	270	0.28	0.45	0	1
Size limit for Single-Family By-Right development	527	0.17	0.38	0	1
By-Right Not Allowed	527	0.18	0.39	0	1
Slow Approval for Single-Family Projects	270	0.25	0.43	0	1
Environmental Review Slows Single-Family Approval	270	0.68	0.47	0	1
CEQA Review Delays Approval	264	0.56	0.50	0	1
No Recent Single-Family Projects with 150+	270	0.79	0.41	0	1
No Recent Multifamily Projects with 150+	269	0.66	0.48	0	1
Developable Land Supply Constrains Development	270	0.51	0.50	0	1
Parcel Details Constrains Development	270	0.32	0.47	0	1
Single-Family Zoned Land Supply Constrains Development	270	0.12	0.33	0	1
Public Opposition Constrains Development	270	0.25	0.43	0	1
Growth Management Constrains Development	270	0.05	0.22	0	1
Approval Process Length Constrains Development	270	0.04	0.21	0	1

Table 2: Descriptive Statistics Continued:

Variable	Observations	Mean	St. Dev.	Min	Max
Approval Process Length Constrains Development	270	0.04	0.21	0	1
Permit Process Length Constrains Development	270	0.03	0.16	0	1
Zoning Standards Constrain Development	270	0.08	0.27	0	1
Impact Fees Constrain Development	270	0.10	0.31	0	1
CEQA Constrains Development	270	0.10	0.30	0	1
No Density Bonus Ordinance	270	0.18	0.38	0	1
Inclusionary Affordable Housing Not Required/ Encouraged	270	0.49	0.50	0	1
Citizens Oppose Development	270	0.33	0.47	0	1
Public Officials Oppose Development	270	0.07	0.26	0	1
Single-Family Projects face CEQA Lawsuits	271	0.06	0.23	0	1
No Consultant for Housing Element Update	270	0.22	0.41	0	1
Single-Family Project Fees above $25,000	268	0.31	0.46	0	1
Slow Approval for Affordable Projects	269	0.22	0.41	0	1
Land Annexed for Residential Development	527	0.07	0.26	0	1
Population Size	252	9.77	28.17	0.05	396.69
Square Miles of Jurisdiction	252	21.68	40.89	0.29	468.66

Table 3: Explanation of how Survey Likert Responses were Transformed for Analysis:

Variable	Survey Question	Question Responses Set to 1 for Analysis
Median Home Price	N/A	Continuous Variable
Public Opposition Delays Development	Public opposition to development delays approvals	(1)
Little Land Zoned for Single-Family Housing	How much land is zoned to allow single-family housing?	(1,2,3)
Ordinance for ADUs	Has your jurisdiction adopted a local ADU ordinance?	(2)
Residential Zoning is Restrictive	Has zoning for residential development become more or less restrictive?	(4,5)
Urban Growth Boundary Exists	Is your jurisdiction subject to an urban growth boundary?	(1)
Land Annexed for Residential Development	Has your jurisdiction annexed new land in the past five years?	(1)
Yearly Home Development Limit	Does your jurisdiction limit the housing built in a year?	(1)
Elected Officials Approve Single-Family Projects	Who typically grants approvals for single-family projects with 5+ homes?	(3)
By-Right Development Illegal	Does your jurisdiction allow by-right development in some cases?	(0)
Size limit for Single-Family By-Right development	Is there a project size limit for single-family by-right development?	(1)
By-Right Not Allowed	There are no areas where projects of any size can be built by-right	(1)
Slow Approval for Single-Family Projects	Approval time for single-family projects consistent with general plan and zoning	(3,4)
Environmental Review Slows Single-Family Approval	Approval time for single-family projects requiring EIR or environmental review	(3,4)
CEQA Review Delays Approval	CEQA review delays approvals	(1)
No Recent Single-Family projects with 150+	How many single-family projects with 150+ houses have been built from 2015 on?	(1)
No Recent Multifamily Projects with 150+	How many multifamily projects with 150+ units have been built from 2015 on?	(1)
Developable Land Supply Constrains Development	How much does the supply of developable land constrain development?	(4,5)
Parcel Details Constrains Development	How much does the configuration/size/location of parcels constrain development?	(4,5)
Single-Family Zoned Land Supply Constrains Development	How much does the amount of land zoned for single-family constrain development?	(4,5)

Table 4: Explanation of how Survey Likert Responses were Transformed for Analysis Continued:

Variable	Survey Question	Question Responses Set to 1 for Analysis
Public Opposition Constrains Development	How much does public opposition constrain development?	(4,5)
Growth Management Constrains Development	How much do local growth management policies constrain development?	(4,5)
Approval Process Length Constrains Development	How much does the length of the approval process constrain development?	(4,5)
Permit Process Length Constrains Development	How much does the length of the building permit process constrain development?	(4,5)
Zoning Standards Constrain Development	How much do zoning standards constrain development?	(4,5)
Impact fees Constrain Development	How much do impact fees and exactions constrain development?	(4,5)
CEQA Constrains Development	How much does the threat of CEQA lawsuits constrain development?	(4,5)
No Density Bonus Ordinance	Has your jurisdiction adopted a local density bonus ordinance?	(0)
Inclusionary Affordable Housing Not Required/ Encouraged	Does your jurisdiction require or encourage inclusionary affordable housing?	(0)
Citizens Oppose Development	How often do local citizens actively oppose residential development?	(4,5,6)
Public Officials Oppose Development	How often do elected officials actively oppose residential development?	(4,5,6)
Single-Family Projects face CEQA Lawsuits	How often do single-family projects face the threat of CEQA lawsuits?	(4,5,6)
No Consultant for Housing Element Update	Does your jurisdiction hire a consultant to assist with Housing Element updates?	(0)
Single-Family Project Fees above $25,000	How much are the total impact fees per unit for a typical single-family project?	(5,6,7,8,9)
Slow Approval for Affordable Projects	Do entirely affordable projects require more or less time than market-rate?	(4,5)
Land Annexed for Residential Development	If yes, was the annexation for new residential development?	(1)
Population Size	N/A	Continuous Variable
Square Miles of Jurisdiction	N/A	Continuous Variable

Regression Analyses

Table 5 below shows the results of the statistically significant regression analyses, which compare the variables described in earlier sections to my dependent variable, the natural log of the median home price of 240 individual California cities. Each of these regression analyses have controls for population and size. Initially, all these variables were compared in a regression together with all of the demand side controls described in the earlier sections of this study. These initial regressions were found to have no statistical significance. This was due to two factors, the amount of collinearity among demand-side factors and the low number of observations that were captured due to disparate missing jurisdictional data. I will therefore be analyzing the results of these individual regression analyses and discuss the implications of their findings.

Within this hedonic regression study, I will be utilizing a 90% confidence level to determine statistical significance and am therefore looking for ($p<0.10$). The effect of these results are captured in Table 5 by taking the regression coefficient of the statistically significant variables and putting them through the following formula: (EXP(Reg Coefficient) – 1)*100). This formula allows us to turn the initial regression coefficients, derived from the natural log dependent variable, into a percentage reflecting either an increase or decrease in the median home price. I describe these results below in Table 6. In the next and final section, I will discuss the effects of my findings and explain the conclusions drawn from this study.

Table 5: Regression Results Where Supply-Side Constraint Found to Exert a Statistically
Significant Effect (Dependent Variable is the Natural Log of Median Home Price)

Supply-Side Measure	Variable Effect	10K Pop-Effect	Sq Miles Effect
Public Opposition Delays Development	0.312***	0.011***	-0.008***
R-Squared = 0.128 Observations = 233			
New Land Annexed Recently	-0.184***	0.01***	-.007***
R-Squared = 0.08 Observations = 240			
Land Annexed for Residential Development	-0.15***	0.01***	-0.007***
R-Squared = 0.07 Observations = 240			
By-Right Development Illegal	0.181***	0.01***	-0.007***
R-Squared = 0.81 Observations = 239			
Slow Approval for Single-Family Projects	0.249***	0.01***	-0.007***
R-Squared = 0.095 Observations = 239			
No Recent Single-Family Projects with 150+	0.129***	0.01***	-0.007***
R-Squared = 0.069 Observations = 239			
Developable Land Supply Constrains Development	0.51***	0.008***	-0.005***
R-Squared = 0.259 Observations = 239			
Parcel Details Constrains Development	.405***	0.009***	-0.006***
R-Squared = 0.171 Observations = 239			
Single-Family Zoned Land Supply Constrains Development	.394***	0.008***	-0.007***
R-Squared = 0.097 Observations = 239			
Public Opposition Constrains Development	.508***	0.009***	-0.008***
R-Squared = 0.202 Observations = 239			
Growth Management Constrains Development	0.41***	0.01***	-0.007***
R-Squared = 0.084 Observations = 239			
Impact Fees Constrain Development	-0.166***	0.011***	-0.008***
R-Squared = 0.068 Observations = 239			
No Density Bonus Ordinance	-0.237***	0.01***	-0.007***
R-Squared = 0.087 Observations = 239			
Inclusionary Affordable Housing Not Required/ Encouraged	-0.237***	0.009***	-0.007***
R-Squared = 0.105 Observations = 239			
Citizens Oppose Development	0.384***	0.009***	-0.007***
R-Squared = 0.159 Observations = 239			
Public Officials Oppose Development	0.387***	0.01***	-0.007***
R-Squared = 0.88 Observations = 239			

Results and Findings

Table 6 below displays the positive or negative effect of the statistically significant variables from the multiple regression analyses, all of which utilize the natural log of my original dependent variable, being the median home value of cities throughout California. Using this method, I conducted thirty-six individual regression analyses and only reported upon the statistically significant relationships between my dependent and explanatory variables. These statistically significant variables measure the effect certain land use policies and political drivers have on median housing prices to reduce the amount of housing available in the community. I have split up the discussion of these statistically significant variables and the results of their individual regression analyses into several different sections based on their relationship to the dependent variable to better organize the review of their effects on housing prices.

Table 6: Level of Effect of Different Variables on Median Housing Price

Variable Name	Percent Change in Median Home Price due to Variable Effect Representing Survey Response	Change Type
Developable Land Supply Constrains Development	66.61%	Increase in the Median Home Price
Public Opposition Constrains Development	66.20%	Increase in the Median Home Price
Growth Management Constrains Development	50.62%	Increase in the Median Home Price
Parcel Details Constrains Development	49.96%	Increase in the Median Home Price
Single-Family Zoned Land Supply Constrains Development	48.25%	Increase in the Median Home Price
Public Officials Oppose Development	47.27%	Increase in the Median Home Price
Citizens Oppose Development	46.87%	Increase in the Median Home Price
Public Opposition Delays Development	36.67%	Increase in the Median Home Price
Slow Approval for Single-Family Projects	28.21%	Increase in the Median Home Price
Inclusionary Affordable Housing Not Required/ Encouraged	21.26%	Decrease in the Median Home Price
No Density Bonus Ordinance	21.06%	Decrease in the Median Home Price
By-Right Development Illegal	19.86%	Increase in the Median Home Price
New Land Annexed Recently	16.81%	Decrease in the Median Home Price
Impact Fees Constrain Development	15.32%	Decrease in the Median Home Price
Land Annexed for Residential Development	13.95%	Decrease in the Median Home Price
No Recent Single-Family Projects with 150+	13.75%	Increase in the Median Home Price

NIMBYism

The first statistically significant variable relationships are between the dependent variable and four explanatory variables, which indicate that citizen opposition (likert scale of how often citizens work to oppose development), public official opposition, and public opposition (public opposition delays project approvals) to housing development constrains and delays the housing development process. This results in lower rates of housing development and an increase in the average price of housing in a given jurisdiction. Public opposition increases the average price of

housing by 66.2%. Public official opposition increases the average price of housing by 47.3%. A citizenry's negative disposition toward new development increases the average price of housing by 46.9%. Finally, public opposition that results in delays in the development process increases the average price of housing by 36.7%.

These results match my assumptions going into this study, which were based on the findings of McNee and Pojani (2022). The McNee and Pojani study and my regression analyses show that NIMBY attitudes expressed on a political level result in less housing development and increased housing prices. The reasoning for this expression is discussed in detail within the Wassmer and Wahid (2019). Wassmer and Wahid's research indicates why the local populous would feel disinclined to support new housing development, as homeowners reliably vote to protect the worth of their homes/assets. This effect is either replicated or drives public official opposition in which local representatives vote and govern in a manner that will protect their home value or their reputation among voters.

Zoning Regulations

The next nine statistically significant variable relationships are between the dependent variable and nine explanatory variables that relate to zoning regulations and development policies of individual jurisdictions. The first four variables are indicative of the findings of Lens (2020), which found that the amount of land available for development had the most pronounced impact on housing development rates of zoning regulations studied. The regression analyses of this study similarly found that when the parcel size and land supply constrain development within a given jurisdiction, housing development rates drop, and the average price of housing goes up by 50% and 66.6%, respectively. Inversely jurisdictions that were annexing land

generally or for the purpose of residential development saw a decrease in median home prices by 16.8% and 14%, respectively. This is the result of increased housing development.

The last four results were in line with the opinions expressed in the Gabbe (2019) article. These results show that when growth management policies, single-family zoning policies, and approval rates constrain development the average price of housing goes up by 50.6%, 48.3%, and 28.2%, respectively. This is also exacerbated when a jurisdiction lacks large development plans or workarounds for the development process, like by-right development, a lack of which further stagnates development rates, and as a result, the average price of housing increases by 13.8% and 19.9%, respectively. As Gabbe argues in his study, if jurisdictions want to address housing prices and development rates, they must support policies that make the development of housing easier.

Unexpected Results

The final set of statistically significant variable relationships explored are between the dependent variable and three explanatory variables that had the opposite of the expected effect. This first variable relationship discussed is the self-attestation of jurisdictional representatives that impact fees impose a constraint on the development process and is found to decrease housing prices by 15.3%. The opposite of this effect constitutes the original expectation, being that fees constraining the development process would increase median home prices. This unexpected result may be due to impact fees presenting a more rigorous constraint to lower-income areas in California, resulting in this negative variable relationship. Digging into the data shows that only a small number of communities reported that impact fees are a constraint on the development of housing, and these communities tend to have a low to medium average citizen income. This pattern suggests that either the sample size or reasoning discussed above explains these unexpected regression results. It is also possible that the result of this regression falls in

line with other reports that suggest that impact fees can result in lower land costs as the infrastructure funded through impact fees results in a larger share of developable land (Nelson & Moody, 2003).

The second variable relationship explored Is the lack of a density bonus ordinance results in a 21.1% decrease in median housing price; this is strange because lacking an incentivizing policy should increase housing prices, not the other way around. The reasoning for this may be that those jurisdictions incorporating density bonus ordinances are, in fact, only higher-income jurisdictions testing new incentive methods. The data shows that jurisdictions that lack a density bonus ordinance are nearly evenly split between high-income and low-income areas. This suggests that this type of ordinance is not a very effective method of incentivizing housing development and that jurisdictions that are incorporating effective methods do not utilize this incentive.

The final unexpected statistically significant variable relationship is a negative correlation between housing prices and a jurisdiction's lack of support for inclusionary affordable housing. The regression results of this variable indicate that the median price of housing is 21.3% lower in communities that do not require inclusionary affordable housing. This result suggests that placing further requirements on developers disincentivizes housing production. This accounts for the negative correlation between the lack of an inclusionary affordable housing requirement and home prices. I will explore the cause and solution to the effects of these policies and others in the next section.

Conclusion

My original research question at the start of this research paper is, what political drivers and housing policies correlate with higher housing prices? My regression results indicate that the

answer to my original research question is that political opposition, lack of developable land, and generally unsupportive development climate are the highest indicators of higher housing prices in California. This effect is not surprising and is in line with other studies discussed in the literature review of this paper and elsewhere. The causal mechanism of political opposition, as researched in this study, is likely that the expression of political will in planning meetings, local voting habits, and other mechanisms for exerting political will results in lower levels of housing development (Demas, 2022). The causal mechanism for the other factors discussed is likely causing a general constraint on the development process, reducing development rates. A reduction in the housing rate leads to a lack of supply; this supply reduction results in increased housing prices in these cities.

Policy Implications

Several policy implications are worth considering based on the results of this study. The first is that California's state government should consider ways to further mitigate the political expression of NIMBYism on local planning procedures. The literature reviewed in this article suggests that assuaging people's fears of a shifting regional landscape and encouraging them to be welcoming of short-term economic loss is a difficult prospect at best. There are a few different strategies for restricting the political expression of NIMBYism that has been piloted in different regions throughout the United States that California should consider implementing. The first strategy, implemented in Minneapolis, involves direct citizen engagement and large-scale community meetings to discuss the benefits of increased development and implement resident feedback. This process resulted in revised zoning laws and more inclusive developments added to the new general plan (Fannie Mae and The Atlantic, 2019). This process does rely on the dedication of knowledgeable and supportive elected officials, which is not given in any political

climate. Another strategy would be to roll out a host of legal interventions and policy changes designed to circumvent the legal mechanism that stalls development (Glazer & Ross, 2022). The state continues to make strides toward this policy solution by decreasing the autonomy of localities by strengthening laws designed to enforce local compliance with state-level development planning. Both these policy intervention strategies have merit, but they fail to capture the real economic effect of building more housing on existing housing prices, which is one of the driving forces of NIMBY political attitudes. I will explore the possibility of mitigating this effect in the next paragraph.

The state and local governments should consider finding ways to mitigate the effects of increased development on homeowners, buffering the devaluation of their assets, and fighting NIMBYism at its source. One method of mitigating the negative effects of increased development was posited by land-use scholar David Schleicher through the application of tax increment local transfers (TILTS) (The Economist, 2016). This policy would require local governments to predict the increase in local tax revenue derived from new developments and then offer a percentage of this extra revenue to local residents in the form of temporary property tax rebates. This policy intervention would mitigate the real short-term economic loss that is incurred by homeowners in the wake of new development. The relative complexity of implementing TILTS and the need to explain the benefits of this policy to homeowners means that this policy might need to be a part of a larger engagement strategy. There is very little research to indicate the relative likelihood of success of this policy's ability to reduce NIMBYism, but this policy and others like should be something considered by policymakers who care about mitigating the negative economic effects of increased development on current homeowners.

The findings of this study also indicate a need to mitigate the effects of impact fees on the cost of housing development. The precise intervention, however, is dependent on a more rigorous analysis of the effect of these fees on housing prices and development in individual cities. Certain reports suggest that impact fees can reduce the price of land and increase development which may offset the increase in price that is caused by their exaction (Nelson & Moody, 2003). Newer reports suggest that doing anything to reduce the cost of housing in California is worth the investment of the state and local governments (Decker, 2019). Prior research suggests the findings expressed in the study are related to the difficulty of navigating fee schedules and that simplifying exaction models may alleviate the issue identified within this study (Decker, 2019). The result of this study has found that when a jurisdiction attests that impact fees constrain housing development, housing costs go down. This means one of two things; first is that cities with lower-than-average housing prices have indicated they consider the cost of these fees a major constraint to housing development. If this is true, then the state government should work to help mitigate impact fee costs in low-income cities. The second possibility is that impact fees are working in the manner described in older studies and improving the rate of development, which is offsetting the relative increase in housing costs caused by their exaction (Nelson & Moody, 2003; Been, 2005). More complex research into impact fee exactions is necessary to reveal their disparate effects and the necessity of different policy interventions.

Finally, the state government should work either alone or in tandem with local jurisdictions to increase the supply of developable land, therefore improving the ability of developers to create a larger supply of housing in California. This study shows that the relative supply of developable land has a direct correlation with housing prices; making more land

available should be a state priority. Increasing developable land supply is possible through changes to zoning regulations and other land use policies (Saiz, 2010). There are, of course, physical boundaries to increasing the supply of land, but research conflicts with how constrained California communities are by their physical boundaries (Cox, 2017). The state has made expanding the developable land supply a central part of its housing strategy; local governments should step up to assist with this process to improve the housing prices in their jurisdictions (Newsom, 2019).

Concluding Statement

The state government continues to pilot new policies and programs that seek to increase the rate of housing development in the state. Future research should focus on reviewing the efficacy of different experiments in housing policy that can increase the rate of development in the state, as well as tweaks to existing policies that stifle housing development. Future research should also focus on specific qualitative inquiries into why elected officials and individual citizens hold NIMBY opinions, as the research in this study suggests that it is a major driver of reduced development and higher housing prices. Overall, the state government, local leaders, researchers, and policymakers should do all that they can to champion the benefits of a robust housing supply that better supports the large and growing California population. Especially since this will result in the reduction of unaffordable housing and reduce the rate of homelessness in California.

Appendix

Appendix Table 1: Further Variable Details

Variable Names	Description of Variable After Transformation Using Likert Responses	Exact Question Asked in Terner Center Survey
Median Home Price	Dependent Variable- Median Home Price of a city that has been made into the natural log of itself.	N/A
Public Opposition Delays Development	Public opposition to development delays approvals	Public opposition to development delays approvals
Little Land Zoned for Single-Family Housing	Very little land is zoned to allow single-family housing.	How much land is zoned to allow single-family housing?
Ordinance for ADUs	There is a local ADU ordinance	Has your jurisdiction adopted a local ADU ordinance?
Residential Zoning is Restrictive	Is zoning for residential development is increasingly restrictive to increasing the rate of housing development.	Has zoning for residential development become more or less restrictive?
Urban Growth Boundary Exists	There is an Urban Growth Boundary.	Is your jurisdiction subject to an urban growth boundary?
New Land Annexed Recently	A jurisdiction has annexed new land in the past five years.	Has your jurisdiction annexed new land in the past five years?
Yearly Home Development Limit	A jurisdiction limits the amount of housing built in a year.	Does your jurisdiction limit the housing built in a year?
Elected Officials Approve Single-Family Projects	City council or other elected typically grants approvals for single-family projects with 5+ homes legislative body.	Who typically grants approvals for single-family projects with 5+ homes?

Appendix Table 2: Further Variable Details Continued

Variable Names	Description of Variable After Transformation Using Likert Responses	Exact Question Asked in Terner Center Survey
By-Right Development Illegal	A jurisdiction does not allow by-right development.	Does your jurisdiction allow by-right development in some cases?
Size limit for Single-Family By-Right development	There is a project size limit for single-family by-right development	Is there a project size limit for single-family by-right development?
By-Right Not Allowed	There are no areas where projects of any size can be built by-right.	There are no areas where projects of any size can be built by-right
Slow Approval for Single-Family Projects	Approval time for single-family projects is slow compared to general plan and zoning expectations.	Approval time for single-family projects consistent with general plan and zoning
Environmental Review Slows Single-Family Approval	Approval time for single-family projects requiring environmental review is slow.	Approval time for single-family projects requiring EIR or environmental review
CEQA Review Delays Approval	CEQA review delays approvals.	CEQA review delays approvals
No Recent Single-Family Projects with 150+	No single-family projects with 150+ houses have been built from 2015.	How many single-family projects with 150+ houses have been built from 2015 on?
No Recent Multifamily Projects with 150+	No multifamily projects with 150+ houses have been built from 2015.	How many multifamily projects with 150+ units have been built from 2015 on?
Developable Land Supply Constrains Development	The supply of developable land constrains housing development a lot.	How much does the supply of developable land constrain development?

Appendix Table 3: Further Variable Details Continued-1

Variable Names	Description of Variable After Transformation Using Likert Responses	Exact Question Asked in Terner Center Survey
Parcel Details Constrains Development	The configuration/size/location of parcels constrain housing development a lot.	How much does the configuration/size/location of parcels constrain development?
Single-Family Zoned Land Supply Constrains Development	The amount of land zoned for single-family constrains housing development a lot.	How much does the amount of land zoned for single-family constrain development?
Public Opposition Constrains Development	The public opposition to new development constrains housing development a lot.	How much does public opposition constrain development?
Growth Management Constrains Development	Local growth management policies constrain housing development a lot.	How much do local growth management policies constrain development?
Approval Process Length Constrains Development	The length of the approval process constrains housing development a lot.	How much does the length of the approval process constrain development?
Permit Process Length Constrains Development	The length of the building permit process constrains development a lot.	How much does the length of the building permit process constrain development?
Zoning Standards Constrain Development	Local zoning standards constrain housing development a lot.	How much do zoning standards constrain development?
Impact Fees Constrain Development	Impact fees and exactions constrain housing development a lot.	How much do impact fees and exactions constrain development?
CEQA Constrains Development	The threat of CEQA lawsuits constrains housing development a lot.	How much does the threat of CEQA lawsuits constrain development?

Appendix Table 4: Further Variable Details Continued-2

No Density Bonus Ordinance	A jurisdiction has not adopted a local density bonus ordinance.	Has your jurisdiction adopted a local density bonus ordinance?
Inclusionary Affordable Housing Not Required/ Encouraged	A jurisdiction does not require or encourages inclusionary affordable housing.	Does your jurisdiction require or encourage inclusionary affordable housing?
Citizens Oppose Development	Local citizens actively oppose residential housing development.	How often do local citizens actively oppose residential development?
Public Officials Oppose Development	Elected officials actively oppose residential development.	How often do elected officials actively oppose residential development?
Single-Family Projects face CEQA Lawsuits	Single-family projects face CEQA lawsuits often.	How often do single-family projects face the threat of CEQA lawsuits?
No Consultant for Housing Element Update	A jurisdiction does not hire a consultant to assist with Housing Element updates.	Does your jurisdiction hire a consultant to assist with Housing Element updates?
Single-Family Project Fees above $25,000	The total impact fees per unit for a typical single-family project are above 25,000.	How much are the total impact fees per unit for a typical single-family project?
Slow Approval for Affordable Projects	Entirely affordable projects require more approval time than market-rate.	Do entirely affordable projects require more or less time than market-rate?
Land Annexed for Residential Development	Any new land annexation is for new residential development.	If yes, was the annexation for new residential development?
Population Size	In order to better control for size characteristics this variable is the population size of every individual jurisdiction divided by 10,000.	N/A
Square Miles of Jurisdiction	The square miles of a jurisdiction.	N/A

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