INCLUSIONARY HOUSING AND THE TIPPING POINT:

THE IMPACT OF AFFORDABLE UNITS ON MARKET-RATE UNITS

A Thesis

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Sahar Soltani

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Department of Public Policy and Administration

Abstract

of

INCLUSIONARY HOUSING AND THE TIPPING POINT:

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California is home to many of the most unaffordable housing markets in United States and, if the cost of housing is included, has the highest percentage of people living in poverty. State and local governments have continuously put efforts into solving this problem. Inclusionary Housing is one land use policy tool that cities and counties in California and across the nation use to address their affordable housing shortage without dedicating any public funds. There is, however, controversy among housing developers, land use policy makers, housing advocates, and other stakeholders about the effectiveness of this tool. Despite this ongoing disagreement, hundreds of California municipalities continue to form Inclusionary Housing policies to increase their supply of affordable housing. This thesis aims to evaluate the effect of Inclusionary Housing on rental housing development by analyzing the impact of affordable housing units on market-rate units within mixed-income rental properties.

I apply a mixed-methods approach to conduct this analysis. I use multivariate regression analysis to understand the relationship between affordable units and the average per square foot rent of market-rate units. To expand on the findings of the regression analysis, I conduct interviews with a selected group of property managers from a sample of mixed-income properties in Sacramento County. To form my dataset, I obtain a list of all mixed-income properties in Sacramento County from Sacramento Housing and Redevelopment Agency (SHRA). I use

secondary data accessible online, through phone calls, or via in-person visits to properties to compile a list of fully market-rate properties comparable to these mixed-income properties.

The regression analysis found that, everything else held constant, the existence of up to 43 percent affordable units within any property in Sacramento County has no negative impact on the average per square foot rent of market-rate units. However, 43 percent is the tipping point, and after that, every 10 percent increase in the number of affordable units leads to a 4¢ reduction in the per square foot rent of the market-rate units. Although this number seems minimal when multiplied by unit square footages and projected over a year, it can become a sizeable loss in the gross annual rental income of the property. The qualitative part of the research found that property managers do not endure any challenges in managing the property that are directly related to the existence of affordable units but the community, in general, perceives affordable housing as a negative externality that affects the demand for market-rate units in mixed-income properties.

Based on these findings, I recommend that the California Department of Housing and Community Development (HCD) set a maximum threshold for Inclusionary Housing that any given jurisdiction can impose. Local governments should incorporate several options into their Inclusionary Housing policy, such as offering longer municipal fee deferral programs to projects subject to Inclusionary Housing requirements and granting by-right entitlements to projects that are zoning compliant and providing inclusionary units on site.

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Chapter 1

INTRODUCTION

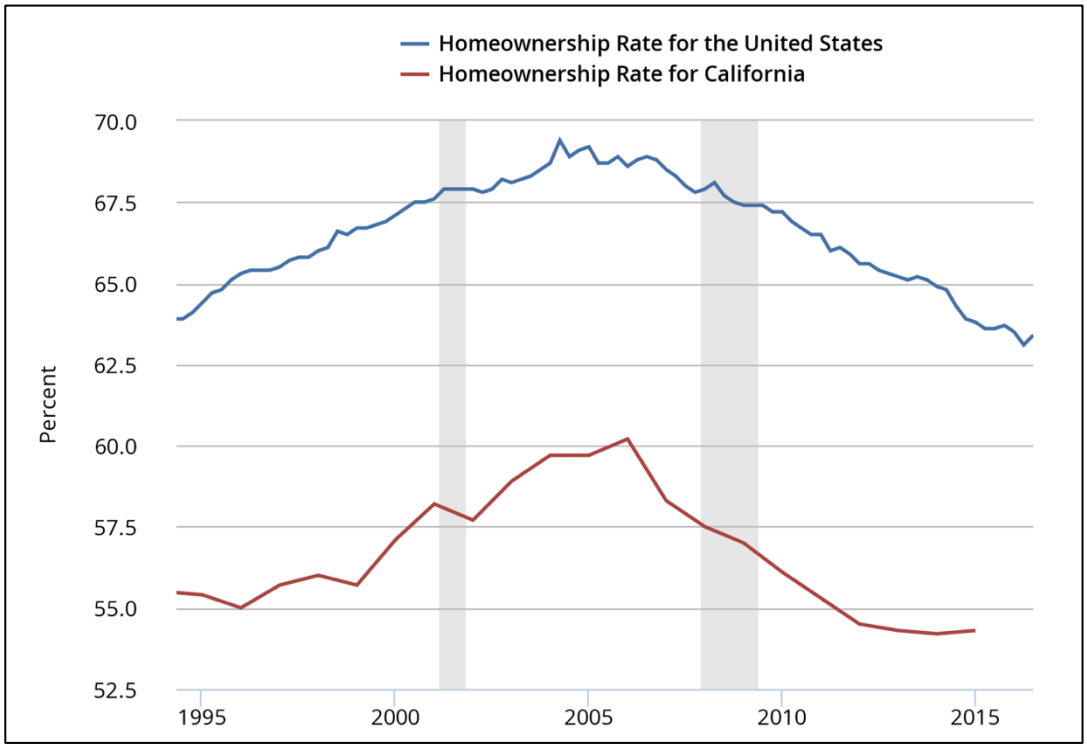
California has the largest shortage of affordable rental housing for Very Low- and Extremely Low-Income households in the country, with only thirty percent of these households having access to affordable rental housing. The Golden State also has the highest percentage of people living in poverty if cost of housing is included and is home to twenty-one of the thirty most expensive rental housing markets in the nation (California Housing Partnership Corporation, 2015). Very Low- and Extremely Low-Income households are households whose incomes do not exceed 50 and 30 percent of the Area Median Income (AMI), respectively, established by U.S. Department of Housing and Urban Development (California Health and Safety Code §§ 50050-50106). Affordable rental housing is rental housing that, including utilities, does not consume more than thirty percent of the household's income.

Addressing California's shortage of affordable housing in the country's most unaffordable markets has long been a challenge for the state and its local governments. Inclusionary Housing is one land use policy that requires developers to make a certain number of units in new developments affordable to lower income households. More than 170 California municipalities have adopted some form of Inclusionary Housing policy to increase their affordable housing supply and create more economically diverse neighborhoods without using direct public subsidies (National Center for Smart Growth Research and Education, 2008).

Economists, housing developers, housing advocates, and local governments have discussed the effectiveness and legitimacy of Inclusionary Housing since its introduction in the early 1970s. These discussions, especially among housing developers and local governments, heated up after a 2009 California appellate court ruling invalidated the City of Los Angeles' Inclusionary Housing Ordinance for rental housing. I explain the outcomes of this ruling in more

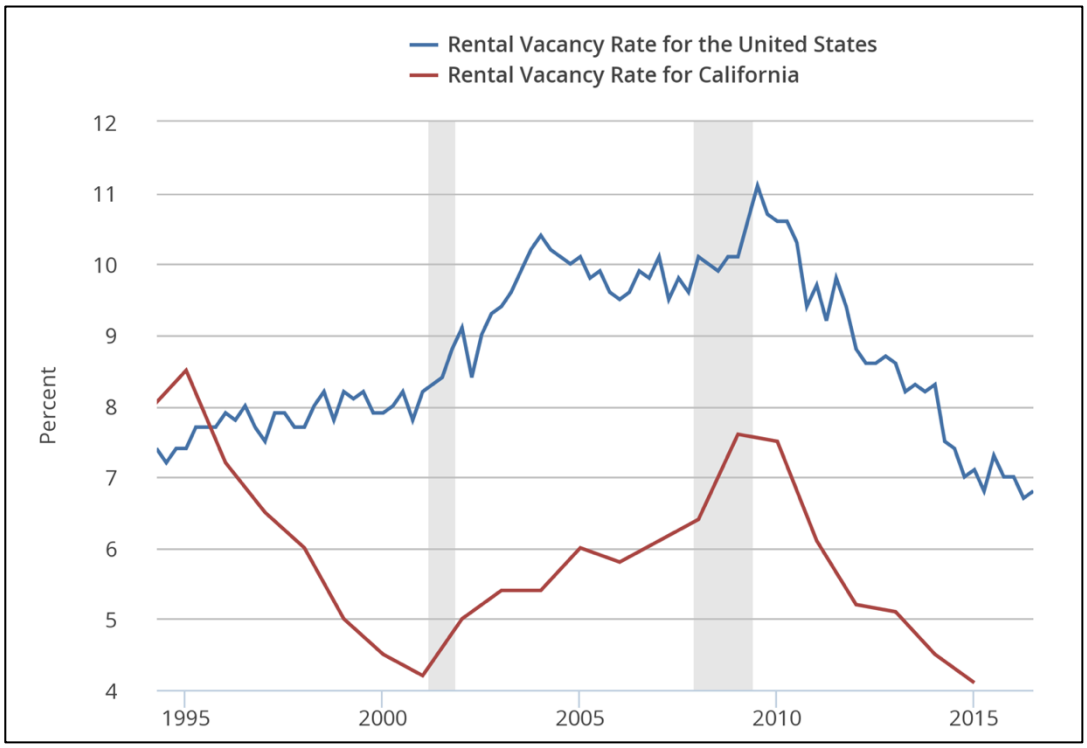
detail in the next section of this chapter. These discussions continued until a recent California Supreme Court ruling upheld the City of San Jose's Inclusionary Housing Ordinance for for-sale housing. Local governments and affordable housing advocates have viewed the San Jose ruling as a good opportunity to put the issue of a statewide adoption of Inclusionary Housing policies for both rental and for-sale housing up for consideration. In the current climate, with the increasing number of renter households and the homeownership rates at historically low levels, it is appropriate to take a deeper look at the implications of Inclusionary Housing on the rental housing markets of places that adopt them. Figure 1 and 2 below show the U.S. and California homeownership and rental vacancy rates over the past two decades. The grey bars represent the recession periods.

Figure 1: U.S. and California Homeownership Rates from 1995 to 2016



Source: alfred.stlouisfed.org

Figure 2: U.S. and California Rental Vacancy Rates from 1995 to 2016



Source: alfred.stlouisfed.org

There is a large body of research on Inclusionary Housing, but most of these studies focus on Inclusionary Housing's impact on for-sale housing. A careful understanding of Inclusionary Housing policies' real implications on the rental market can benefit developers and local governments in evaluating the effectiveness and legitimacy of their policies. In this thesis, I review the recent history of Inclusionary Housing to better understand its status. Furthermore, I investigate the real impact of Inclusionary Housing on rental housing markets with a special focus on changes in market-rate rents in mixed-income properties. I will focus my analysis on market-rate and mixed-income properties in the Sacramento County area. Based on my findings, I hope to provide recommendations for enhancing Inclusionary Housing policies for rental housing in California to create a more acceptable model for all the sectors involved including housing developers, economists, housing advocates, and local governments.

The remainder of this chapter provides in-depth explanation of Inclusionary Housing and its judicial and legislative journey since 2009. I will focus on the court cases that have significantly changed the extent of Inclusionary Housing policies and discuss the impact of Inclusionary Housing on rental markets. My findings will present a more comprehensive knowledge of potential costs of Inclusionary Housing policies imposed on rental housing developers, a topic that has been neglected compared to for-sale housing, which has often been the focus of both developers and local governments.

What is Inclusionary Housing?

Inclusionary Housing requires developers to set aside a number of for-sale or rental units to lower-income families at a discounted rate. As many developers have found a quota system burdensome, some jurisdictions have created ways that offer developers alternatives to allow them to comply with the requirement. Some of the most common alternatives include, for example, the payment of in-lieu fees, offsite construction of units, and land dedication. Municipal jurisdictions also can provide a variety of incentives to developers to encourage inclusionary housing, including density bonuses, fast-track permitting, and developer fee exemptions.

More than thirty percent of California municipalities have adopted some form of Inclusionary Housing policy. Unfortunately, there is no statewide data on the rate at which Inclusionary Housing programs have produced new affordable units. However, Inclusionary Housing appears to be an important source of affordable units in communities that have long-established and well-designed programs. According to the Non Profit Housing Association of Northern California (2007), California's inclusionary programs produced 30,000 affordable units over a six-year period between 2000 and 2006. Other studies have found that Inclusionary Housing accounted for half of the affordable housing production in Montgomery County, Maryland, (Brown, 2001) and created as many units annually in Southern California as the

Federal and State Low Income Housing Tax Credit (LIHTC) program (Mukhija et al., 2010). These are important numbers, but Inclusionary Housing programs alone are not producing a sizable share of the state's affordable housing stock (Jacobus, 2015). Existing data indicate, moreover, that Inclusionary Housing has been successful in integrating neighborhoods and addressing poverty concentration. Ninety-three percent of Inclusionary Housing units in Irvine, California, and 89 percent of Inclusionary Housing units in Montgomery County, Maryland, exist in low-poverty neighborhoods.

Recently, Inclusionary Housing has become a complex and risky policy tool for local governments. As Inclusionary Housing has succeeded in providing affordable rental housing without the burden of committing local public tax dollars, many local governments across the country adopted it since its introduction in early 1970s to address the affordable rental housing shortage in their communities. This trend has changed after 2006, when one developer filed a lawsuit against the Inclusionary Housing Ordinance of the City of Los Angeles. A 2009 California Court of Appeals decision presented local jurisdictions and housing advocates with new questions regarding the legal implications of Inclusionary Housing. The appellate court's decision weakened the power of local jurisdictions in adoption of Inclusionary Housing policies.

Renewed Legal and Political Uncertainty about Inclusionary Housing

Palmer v. City of Los Angeles put Inclusionary Housing requirements for rental housing into uncertainty. In 2006, developer Geoff Palmer applied for approval of a project in downtown Los Angeles to include 350 residential units. The project site previously contained a 60-unit low-income apartment hotel demolished in mid-1990. The City concluded that the project fell within the scope of replacement requirement of Section 11.C of the Specific Plan. Section 11.C imposed affordable housing requirements on residential and mixed use projects with more than 10 units. The ordinance required either onsite construction of the affordable units and rent preservation for

30 years or the life of the units, whichever is greater, or the payment of an in lieu fee. The City conditionally approved the project subject to Palmer's compliance with the Inclusionary Housing requirement, but Palmer claimed that the requirements conflicted with the Costa-Hawkins Rental Housing Act of 1995, which states that the owner sets and controls rents. He claimed that since his company was not soliciting new incentives or public funds (the Inclusionary Housing incentives had gone to the previous owner who demolished the property), it was exempt from the Inclusionary Housing requirement. Palmer Communities sued the city of Los Angeles for violation of Costa-Hawkins Act and won.

The decision did not affect Inclusionary Housing ordinances related to for-sale housing and projects that involve government assistance, but the ruling threw municipalities into an uncertain situation regarding Inclusionary Housing. The intent of the Costa Hawkins Act was to authorize rent control ordinances that capped rents in a community independently of tenants' income levels. The legislative history of the act and the number of Inclusionary Housing laws when it was adopted shows us that inclusionary units were intended to be exempt pursuant to restrictions under contracts with local government (Public Interest Law Project, 2010). But because of Palmer, cities with affordable housing ordinances for rental housing resorted to a variety of actions, including no action (Faber and Cohen, 2014). Some jurisdiction did not react to the court's ruling and kept their ordinances, facing the risk of a collateral attack in future. The rest either suspended their ordinances as applied to rental units or adopted in lieu fees based on a nexus study (Faber and Cohen, 2014).

Many housing advocates see the Palmer decision as a misapplication of the Costa-Hawkins Act and have pushed for legislative action. They turned to the California State Legislature to write new legislation that would invalidate the Palmer decision as the courts continued to adjudicate the issue. In 2011, the State Senate introduced SB184 to correct the law

and authorize the right of cities and counties to adopt Inclusionary Housing policies as a development requirement. The bill died on third reading in the face of strong lobbying from a coalition led by Apartment Association of Greater Los Angeles (AAGLA) with powerful members such as California Association of Realtors and the California Building Industry Association (CBIA) against the legislation (Carlson, 2011). Two years later, in February 2013, the Assembly introduced AB1229, which would have given local governments the power to implement Inclusionary Housing policies. This bill passed the Senate, but the Governor Brown vetoed it. He stated in his veto message that he would like to wait for the Supreme Court's decision on the pending San Jose v. California Building Association case to inform the bill (Maclean, 2013).

City of San Jose v. California Building Industry Association (CBIA) was another controversial lawsuit that in 2015 marked a further turning point in Inclusionary Housing's history. San Jose had enacted an Inclusionary Housing ordinance that required all new residential development projects with twenty or more units to sell at least fifteen percent of for-sale units at an affordable price to Low- or Moderate-Income households. CBIA sued the City for the imposition of Inclusionary Housing on a new for-sale development and claimed that it violated the constitutional right of the developer, specifically the taking clause of both the state and federal constitutions. A Superior Court found the ordinance unconstitutional but that decision was reversed on appeal and the California Supreme Court upheld the reversal in June 2015. CBIA, not satisfied with the Court's decision, has asked the U.S. Supreme Court to hear the case (Robinson, 2015). This ruling has further confused the situation regarding Inclusionary Housing, igniting discussions about statewide implementation and raising concerns among housing developers.

In the midst of this judicial and legislative chaos around Inclusionary Housing, Governor Brown dissolved all Redevelopment Agencies in 2012. Redevelopment Agencies used Tax

Increment Financing (TIF) to provide a significant amount of funding for the provision of affordable housing in communities across California. The loss of TIF created a huge gap in affordable housing funding and added to local governments' burden in providing affordable housing. The current shortage in affordable housing supply is partly due to an eight percent decline in median incomes simultaneously with a twenty-one percent increase in rents since 2000 (CHPC, 2015). The loss of federal funding during the 2008 Great Recession, combined with the disappearance of $1 billion in annual funding from Redevelopment Agencies, slowed the affordable housing production dramatically (CHPC, 2015).

The Impact of Inclusionary Housing on Market Rents

There are only 664,000 available affordable rental homes in the State of California for the 2.2 million Extremely Low- and Very Low-Income Californian households (CHPC, 2015). This fact means that about seventy percent of these households are without access to affordable housing in one of the most expensive rental housing markets in the country. Sacramento County, for example, is among the top ten counties that have an affordable and available rental unit shortage for Extremely Low- and Very Low-Income households in California (CHPC, 2015).

The imposition of the costs of Inclusionary Housing policies on housing developers raises concerns about a reduction in housing production in the communities with Inclusionary Housing policies. When a city imposes Inclusionary Housing requirements, it may transfer a portion of the cost to the developer. After all, if the desire is to subsidize (reduce) the rent paid by low-income tenants, the subsidy can only come from a reduction in return to the developer, an increase in the cost to market rate tenants, or a combination of each. The best-case scenario for developers would be to pass those costs to market-rate tenants. However, marking up the rents for market-rate units is not a good solution if not all communities pursue Inclusionary Housing policies because new units in these communities will not be competitively priced in comparison to those communities

not pursuing Inclusionary Housing policies (Jacobus, 2015). Local governments offer a variety of incentives to compensate for some of the cost burden but none of them offset the whole cost.

Purpose of This Research

Despite the continuous legal challenges on different aspects of Inclusionary Housing, this land use policy tool remains available for many California municipalities. The California Supreme Court's validation of San Jose's Inclusionary Housing policy for new for-sale developments has changed the overall direction for Inclusionary Housing in the state. The court's ruling has facilitated a potential reason for a statewide implementation of Inclusionary Housing policies for new for-sale developments and has sparked discussion for legislative action to overturn Palmer decision for new rental developments. If housing advocates and municipalities decide to take advantage of this climate and, once again, make Inclusionary Housing a powerful source of affordable housing production in their communities, it is important to understand the true impact of this policy on housing markets and developers in order to create a just environment for all and not to discourage or repel new development. To determine the extent of the Inclusionary Housing's impact in the rental housing market, I wish to find out if affordable units in mixed-income properties affect the rents for market-rate units within the same properties. To answer this question, I study market-rate and mixed-income rental properties in Sacramento County and investigate whether there is a fluctuation in market-rate rents for units within mixed-income properties. I will use data on rental properties within Sacramento County and the expertise of property managers to explore the impacts of inclusionary units on market-rate units.

I hope to provide recommendations for enhancing Inclusionary Housing policies for rental housing in California in order to create a more acceptable model for all sectors involved, including housing developers, economists, housing advocates, and local governments. My findings will present a more comprehensive knowledge of the potential costs of Inclusionary

Housing on rental housing developers. They will create a platform for stakeholders of the rental housing market to reexamine the impact of Inclusionary Housing requirements. I hope to expose the unintended and hidden consequences of Inclusionary Housing policies to provide a basis for a more improved and less controversial version of this policy, which would serve its initial twofold purpose: to leverage additional resources and opportunities to increase affordable housing production and to achieve social and economic diversity in newly developing communities.

In Chapter 2, I will review the professional and academic literature on Inclusionary Housing and the rental market to determine the advantages and disadvantages of Inclusionary Housing and the factors that connect it to the rental market. Chapter 3 introduces a mixed-methods approach for assessing the impact of these factors on the market-rate rents. In Chapter 4, I will report the results of my quantitative analysis and interpret my interviews. In Chapter 5, I will identify the implications that the results of my analyses have for local government officials, housing advocates, and developers. I will make policy recommendations based on the findings of this research and discuss its limitations and potential for further research.

Chapter 2

LITERATURE REVIEW

Numerous researchers and analysts have studied the effectiveness of Inclusionary Housing as a tool to reduce affordable housing shortage and poverty concentration since its introduction in early 1970s. Despite the heated controversy among developers, economists, lawyers, and policy makers about Inclusionary Housing policies, hundreds of municipalities still use some form of it to address their affordable housing issues. On one hand, local jurisdictions and housing advocates argue that Inclusionary Housing policies effectively produce affordable housing that would not have otherwise been developed and do not require public funds like traditional affordable housing programs (Schuetz, Meltzer, and Been, 2011). On the other hand, developers and economists argue that such programs impose cost burdens on developers, decrease development activity, and increase prices in existing markets. Furthermore, they suggest that housing development is the only industry in which the government requires a business to provide a product at a lower cost to customers who cannot afford it at a market-rate price. Some of the more sophisticated studies that support Inclusionary Housing policies recognize the added cost to developers but claim that these costs are offset by local incentives and concessions. They claim that developers can still make significant profits, if not as much as without Inclusionary Housing, and that it therefore does not slow down or stop development.

This chapter summarizes the literature on Inclusionary Housing based upon three themes that are covered in three different sections. In the first section, I review and analyze the literature regarding the productivity patterns of Inclusionary Housing policies. In the second section, I investigate the existing literature on the impact of Inclusionary Housing policies on overall housing production and prices. Finally, I summarize the literature on the costs that Inclusionary Housing policies impose on developers, landowners, and homebuyers and tenants. I conclude this

chapter by explaining the contribution of my review to the academic and professional literature about my area of research.

Inclusionary Housing Policies' Productivity

One of the most prominent ways to measure the success of a program is to discover its productivity. The measurement of Inclusionary Housing policies' productivity based on the number of affordable units produced in Inclusionary Housing programs has been a controversial discussion topic among Inclusionary Housing opponents and proponents. Are Inclusionary Housing programs producing enough affordable housing with respect to other state and federal programs and regional housing needs? Some researchers and analysts have evaluated the effectiveness and productivity of Inclusionary Housing by simply reporting the number of units it has produced, some have used other sources of affordable housing production as a measurement tool, and some have based their evaluation on the number of units produced compared to number of units needed. Each of these methods of evaluation creates a different point-of-view about Inclusionary Housing's productivity.

California is treated as a success story for Inclusionary Housing programs because of the high number of jurisdictions (over 150) that have adopted such programs. According to Kautz (2002), a land use law and planning professional, this program has produced more than 50,000 units for Low- and Moderate-Income families in the past twenty-five years. The Non-Profit Housing Association (NPH) of Northern California, an advocacy group for affordable housing, examined Inclusionary Housing policies all over the state of California and looked at their effectiveness in their 2007 report "Affordable by Choice: Trends in California Inclusionary Housing programs." Researchers at NPH sent out surveys to 530 jurisdictions across California, and 169 reported that they had some form of inclusionary program in place. A second round of surveys ("production surveys") sent to these 169 jurisdictions found that only 91 of them kept

records on the number of units produced through their Inclusionary Housing programs. To make an overall estimate of the number of affordable units produced, these researchers calculated an average production rate for Inclusionary Housing programs based on their productivity in those 91 jurisdictions. They applied this rate to the number of building permits issued in each of the remaining jurisdictions and concluded that California's inclusionary programs produced 30,000 affordable units from 1999 to 2006. They reported that about 4,500 units were developed annually through Inclusionary Housing programs in California over this seven-year period.

This study has compiled invaluable data about number and characteristics of Inclusionary Housing programs all over California. However, there was data limitation on number of units produced through these programs in the jurisdictions that did not complete the "production survey," yet the study assumed that these 78 non-reporting jurisdictions produced inclusionary units at the average rate of the 91 reporting jurisdictions. The reported 4,500-unit annual production might have been an overestimation because most of the reporting jurisdictions were large metropolitan cities and counties with long-established Inclusionary Housing programs, and the authors should not have assumed this average for the remaining non-reporting jurisdictions. Although the study still proves that Inclusionary Housing is a valuable source of affordable housing production in California, a better estimation tool could have helped researchers make more accurate assumptions on productivity of such programs.

Some claim that Inclusionary Housing programs are a significant source of affordable housing production and base their argument on comparing them with other state or federal programs. Mukhija (2010) and his colleagues, for example, conducted a study that examined the effectiveness of Inclusionary Housing programs in Los Angeles and Orange counties. They interviewed city planners and staff to gather data on the number of affordable units produced, the amount of money generated from in-lieu fee payments, and the number of affordable units

produced using the generated money (Mukhija et al., 2010). Just like NPH's study, Mukhija et al. came across data limitation due to lack of records in some jurisdictions. However, they extended their data collection and combined different data sources, including city General Plans (especially the housing elements of the plans) and other reports and publications to create a comprehensive database. Using these data, they compared the productivity of Inclusionary Housing programs with the number of Low Income Housing Tax Credit (LIHTC) units reported by the California Department of Housing and Community Development and disregarded cities with voluntary Inclusionary Housing programs. Their results showed that mandatory Inclusionary Housing programs contribute the same number of affordable units as the federal LIHTC program.

We also need to look at the productivity of Inclusionary Housing programs in comparison to demand for affordable housing units. Powell and Stringham (2005) compared the productivity of this program to the need for affordable units in their article "The Economics of Inclusionary Zoning Reclaimed: How Effective Are Price Controls?" They obtained secondary data for communities in 82 cities, towns, and Census-Designated Places (CDPs) in the San Francisco Bay Area from the California Coalition for Rural Housing and the Non-Profit Housing Association of Northern California. Powell and Stringham faced similar data limitations as the two studies reviewed in this chapter, but they related this lack of data to "jurisdictions' unwillingness to keep track of units produced in order to hide how effective the policy is in spite of its costs" (Powell and Stringham, 2004). The study found that Inclusionary Housing resulted in the production of only 6,836 affordable units, or 228 units per year, in the more than thirty years that it has been implemented in the San Francisco Bay Area. This number is very low compared to Association of Bay Area Government (ABAG)'s estimated need of 24,217 units per year between 2001 and 2006. Powell and Stringham concluded that "the program would have to be twenty times more

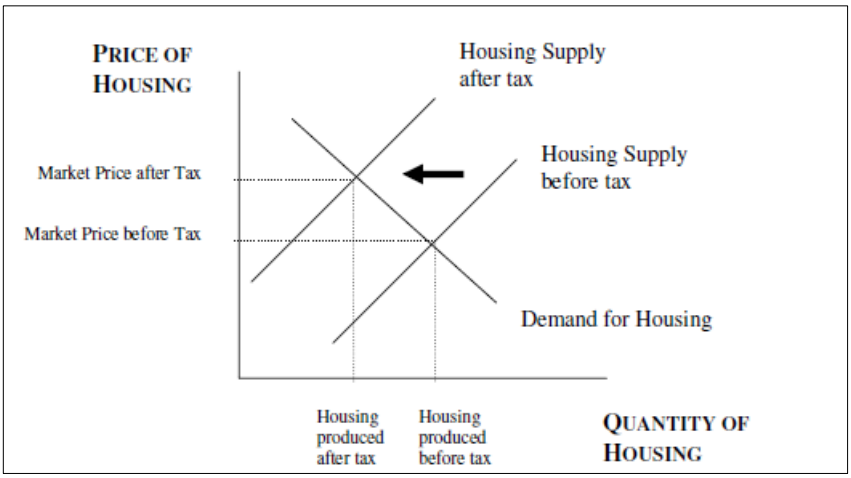
effective each year before it could be relied on to meet the area's five-year affordable housing needs" (Powell and Stringham, 2005).

An analysis of the effectiveness of a program is one of the most important factors that can help policymakers decide whether it should be eliminated or strengthened. Given the risks and the scope of the program, Inclusionary Housing programs should have produced more units, and it is disappointing to see such low numbers given the extensive use and promise of Inclusionary Housing programs. However, a comparison of Inclusionary Housing programs' production rate to a region's overall affordable housing needs may not be accurate because those needs are not aimed to be solved through only one program. There are many state and federal programs (such as LIHTC, tax-exempt bonds, and other grant and financing options) that contribute to the production of affordable units, and it is simplistic to see Inclusionary Housing as the only program capable of meeting regional needs. The next section in this literature review will shed more light on different aspects of Inclusionary Housing that will help clarify the reasons behind the program's poor performance.

Effects on Housing Production and Price

There is an ongoing discussion about how Inclusionary Housing affects production and pricing in the general housing market. In most of the reviewed literature, there seems to be an agreement that Inclusionary Housing programs could reduce housing supply and lead to an increase in housing prices based on conventional economic theory of supply and demand. Figure 3 below shows the reaction of the housing supply curve to a tax imposed on housing production and the subsequent increase in housing prices.

Figure 3: Changes in Housing Supply and Price after Tax



Source: National Center for Smart Growth Research and Education, 2008

Many legal scholars and economists recognize Inclusionary Housing as a price control or tax, both disincentives for producers in most markets. In the case of Inclusionary Housing, the "inclusionary housing tax" will be borne by builders, landowners, and market-rate homebuyers and tenants. Developers are legally responsible for providing the affordable units and will most likely not bear the entire cost of providing those units. Instead, a significant portion of these extra costs get transferred to consumers and other parties in the market. A tax on a good always leads to higher prices for consumers, in this case the homebuyers/tenants, except in unlikely markets with perfectly elastic demand or inelastic supply curves (Powell and Stringham, 2005). The amount of the burden transferred to homebuyers/tenants will depend, though, on the relative elasticities of demand and supply in each housing market. Some studies argue, nonetheless, that the theoretical possibility of a reduction of supply and increase in price is not a common phenomenon in areas that have some form of Inclusionary Housing program (Jacobus, 2015).

Critics of Inclusionary Housing argue that mandatory programs are effectively a tax on new residential development. They further suggest that this tax discourages new construction activity and diminishes the supply of market-rate housing and raises its price. The program results

in more households being priced out of the housing market and thus a need for greater Inclusionary Housing, an undesirable feedback loop. The study that Powell and Stringham conducted for the Reason Foundation in 2005, for example, is one of the most prominent and sophisticated studies in opposition to Inclusionary Housing. They gathered annual housing permit data and looked at one-, three-, five-, and seven-year averages before and after each jurisdiction adopted Inclusionary Housing ordinances, only to discover that permit counts dropped. They used these different timeframes to eliminate biases related to macroeconomic fluctuations such as recessions and real estate market crashes and found that their conclusions held.

Inclusionary Housing opponents have criticized the findings of Powell and Stringham by pointing out that there is a possibility that housing production declined across other communities without Inclusionary Housing programs and that "exogenous factors" such as general market conditions caused such a reduction (Basolo and Calavita, 2004). They point out that most jurisdictions adopt Inclusionary Housing policies toward the peak of the economic cycle, invalidating the argument that Inclusionary Housing causes a reduction in housing production.

The findings of a National Center for Smart Growth Research and Education (NCSGRE) statistical analysis validate such criticism and show that inclusionary programs have no impact on housing production when "exogenous factors" such as time are controlled for. In 2008, the NCSGRE examined housing markets in local jurisdictions in California during the period from 1988 to 2005 using housing prices and production through two different multivariate regression analyses. In their analysis of housing production, the dependent variable was the percentage change in the number of housing units, controlled for city and year variables to account for unobserved city-level characteristics and characteristics that were similar among cities but changed over time. The dependent variable was the logarithm of the sales price, controlled for the quarter when the home was sold, the neighborhood, and the school district. The study found that

housing prices in cities that adopted Inclusionary Housing policies increased about two to three percent faster than cities that did not adopt such policies, but unlike Powell and Stringham, the authors found no statistically significant impact of Inclusionary Housing on number of housing-starts (housing production).

In 2009, Jenny Schuetz, Rachel Meltzer, and Vicki Been, researchers at the Furman Center of New York University, conducted a rigorous study to examine the effects of Inclusionary Housing on housing in the San Francisco and Washington, D.C. metropolitan areas and Boston suburbs. Using surveys and secondary data sources, they gathered data on the characteristics of Inclusionary Housing programs, housing prices, new residential construction permits, demographics, and existing housing stock in these areas. They used these data to compare characteristics and evaluate the productivity of these programs through multivariate regression analysis. Their dependent variable was the logarithm of affordable units produced through inclusionary programs, while the independent variables included neighborhood, location, demographics, incentives dummy, and percentage of affordability. Their findings contradicted Powell and Stringham by concluding that Inclusionary Housing had no significant effect on San Francisco area housing production or prices. They also, however, concluded that it was possible that Inclusionary Housing policies slowed down housing production in Boston's suburbs.

The analysis of Mukhija and his colleagues for communities with and without Inclusionary Housing in Southern California, reviewed in the previous section of this chapter, found that the adoption of inclusionary policies had no impact on the overall rate of housing production (Mukhija et al. 2010). Mukhija et al. used multivariate regression analysis to explore the effects of Inclusionary Housing programs and factors such as the unemployment rate and the regional housing market on the number of local housing permits in Los Angeles and Orange counties. The study used the median annual number of permits issued by all cities in a county as a

proxy measure and the annual unemployment rates as a key independent variable affecting the dependent variable, total housing permits issued by a city. The study concluded that there is significant variation in the impact of Inclusionary Housing policies on housing markets based on the characteristics of the program and the local housing market. The study further suggested that critics of Inclusionary Housing misjudge its adverse effect on housing supply and that there is no statistically significant evidence supporting the purported negative effects of Inclusionary Housing on housing supply. This finding of the study is very important because it shows that the impact of Inclusionary Housing programs is localized and that these programs should be crafted based on area-specific and regional characteristics.

The Costs of Inclusionary Housing

Despite disagreements on the productivity and impacts of Inclusionary Housing, all studies acknowledge that providing units at an affordable price to lower income households in market-rate properties imposes costs on developers. There is a strong debate among researchers and analysts about how these costs get mitigated or who should bear them. Some researchers believe that these costs translate into lower land prices, some believe developers embrace these costs by sacrificing from their profit margin, and some claim that Inclusionary Housing policies act like taxes on housing development and that producers (developers) pass the cost to the customers (market-rate home-buyers and tenants). In the remaining parts of this section I discuss the arguments supporting each of these categories and explain how these facilitate my analysis.

A 2008 Furman Center for Real Estate and Urban Policy study found that Inclusionary Housing programs may cause developers to earn lower profits. The study suggested that developers will react to this reduction in their profits in three ways according to economic models. First, they may stop building in jurisdictions with inclusionary programs and invest in the housing market of jurisdictions without such barriers. Second, they may try to compensate for

their lost revenue by passing on the costs to buyers and tenants of market-rate units by raising prices and rents. Third, they may reduce the prices they are willing to pay for inputs such as construction materials and land. As there is not enough evidence to show that Inclusionary Housing programs reduce the production of housing in jurisdictions that adopt such policies, most analyses of the cost of such programs focus on the second and the third alternatives: raising prices and reducing costs.

Jacobus (2015) acknowledged in his study for the Lincoln Institute of Land Policy that when a city adopts Inclusionary Housing, it imposes a cost on developers. He invalidated the second alternative above by declaring it "unrealistic" and claiming that developers are not able to pass on the costs of Inclusionary Housing to market-rate home-buyers or tenants because new units must still be competitively priced in the overall market. He supported the validity of the third alternative and claimed that, over time, land prices would fall to absorb the costs of Inclusionary Housing requirements and that any easements or incentives offered by local governments could reduce the degree of land price reduction.

Most economists treat Inclusionary Housing as a development tax and believe that the supply and demand elasticities of the housing market determine who bears the burden of that tax. Barbara E. Kautz emphasized in her paper "In Defense of Inclusionary Zoning: Successfully Creating Affordable Housing" that the assumption that Inclusionary Housing acts as a tax on housing development that developers pass on to home-buyers and tenants is "too simplistic." This assumption supposes that developers can easily raise their prices, or, viewed another way, would charge below the market's bearing capacity if they did not have to comply with Inclusionary Housing requirements (Kautz, 2002). The extent to which developers can use any of these alternatives or a combination of them to offset the burden of providing the affordable units depends strongly on the supply and demand elasticities of the particular housing market. For

instance, in a market where land is extremely scarce, landowners might not decrease the price of their land, and developers would need to continue paying the same land prices. In a market with relatively elastic demand, increasing the prices or rents might not be a viable option because homebuyers and tenants would move to another market. The share of Inclusionary Housing's cost borne by the developer should therefore vary among different jurisdictions.

Conclusion

Inclusionary Housing programs have produced a considerable number of affordable housing units that would not have been developed in absence of such programs, but this production "hardly put a dent" in the overall need for affordable housing (Powell and Stringham, 2005). This review of the literature shows that there is extensive research and analysis on the amount of housing produced by Inclusionary Housing programs and its impact on production and prices in a general housing market. However, there is not sufficient research about the cost that these policies impose on developers or the impact they have on the characteristics of development. Inclusionary Housing programs appear to work better in some communities and produce more affordable units in some housing markets than in others. The success of such programs largely depends on factors such as the strength of the housing market, the characteristics of the program, and the responsiveness of the program to market conditions.

My review of the existing academic and professional literature has revealed that the characteristics of a housing market in which the productivity, effect, and cost of Inclusionary Housing is being evaluated is extremely important. The majority of the existing literature incorporates one or more location-specific control variables. Moreover, the period in which Inclusionary Housing is being evaluated plays an important role. Most studies limit their analysis to a certain period and evaluate the effects of the programs over specific timeframes. Time-related control variables are important to consider because they help eliminate the impacts of

broader economic phenomena such as business cycles and recessions. Most jurisdictions do not keep detailed record of number of units produced through their Inclusionary Housing programs, and most that do keep records do not separate rental from for-sale housing.

Despite the similarities in methodologies of these studies, their findings are significantly different. Some studies found that Inclusionary Housing reduces housing production, some found no impact, and some found that it boosted affordable housing production. Another similarity, as my review shows, is that most studies evaluate for-sale markets and ignore the rental housing market. I contribute to the existing literature by investigating the impact of Inclusionary Housing policies on rental housing markets and analyzing the impact of affordable units on market-rate units.

Chapter 3

METHODOLOGY

In the previous chapter I reviewed the body of literature on Inclusionary Housing and its impact on affordable housing supply within jurisdictions that implement Inclusionary Housing policies. In a significant portion of the existing literature, researchers have used time series data to compare the affordable housing production rate before and after the adoption of Inclusionary Housing policies. Some studies have furthered their analysis by looking at the impact of such policies not just on affordable housing but on housing in general to discover if Inclusionary Housing policies affect the overall housing production rate and have found that these policies cause fluctuations in housing supply. Most studies have focused on the impact of Inclusionary Housing on home prices and therefore on an ownership-driven housing market. However, the current housing market warrants a shift in focus from ownership to rental housing markets because the nationwide homeownership and rental vacancy rates are at their lowest levels since 1995 (U.S. Census Bureau, 2016). In this research, I use a combination of methods from these studies to find out whether Inclusionary Housing policies have unintended consequences on rental prices for market rate units within mixed-income properties.

In this chapter, I explain the mixed-methods approach that I use to answer this question. In the quantitative part of my analysis, I use regression analysis to understand the relationship between affordable units and the average per square foot rental price of market-rate units. To expand on the findings of my regression analysis, I conduct interviews with a selected group of property managers from a sample of mixed-income and market-rate properties in Sacramento County. Sacramento County presents a good example as a growing economy that is home to many young professionals and millennials who are renters and have no plan of homeownership in the near future. Table 1 shows that Sacramento is the seventh county with the largest affordable

housing shortage for Extremely Low-Income households in California. It is a metropolitan area that is suffering from an affordable housing shortage but has not yet reached the level of "looney-tunes" (as one broker described the extreme housing market in the Bay Area) and is therefore more representative of housing markets in the state of California.

Table 1: Top 10 Counties with Highest Affordable Housing Shortage in California

County	Shortfall of Homes Affordable & Available to Extremely Low-Income Renters	Affordable & Available Units Per 100 Extremely Low-Income Renters
Los Angeles	376735	19
San Diego	79795	18
Orange	70125	18
Alameda	44560	27
Santa Clara	39465	26
San Bernardino	36375	18
Sacramento	36040	21
San Francisco	35855	37
Riverside	31875	20
Fresno	23810	20

Source: California Housing Partnership Corporation, 2014

Quantitative Method: Regression Analysis

Numerous factors affect the rental price of an apartment unit. Location, building characteristics, and onsite amenities are among the most important factors that almost every rental apartment listing includes and to which renters pay attention. Property managers rely on these factors when evaluating the rents for comparable properties. However, the presence or number of affordable units within a property is often not considered as a variable that influences rents that tenants are willing to pay. In this part of my research, I use regression analysis to find out whether affordability mix is a factor that affects the rental price of market-rate apartment units.

Regression Analysis

My dependent variable is the average per square foot rent of market-rate units within comparable mixed-income and fully market-rate properties in Sacramento County. I build my regression model by using the variables of location, building characteristics, onsite amenities, and affordability mix.

Average per square foot rent of market-rate units = f (location, building characteristics, onsite amenities, affordability mix)

Location

The famous quote in real estate industry, which tracks back to real estate ads in as early as 1926, says: "location, location, location" (Safire, 2009). The location of a property and its access to the surrounding amenities is one of the most significant factors that affect rental prices. In my model, I use city as one of the explanatory variables for location because jurisdictional boundaries are representative of geographic and demographic characteristics. Another variable that I use is Walk Score, which has become popular in recent years. Walk Score is a number ranging from 0 (car dependent) to 100 (most walkable) that represents the number of typical household destinations within one-quarter to one mile of a property. John Cotright (2009), in his report Walking the Walk, used the hedonic regression model to analyze the impact of walkability on home prices and found that in a typical market the home prices increase by $500 to $3,000 for each one-point increase in Walk Score.

Distance from a Light Rail Transit (LRT) station is another factor that I use in my model to explain the impact of location on average rental prices. Many studies have used the hedonic regression model to investigate whether public transportation has an impact on home prices and concluded that homebuyers are willing to pay a premium for proximity to transit stations. One

study found that the transit premium for single-family homes and apartments in San Francisco was 17 and 5 percent, respectively, for properties near a BART station (CTOD, 2008).

Location = f (city, Walk Score, distance from LRT station)

Building Characteristics

After finding their desired location, renters looking for housing start evaluating the physical characteristics of the buildings available in that location. Many studies have used the hedonic regression model to find the impact of factors such as number of bedrooms and bathrooms, parking garage, and roof type on single-family sale prices. I adopt the same approach in identifying the factors that explain a building's characteristics, but since my research is only on multifamily rental properties, I use slightly different variables, such as number of units, number of stories, and building age. These variables are good measures of building style, construction type, and a property's overall condition.

Building Characteristics = f (number of units, number of stories, building age)

Onsite Amenities

I gathered data for the onsite amenities provided in each one of the 64 properties in my sample. However, some of these variables can be highly correlated with other explanatory variables. For instance, the presence of an elevator may be highly correlated with the number of stories in a building because the California Building Code does not require elevators for buildings with less than four stories. The presence of a spa may show strong correlation with the presence of a pool because all properties that have a spa, also have a pool. Such variables can cause multicollinearity, i.e. a double counting of factors and increasing coefficients, which results in overstating the impact of explanatory variables on dependent variable. In Chapter 4, I explain the process of diagnosing and treating multicollinearity in my regression model.

Onsite Amenities = f (elevator, in-unit washer/dryer, laundry facility, clubhouse, pool, spa, fitness center, other amenities)

Affordability Mix

I use affordability mix as an explanatory variable in my model to understand the impact of affordable units on rental prices of market-rate units. I measure this variable by introducing a dummy variable that shows the presence of affordable units within a property and a numerical variable that shows the percentage of affordable units within each property.

Affordability Mix = f (presence of affordable units, percentage of affordable units)

Table 2 summarizes all the specific variables that I use in my regression model and shows the predicted correlation between an increase in explanatory variables and the average per square foot rent of market-rate units (dependent variable).

Table 2: Regression Variables and Their Predicted Correlation with Average Per Square Foot Rent	
Dependent Variable	
Average Per SF Rent	
Key Explanatory Variable	Predicted Correlation
Percentage of Affordable Units	Negative
Other Explanatory Variables	
Sacramento	Positive
Citrus Heights	Positive
Rancho Cordova	?
Elk Grove	?
County	Negative
Walk Score	Positive
Distance from LRT Station	Positive
Number of Units	?
Number of Stories	Positive
Building Age	Negative*
Elevator	Positive
In-Unit Washer/Dryer	Positive
Laundry Facility	?
Clubhouse	Positive
Pool	Positive
Spa	Positive
Fitness Center	Positive
Other Amenities	Positive
Presence of Affordable Units	Negative

* The correlation might become positive when a building goes over a certain age and gain historic value

Data

In this part of my study, I use secondary data accessible online, through phone calls, or via in-person visits to properties. There is extensive data available on hundreds of thousands of rental properties in every geographic region, but I only use data related to a certain selected set of properties within Sacramento County. I have obtained the Sacramento Housing and Redevelopment Agency's (SHRA) list of all affordable units in Sacramento County and eliminated the fully income-restricted properties to create a sample that only includes mixed-income properties. Table 3 shows the descriptive statistics of the data. The mean is the average value of all observations. The standard deviation represents the extent of deviation from mean for

all observations. The minimum and maximum values are the lowest and highest values of the observations for each variable.

Table 3: Descriptive Statistics				
Variable Name	Mean	Standard Deviation	Minimum Value	Maximum Value
Dependent Per SF Rent				
Average Per SF Rent	1.58	0.42	1.02	2.83
Key Explanatory Variable				
Percentage of Affordable Units	19.55	26.43	0	97
Other Explanatory Variables				
Sacramento	0.66	0.48	0	1
Citrus Heights	0.05	0.21	0	1
Rancho Cordova	0.09	0.29	0	1
Elk Grove	0.08	0.27	0	1
County	0.13	0.33	0	1
Walk Score	52.61	23.87	0	97
Distance from Transit Station	0.38	0.41	0	2
Distance from LRT Station	3.15	2.29	0	9
Number of Units	224.92	159.21	24	796
Number of Stories	2.56	1.01	2	7
Building Age	24.83	16.11	0	102
Elevator	0.16	0.37	0	1
In-Unit Washer/Dryer	0.72	0.45	0	1
Laundry Facility	0.39	0.49	0	1
Clubhouse	0.81	0.39	0	1
Pool	0.84	0.37	0	1
Spa	0.67	0.47	0	1
Fitness Center	0.78	0.42	0	1
Other Amenities	0.64	0.48	0	1
Presence of Affordable Units	0.50	0.50	0	1

Fully income-restricted properties are properties that have one hundred percent of their units (excluding manager's units) offered at rents affordable to Moderate- (households earning more than eighty percent of Area Median Income or AMI), Low- (households earning between fifty and eighty percent of AMI), Very Low- (households earning between thirty and fifty percent of AMI), and Extremely Low- (households earning less than thirty percent of AMI) Income households. Mixed-income properties are properties where only a percentage of units are income-restricted with the rest offered at rents set by market conditions.

My sample includes 64 properties of which 32 are mixed-income and 32 are fully market-rate comparables. I categorize the mixed-income properties into four different groups based on the natural breaks in the percentage of affordable units within them. The first group represents properties with 10-29%, the second group represents properties with 30-49%, the third group represents properties with 50-79%, and the fourth group represents properties with 80-99% affordable units. Table 4 shows these four categories and the percentage of affordable units within each of the properties.

Table 4: Percentage of Affordable Units in Mixed-Income Properties in Sacramento County								
ID	City	Total Units	Affordable Units	% Affordable Units	Very Low-Income (30-50% AMI)	Low-Income (50-80% AMI)	Moderate (> 80% AMI)	Market-Rate
Category Low Affordable: Properties with 10-29% Affordable Units								
1	Sacramento	69	13	19%	7	4	2	56
2	Sacramento	301	60	20%	30	30	0	241
3	Sacramento	225	45	20%	45	0	0	180
4	Antelope	190	38	20%	38	0	0	152
5	Sacramento	200	40	20%	40	0	0	160
6	Sacramento	714	143	20%	71	72	0	571
7	Sacramento	384	77	20%	41	0	36	307
8	Citrus Heights	315	63	20%	63	0	0	252
9	Sacramento	279	56	20%	28	0	28	223
10	N. Highlands	661	133	20%	66	67	0	528
11	Sacramento	347	70	20%	46	0	24	277
12	Rancho Cordova	208	42	20%	21	21	0	166
13	Sacramento	188	38	20%	38	0	0	150
14	Arden Arcade	301	61	20%	61	0	0	240
15	Sacramento	246	50	20%	25	25	0	196
16	Fair Oaks	44	9	20%	4	5	0	35
17	Sacramento	176	45	26%	36	0	9	131
18	Sacramento	65	17	26%	13	0	4	48
Category Medium-Low Affordable: Properties with 30-49% Affordable Units								
19	Sacramento	600	180	30%	180	0	0	420
20	Sacramento	29	12	41%	4	8	0	17
21	Sacramento	119	49	41%	24	25	0	70
22	Sacramento	212	93	44%	43	50	0	119
23	Rancho Cordova	100	45	45%	25	20	0	55
Category Medium-High Affordable: Properties with 50-79% Affordable Units								
24	Elk Grove	197	100	51%	100	0	0	97
25	Carmichael	38	24	62%	5	19	0	14

26	Sacramento	280	212	76%	84	128	0	68
27	Elk Grove	144	109	76%	29	80	0	35
28	Sacramento	156	120	77%	70	50	0	36
Category High Affordable: Properties with 80-99% Affordable Units								
29	Sacramento	204	163	80%	116	47	0	41
30	N. Highlands	224	179	80%	63	116	0	45
31	Sacramento	180	144	80%	72	72	0	36
32	Rancho Cordova	95	92	97%	20	72	0	3

Qualitative Method: Interviews

I use a qualitative method to complement the findings of the quantitative part of my research and to explore the actual consumer behavior in connection with a property's affordability mix. I interview a total of four property managers, one from each of the mixed-income property categories, to discover whether the regression analysis is interrelated or consistent with what the managers experience in their daily interactions with existing and prospective residents.

Research Design

My interview questions consist of three categories: General Questions, Determining Rents for Market-Rate Units, and Visitors' Behavior. I structure my interview in such way so that first I find out the general condition of affordable housing and understand the existing demand for affordable units. Second, I understand how property management companies set the rents for their market-rate units and what factors they consider. Finally, I analyze something that is not possible to measure through quantitative methods: people's overall perception of affordable housing and their reaction to presence of such units within their desired community.

Interview Structure

I conduct semi-structured in-person interviews with these property managers. First, I prepare my interview questions and informed consent letter as shown in Appendices A and B. Second, I send both documents three days in advance of in-person meetings to the property managers to provide time to go over the questions and understand the scope of the research. Third, after explaining that the name of the property management company, the property manager, and the property will remain confidential and getting the informed consent form signed, I meet with them in-person and proceed to ask my questions and take notes as they respond. Finally, I gather all responses and compile them in a single document to enable easy analysis of

the four sets of responses. Appendix C shows the responses of the property managers to each of the interview questions.

Conclusion

In this chapter I explained my mixed-methods approach and the sampling, research design, and analysis stages for both the quantitative and qualitative parts. I explained how I categorized the data and what variables I accounted for in creating the sample. In the next chapter, I report the results of the analysis and explain my findings to draw connections between the two parts of the methodology.

Chapter 4

FINDINGS

In this chapter I describe the results of the quantitative and qualitative analyses. First, I explain the findings of the regression analysis, and then I discuss my findings from the in-person interviews with property managers.

Findings of the Quantitative Analysis

In this section, I explain the linear regression model that I used to explore the impact of the key explanatory variable on the dependent variable. I then discuss the correlation coefficients and the variation inflation factor (VIF) to identify multicollinearity. Finally, I explain the results of the regression analysis and the impact of each explanatory variable on the dependent variable while holding all other variables constant.

Linear Regression Model

My sample includes 64 observations (properties) from which 32 do not include any affordable units and 32 have various percentages of affordable units. In the previous chapter, I identified several factors (explanatory variables) that affect the per square foot rental price (dependent variable). I use these explanatory variables in a linear regression model to quantify their impact on the dependent variable. My planned regression model shows a large number of coefficients as not statistically significant at 90 percent confidence level. This can be due to multicollinearity, which is a very common issue in linear regression models. Multicollinearity occurs when there is strong correlation between explanatory variables and inflates the variance of the coefficients and reduces their statistical significance. To fix this error, first I inspect the correlation between all variables by looking at pairwise correlation coefficients, and then I look at the variance inflation factor (VIF) to understand which variables are inflating the variance in

coefficients. After diagnosing the error, I revise my regression model to exclude the variables that cause multicollinearity.

Pairwise Correlation Coefficients

Pairwise correlation coefficients show the correlation between each pair of variables. The correlation coefficient can take on a value between negative one (-1) and positive one (+1). A coefficient that is close to either end of the spectrum, i.e. negative or positive, indicates a strong correlation between the two variables. A coefficient that is close to zero indicates a weak correlation. According to Gujarati (2011), a coefficient larger than positive 0.8 or smaller than negative 0.8 is a strong signal for multicollinearity. The sign (positive or negative) of the correlation coefficient indicates the direction of the correlation.

Table 5 below shows the pairwise correlation coefficients for all the variables that I identified in the previous chapter. All of the correlation coefficients are well within the negative 0.8 to positive 0.8 bracket, which indicates that no two variables have strong correlation.

Table 5: Pairwise Correlation Coefficients for All Variables							
	Average Per SF Rent	Sacramento	Citrus Heights	Rancho Cordova	Elk Grove	County	Walk Score
Average Per SF Rent	1.0000						
Sacramento	0.3580	1.0000					
Citrus Heights	0.0184	-0.3064	1.0000				
Rancho Cordova	-0.1803	-0.4444	-0.0713	1.0000			
Elk Grove	-0.1535	-0.4022	-0.0646	-0.0936	1.0000		
County	-0.2425	-0.5222	-0.0838	-0.1216	-0.1100	1.0000	
Walk Score	0.6341	0.0825	0.0661	-0.0128	-0.1132	-0.0576	1.0000
Distance from LRT Station	-0.4767	-0.0198	0.2298	-0.2923	-0.0214	0.1565	-0.5008
Number of Units	-0.2122	0.0488	0.1199	-0.0416	-0.1056	-0.0243	-0.2649
Number of Stories	0.6890	0.2431	-0.1250	-0.1813	0.0109	-0.1183	0.5124
Building Age	-0.4293	-0.1869	0.0070	0.2818	-0.2082	0.1844	-0.0853
Elevator	0.8314	0.3115	-0.0954	-0.1384	-0.1253	-0.1627	0.6995
In-Unit Washer/Dryer	0.4013	0.3521	0.1387	-0.1565	-0.2064	-0.2890	0.1731
Laundry Facility	-0.3103	-0.2971	-0.0260	0.0721	-0.1137	0.4721	-0.1518
Clubhouse	0.1439	0.3266	0.1065	-0.3949	-0.0093	-0.1816	-0.2328
Pool	-0.5044	-0.2208	0.0954	-0.0092	0.1253	0.1627	-0.5359
Spa	-0.1443	0.1248	-0.0025	-0.1177	0.0794	-0.1384	-0.3038
Fitness Center	-0.1276	0.1741	0.1173	-0.2188	0.0132	-0.1429	-0.2450
Other Amenities	-0.2212	-0.1307	0.0120	0.0175	0.2180	-0.0123	-0.3520
Presence of Affordable Units	-0.0922	-0.0658	-0.0739	0.0000	-0.0582	0.1890	-0.1141
Percentage of Affordable Units	-0.2781	-0.1392	-0.1089	0.1118	0.0650	0.1182	-0.2292

	Distance from LRT Station	Number of Units	Number of Stories	Building Age	Elevator	In-Unit Washer/ Dryer	Laundry Facility
Average Per SF Rent							
Sacramento							
Citrus Heights							
Rancho Cordova							
Elk Grove							
County							
Walk Score							
Distance from LRT Station	1.0000						
Number of Units	0.1249	1.0000					
Number of Stories	-0.2977	-0.1836	1.0000				
Building Age	-0.1712	0.0041	-0.5219	1.0000			
Elevator	-0.5186	-0.2875	0.7060	-0.4396	1.0000		
In-Unit Washer/Dryer	-0.1524	0.2998	0.1785	-0.3611	0.2692	1.0000	
Laundry Facility	0.1626	-0.1579	-0.1945	0.1889	-0.1681	-0.5676	1.0000
Clubhouse	0.2761	0.3862	0.1905	-0.3934	-0.0138	0.3228	0.1240
Pool	0.5053	0.3395	-0.4473	-0.0073	-0.6444	0.0179	0.3464
Spa	0.0833	0.4871	-0.2730	-0.0138	-0.3408	0.4510	0.4237
Fitness Center	0.1774	0.4474	-0.0805	-0.1996	-0.1887	0.4256	0.3911
Other Amenities	0.2234	0.4427	-0.1326	-0.1568	-0.3055	-0.0340	0.3266
Presence of Affordable Units	-0.0275	0.0581	-0.0313	0.1281	0.0000	-0.2780	0.3523
Percentage of Affordable Units	0.1334	-0.1107	-0.1073	0.0294	-0.1041	-0.4786	0.4510

	Clubhouse	Pool	Spa	Fitness Center	Other Amenities	Presence of Affordable Units	Percentage of Affordable Units
Average Per SF Rent							
Sacramento							
Citrus Heights							
Rancho Cordova							
Elk Grove							
County							
Walk Score							
Distance from LRT Station							
Number of Units							
Number of Stories							
Building Age							
Elevator							
In-Unit Washer/Dryer							
Laundry Facility							
Clubhouse	1.0000						
Pool	0.1240	1.0000					
Spa	0.3464	0.6158	1.0000				
Fitness Center	0.4237	0.5010	0.7572	1.0000			
Other Amenities	0.3911	0.3952	0.3782	0.3126	1.0000		
Presence of Affordable Units	0.0000	-0.0861	-0.1664	-0.0756	0.2280	1.0000	
Percentage of Affordable Units	-0.0159	-0.0813	-0.3077	-0.1907	0.2478	0.7453	1.0000

Variance Inflation Factor (VIF)

The analysis of correlation coefficients helps me understand whether my planned regression is prone to multicollinearity or not. However, it may not provide enough information to fully diagnose the possibility. I take the investigation further by looking at the variance inflation factor (VIF) for each coefficient. VIF is a measure that shows the amount by which the coefficient variance is inflated due to multicollinearity. If VIF is less than 1 there is no correlation, if it is between one and five there is minor correlation, and if it is more than five there is significant correlation. Table 6 below shows the VIFs for all my explanatory variables.

Table 6: Variance Inflation Factors

Variable	VIF
Elevator	6.55
Spa	5.37
Building Age	4.35
Pool	4.03
Percentage of Affordable Units	3.87
In-Unit Washer/Dryer	3.53
Distance from LRT Station	3.51
Sacramento	3.34
Presence of Affordable Units	3.05
Fitness Center	2.94
Number of Stories	2.90
Elk Grove	2.86
Walk Score	2.80
Rancho Cordova	2.37
Clubhouse	2.35
Laundry Facility	2.22
Other Amenities	2.08
Number of Units	1.87
Citrus Heights	1.71

The variance inflation factors for Elevator and Spa variables are above five, which indicates that these variables are strongly correlated with some other explanatory variable. Therefore, I need to eliminate these variables or the variable that they are strongly correlated with

to mitigate for multicollinearity. I exclude Elevator since it is highly correlated with Number of Stories and eliminate Pool since it has strong correlation with Spa.

Multicollinearity is present in my planned regression model. Therefore, in an initial regression run some of my explanatory variables exhibited no statistically significant impact on the dependent variable. To fix this error, I exclude the redundant variables from my regression and revise my model as below.

Average per square foot rent = f (Sacramento, Citrus Heights, Rancho Cordova, Elk Grove, Walk Score, distance from LRT station, number of units, number of stories, building age, in-unit washer/dryer, laundry facility, clubhouse, spa, fitness center, other amenities, presence of affordable units, percentage of affordable units)

In addition to multicollinearity, heteroscedasticity is another very common error that can distort the results of a regression model. Multicollinearity biases the regression coefficients upwards and heteroscedasticity biases the regression coefficient's standard error downwards. Both multicollinearity and heteroscedasticity increase the value of t-statistic. Heteroscedasticity causes overestimation of significance level by causing underestimation of regression coefficient's standard error. Heteroscedasticity can occur due to multiple explanatory variables. I applied the Breusch-Pagan/Cook-Weisberg test to examine heteroscedasticity in my regression analysis. Breusch-Pagan/Cook-Weisberg tests the null hypothesis that there is constant variance and all error variances are equal. A large chi-square rejects the null hypothesis with $1 - (\text{Prob} > \chi^2 = X)$ confidence level. The results show that with 99.9999% confidence level the errors are not homoscedastic. In other words, some of the impacts that initially appear to be statistically significant are not truly significant. To solve for this problem and find out which impacts are truly significant I ran the regression analysis with robust standard errors.

Regression Results

The regression results show that the key explanatory variable (percentage of affordable units) and 10 of the 16 other explanatory variables have a statistically significant impact on the dependent variable. The adjusted R-squared value for the regression is 75.88%, which indicates a very strong measure of estimation for my analysis. This means that the linear regression model is able to explain the variation in 75.88% of the dependent variable around its mean. Table 7 below presents the results of my robust linear regression analysis and shows the statistical significance level for each coefficient with one asterisk for 90 percent, two asterisks for 95 percent, and three asterisks for 99 percent confidence level.

Table 7: Regression Analysis Results Using Lin-Lin Functional Form

	Coefficient	Robust Standard Error	VIF
Constant	1.747	0.319	
Key Explanatory Variable			
Percentage of Affordable Units	-0.004***	0.001	3.77
Other Explanatory Variables			
Citrus Heights	0.349***	0.114	1.70
Spa	0.180**	0.084	4.16
Presence of Affordable Units	0.169*	0.085	2.96
Clubhouse	0.136	0.089	2.21
Sacramento	0.112	0.086	3.12
Number of Stories	0.079*	0.047	2.82
Other Amenities	0.027	0.085	2.07
Walk Score	0.004**	0.002	2.25
Number of Units	-0.001**	0.000	1.83
Building Age	-0.010***	0.003	2.83
In-Unit Washer/Dryer	-0.051	0.111	3.43
Laundry Facility	-0.070	0.066	2.22
Rancho Cordova	-0.087	0.112	2.32
Fitness Center	-0.283***	0.092	2.92
Elk Grove	-0.302**	0.133	2.67
Distance from LRT Station	-0.699***	0.020	2.35
Number of Observations	64		
R-Squared Value	0.8239		
Adjusted R-Squared Value	0.7588		
Number of Significant Results	11		

Location

Walk Score has a statistically significant positive impact on the dependent variable. For every one-point increase in Walk Score, the average per square foot rent increases by $0.004 or 4/10 of a cent (0.4¢). The walking distance from the nearest Light Rail Transit (LRT) station showed a negative impact on average per square foot rent. For every mile that a property is located further from an LRT station, the per square foot rent decreases by 70¢. This means that the monthly rent for a 1,000 square foot unit located two miles away from an LRT station would be $700 less than the monthly rent for an identical unit located only one mile away from an LRT station. The city in which the property is located, however, showed various impacts on the dependent variable based on the jurisdiction. Properties in the city of Citrus Heights benefit from 35¢ higher per square foot rents and properties in city of Elk Grove suffer from a 30¢ reduction on average per square foot rent. Cities of Sacramento and Rancho Cordova do not show any statistically significant impact at 90 percent confidence level.

Building Characteristics

The total number of units and building age show negative impact on the dependent variable, while the number of stories shows positive impact. When the number of units in a property increases by one unit, the average per square foot rent goes down by 0.1¢, which means a $1 decrease on the monthly rent of a 1,000 square foot unit. For every one-year increase in building age, average per square foot rent goes down by 1¢. A one-unit increase in number of stories, however, increases the average per square foot rent by 8¢. The monthly rent for an apartment unit in a six-story building would be $80 more than an identical unit in a 5-story building. The directions of the coefficients are consistent with my predictions in Chapter 3. The impacts of building age, number of units, and number of stories on average per square foot rent

are statistically significant at, 99 percent, 95 percent, and 90 percent confidence levels, respectively.

Onsite Amenities

The presence of a spa or gym are the only onsite amenities that exert a statistically significant impact on average per square foot rent. The average per square foot rent for a property with spa is 18¢ higher than for a property with no spa. The impact of fitness center, however, is the opposite of what I predicted in Chapter 3. The regression results show that presence of a fitness center in a property reduces the average per square foot rent by 28¢. This is an unexpected outcome which I am not able to investigate further within the scope of this study, but I suspect that it is mainly due to some peculiarity from the small sample size.

Affordability Mix

Affordability mix is represented with two explanatory variables: the presence of affordable units and the percentage of affordable units.

The presence of affordable units has a positive 0.169 regression coefficient and is statistically significant at 90 percent confidence level. Since this variable was a dummy variable measured by zero (0) representing properties with no affordable units and one (1) representing properties with any affordable units, the result means that inclusion of any VLI, LI, or Moderate-Income unit in a property increases the average rental price of the market-rate units within the same property by 17¢ per square foot. This finding is the opposite of what I predicted in Chapter 3.

A large number of new high-quality rental properties in Sacramento County have an affordable component because most of the rental multifamily development in Sacramento happened before the 2008 market crash. At that time, the Palmer case ruling had not taken place and new rental housing developments were still subject to Inclusionary Housing requirements.

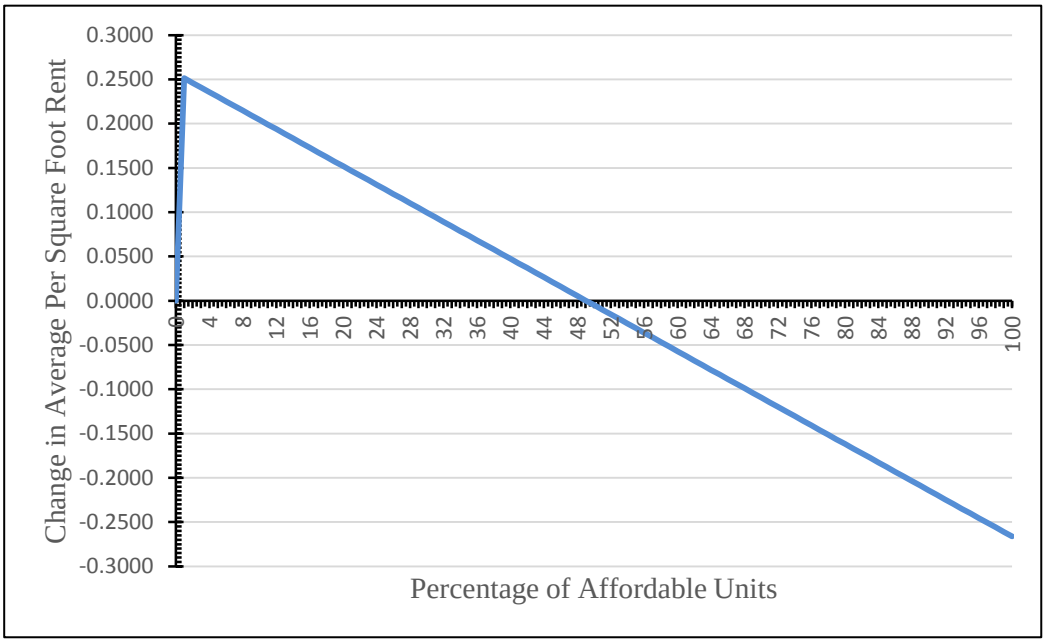
However, since the Palmer case ruling in 2009 there has not been a lot of market-rate rental housing development activity in Sacramento. Therefore, there are not many fully market-rate comparable projects for mixed-income properties with low percentages of affordable units (Category Low Affordable: 10-29% Affordable Units). I believe if I were able to increase my sample size to include more newly-built market-rate properties, the coefficient would not have been this large and would possibly even be negative.

The percentage of affordable units has a negative 0.004 regression coefficient with 99 percent confidence level. This result is consistent with what I predicted in the previous chapter. This coefficient means that when the percentage of affordable units increases by one percentage point, the average per square foot rent decreases by $0.004 or 4/10 of a cent (0.4¢). A 10 percentage point increase in the number of affordable units in a property that is priced at mean market value in Sacramento would reduce the average rent per square foot from $1.58 to $1.54. This per square foot reduction would mean a $480 loss in the annual gross rental income generated by a 1,000 square foot unit.

Table 8 and Figure 4 below show the combined impact of presence of affordable units and percentage of affordable units on average per square foot rent of market-rate units. The table and the graph both use the mean value of the average per square foot rent from the sample data.

Table 8: Impact of Affordability Mix on Average Per SF Rent		
Percentage Affordable Units	Average Per Square Foot Rent	Impact of 1% Increase in Affordable Units from Previous Possibility
0	1.580	0.165
1	1.745	-0.004
2	1.742	-0.004
3	1.738	-0.004
.	.	.
.	.	.
.	.	.
41	1.588	-0.004
42	1.584	-0.004
43	1.580	-0.004
44	1.576	-0.004
45	1.572	-0.004
.	.	.
.	.	.
.	.	.
98	1.364	-0.004
99	1.360	-0.004
100	1.356	-0.004

Figure 4: The Impact of Percentage of Affordable Units on Average Per Square Foot Rent



It is clear that once the percentage of affordable units reaches about 43 percent, the rents for market-rate units start falling below the average market rents. If I had a sample with more observations in each of the mixed-income property categories, I could run separate regression analysis for each group and find out at what point the negative impact of affordable units becomes statistically significant. I believe a much bigger sample with different categories for affordability percentages would result in a graph that is a flat line up to the tipping point and then starts declining at a constant rate.

Findings of the Qualitative Analysis

In this section I describe the findings of the qualitative part of my analysis. As I explained in Chapter 3, I conducted semi-structured in-person interviews with the property managers of four mixed-income properties. I selected one property from each of the mixed-income property categories. I organize the interview responses into three groups similar to the interview questions. Appendix C shows the responses of all interviewees to each question side by side to facilitate understanding of the differences and the similarities between each property.

Demand for Affordable Housing

The demand for affordable housing is constantly growing, but its supply is not keeping pace with this growth. All the property managers that I interviewed have a waiting list for their affordable units with hundreds of people in line and a waiting time anywhere between six months to five years. Except for the Category Low Affordable (10-29% affordable units) property, all other properties have a high volume of foot traffic. In Category Medium-Low Affordable (30-49% affordable units) and Category Medium-High Affordable (50-79% affordable units) properties, about 50 percent of the people who visit the property are interested in market-rate units. This rate is only 25 percent for the Category High Affordable (80-99% affordable units)

property because it is known as an income-restricted property in the market and does not offer a large number of market-rate units.

All property managers except for the Category Low Affordable property list their market-rate and affordable units through the same advertising channels. The Category Low Affordable property's manager lists the market-rate units on property's website and posts the affordable units on Craigslist. Managers are not obligated to disclose the presence of affordable units within the property and will only do if asked. Since all properties with the exception of Category Low Affordable property list the affordable rents on their website, some of the prospective tenants ask about lower rents and the property managers explain the income-restrictions at that time. The Category Medium-Low and Medium-High properties' managers also indicated that many people ask about the lower rents, and they realize that they might actually qualify for those units once they find out about the income restrictions. The managers and the visitors of the Category Medium-Low, Medium-High, and High Affordable properties present very similar behavior.

What Determines the Rents for Market-Rate Units?

All the property managers use market surveys, a very common method in the real estate industry, to set the rents for their market-rate units. However, there is a distinct difference in how they conduct the market surveys between the properties in the first three categories and the Category High Affordable property. Category Low, Medium-Low, and Medium-High Affordable properties use both fully market-rate and mixed-income properties as comparables, whereas Category High Affordable only uses mixed-income properties as comparables. Also, the Category Low Affordable property's manager indicated that they would use mostly fully market-rate comparables and only consider the mixed-income comparables that have very similar affordability mix. When asked if they applied any reductions on the market-rate rents solely because of the income mix of the project, all responses were negative and indicated that it really

comes down to what the properties have to offer to their residents. The responses to the question regarding the difference in likelihood of losing security deposit between the income-restricted renter and the market-rate renter received the same answer across the board, with the exception of one manager who refused to respond to the question. All responses indicated that the likelihood of a household losing its security deposit had no correlation with the household's income level. Furthermore, none of the property managers associated any crime or security issues with the affordability mix of the property and indicated that it is all relevant to the overall neighborhood characteristics.

Prospective Tenants' Reaction

All property managers, except for Category High Affordable, indicated that people who drop-in to see the apartments never ask about the income mix of the property. The manager of the Category High Affordable property stated that some people ask about the affordability mix because they want to find out whether they would qualify or not. When asked whether any prospective tenants have lost interest in the property after they found out about the presence of affordable units in the property, the Category Low Affordable property's manager mentioned that it has happened very rarely, maybe once or twice over the past few years. The Category Medium-Low and Medium-High Affordable properties' managers indicated that it happens from time to time and that the prospective tenant just walks out or hangs up the phone once he or she finds out that the property is mixed-income. However, all of the property managers agree that people who specifically ask about the property's income-mix at the outset are those who have had a bad experience in a mixed-income property and a problem with existence of affordable units. With the exception of the Category Low Affordable property, all properties get visitors who are initially interested in market-rate units, but who would like to know more about the income restrictions once they find out about the affordable units. However, the property manager for

Category Low Affordable indicated that this was not the case for their property and their prospective tenants always think they earn too much to qualify for affordable units and never ask about those units.

Conclusion

The findings of the quantitative part of my analysis show that the existence of up to 43 percent affordable units within any property in Sacramento County has no negative impact on the average per square foot rent of market-rate units. However, 43 percent is the tipping point and from there on, every 10 percent increase in the number of affordable units leads to a 4¢ reduction in the per square foot rent of the market-rate units. Although this number seems minimal when multiplied by unit square footages and projected over a year, it can become a sizeable loss in the gross annual rental income of the property.

The findings of the qualitative part of the analysis complement and confirm the findings of the quantitative part. A pattern in responses to majority of the questions is visible. The Category Low Affordable property with 10-29% affordable units is not affected by the presence of affordable units at all and operates and performs just as any of its fully market-rate comparables. Its visitors' behavior is not different from any fully market-rate property. Category Medium-Low and Medium-High Affordable properties with 30-49% and 50-79% affordable units, respectively, present a different picture. Affordable units within these projects form the way the property operates and receive different behavior from visitors. Category High Affordable property with 80-99% affordable units lies in a different field and its operation is very influenced by the existence of the affordable units and is comparable to fully affordable properties.

All property managers responded "no" when asked directly if the renters of the affordable units affect the property in a certain way. In response to another question, however, they indicated that some prospective tenants for market-rate units lose interest in the property once they find out

about the presence of affordable units. This discrepancy shows that renters have a different perception of mixed-income properties than the property managers. Since market-rate rents are highly demand-driven, the loss of interest in market-rate units would cause a reduction in rents. When prospective tenants lose interest in the property solely because of presence of affordable units, the demand for market-rate rents within mixed-income properties decreases, which inevitably translates into lower rents. This finding confirms the results of the quantitative analysis.

Chapter 5

CONCLUSION

The aim of this thesis was to investigate the impact of affordable units on market-rate rents. I used a mixed-methods approach to find out whether the existence and the number of affordable units within a mixed-income property affect the average per square foot rent charged for market-rate units within that property.

Key Findings

In the study, I created a sample of 64 mixed-income and fully market-rate properties in Sacramento County. I then conducted a regression analysis in which the average per square foot rent for market-rate units was the dependent variable and the key explanatory variable was the percentage of affordable units in the property. The control variables were factors related to a property's location, building characteristics, and onsite amenities. Out of this sample of 64, I chose four properties, one in each affordability category, and interviewed managers to find out whether the results of the regression analysis resonated with them and their daily experience in managing mixed-income properties.

The findings of my regression analysis show that the existence of up to 43 percent affordable units within any property in Sacramento County has no negative impact on the average per square foot rent of the market-rate units. Forty-three percent is the tipping point, for from there every 10 percent increase in the number of affordable units leads to a 4¢ reduction in the per square foot rent of the market-rate units. This amount can have either negligible or significant impacts on the gross annual rental income of a property based on the size and number of units. The regression analysis also demonstrated that the existence of affordable units, measured by a dummy variable, had a positive impact on the market-rate rents. In other words, the market-rate units within properties that have affordable units can generate 17¢ more per square foot rent than

market-rate units within properties with no affordable units. This boost in average per square foot rent is an unexpected outcome that, as I explained in Chapter 4, could be due to the small sample size and the fact that many nicer-looking properties in Sacramento County were built at a time when Inclusionary Housing requirements for rental housing were still in place (and therefore include few affordable units). Moreover, about 60 percent of the observations in my sample were in the Low Affordable Category (properties with less than 30 percent affordable units). Properties with low percentages of affordable housing are also properties with higher overall quality in my sample.

The general perception that affordable housing is a negative externality that reduces property values does not hold below a certain threshold because my results suggest that there is no effect or perhaps even a positive effect on the market-rate units within the same property when up to 43 percent of the property is affordable. For every percentage increase over the 43 percent threshold, however, a minimal decline occurs in rents for market-rate units. A strong parameter that sets the market rents is the demand for rental units, so an increase or decrease in rent may be due to a change in demand. In other words, my findings suggest that people do not feel the existence of the affordable units unless about half the units in the property are affordable, but prospective tenants may perceive it mostly when more than half of the property is affordable. This realization may lower demand for (and consequently the price of) market-rate units.

The responses of property managers to the interview questions confirmed the results of my regression analysis. Properties with a small percentage of affordable units are not affected to any extent by presence of affordable units. These properties are managed and advertised in the same manner as any fully market-rate project, and affordable rents are not even listed on the advertising materials for the property. Unless prospective tenants ask specifically, there is no apparent way for them to find out about the existence and the number of affordable units.

Properties with higher percentages of affordable units (30-80%) have a different atmosphere that becomes more obvious as percentages increase. These properties market affordable units together with market-rate units and prospective tenants are more likely to find out about the existence of affordable units. Under the influence of the same perception that affordable units act as a negative externality, many prospective tenants lose interest in the market-rate units, which decreases demand and ultimately rents. The same applies to properties with a high percentage of affordable units because these properties become identified as low-income housing projects and demand for their market-rate units become even more vulnerable to the impact of the affordable units.

Not all mixed-income properties in my sample have affordable units mandated by Inclusionary Housing policies. However, a study of mixed-income properties provides guidance on how Inclusionary Housing policies should be structured to prevent the potential negative impacts of including affordable units in market-rate rental developments. Mixed-income housing is voluntary, and there are a variety of incentives for developers (including but not limited to density bonuses, fast-track permitting, gap subsidies, and tax abatement programs) to build mixed-income housing (Kirk, 2012). These options are different from the mandatory inclusionary housing obligation required for a developer to be permitted to build a project. In mixed-income projects, such incentives offset the negative impact of the affordable units. In the case of Inclusionary Housing, the burden of negative impacts is solely on the developer, especially in rental projects where the developer cannot transfer the burden to the tenant. It is the mandatory nature of Inclusionary Housing that is imposing the unfair cost on developers. Local jurisdictions should acknowledge that such unjust consequences might lead to a less affordable housing market by discouraging new development and reducing the housing production rate.

Recommendations

The State of California is facing one of the largest affordable housing shortages in the country and has put efforts into solving this problem. State law allows local jurisdictions to practice Inclusionary Housing on ownership developments and impose affordable housing fees on rental developments. However, if the state government wants to tackle the affordable housing problem, it should conduct a comprehensive analysis of the effectiveness of its policies.

My first recommendation is that the California Department of Housing and Community Development (HCD) conduct a statewide analysis of the impact of Inclusionary Housing policies on production rate and prices of both ownership and rental properties. Based on the findings of the study, the HCD should set a maximum threshold for Inclusionary Housing that any given jurisdiction can impose. This measure would assure developers entering extremely competitive markets such as San Francisco and Los Angeles that Inclusionary Housing requirements will not go above the set maximum amount between the time that they purchase a piece of land and the time they get the entitlements for their project. It would create a safer environment for developers and mitigate the development-repelling effect of Inclusionary Housing.

San Francisco is a perfect example of an uncertain market that creates an unstable political environment by giving full power to the local governing body over Inclusionary Housing requirements. Recently, for example, San Francisco passed Proposition C, which increases the Inclusionary Housing requirements for developments with 25 or more units and gives the San Francisco Board of Supervisors the authority to alter existing and to impose new affordable housing requirements with no voter approval (City and County of San Francisco, 2016). The City and County of San Francisco's Office of Economic Analysis (2016) found that "policy changes that make market-rate housing projects infeasible raise the value of existing housing by reducing the number of houses on the market at any point in time" in their evaluation of the impacts of

Proposition C. The San Francisco Housing Action Coalition predicts that many of the 1,600 units in the city's pipeline will get hit by this proposition and will not get built (Colen, 2016).

My second recommendation is that local governments incorporate several options into their Inclusionary Housing policy which would compensate for the loss suffered by market-rate developers due to the negative impacts of affordable units. There are no mandatory Inclusionary Housing requirements for rental properties after Inclusionary Housing for rental developments have been ruled out by a California appellate court. Requirements have shifted to mandatory affordable housing fees and voluntary onsite construction of the affordable units in lieu of fees. In other words, it is at developers' discretion to include affordable units within the property or to pay the fees. If jurisdictions intend to maximize the number of units built by the developer through their affordable housing programs, they also need to cooperate with housing advocates and developers to evaluate the impact of Inclusionary Housing policies on stakeholders and form policy in a way that does not put the entire burden on developers. A statewide guaranty is of vital importance, but local jurisdictions should also provide just compensation for the cost of the policies they impose, or it will be impossible for these cities to keep an active development scene that keeps housing supply in balance with existing demand.

There are several options that should be considered. One is that cities offer longer fee deferral programs for projects that are subject to Inclusionary Housing requirements. Currently, the longest deferral period is at the time of first temporary certificate of occupancy or 18 months after building permit issuance, whichever comes first. Developers should have the option to extend these deadlines to when the property is 50% or 75% occupied. This policy can reduce the upfront project cost and create possibility for partial payments of the fee from project's cash flow as units become occupied. Another option would be to grant by-right entitlements to projects that are zoning-compliant and not asking for any variances but building onsite affordable units to

comply with the jurisdiction's Inclusionary Housing requirements. This could potentially reduce the entitlement costs for the developer and initially offset a part of the continuous costs that inclusionary units will impose on the developer and/or the owner. These are only recommendations for adjustments to the existing law; a comprehensive reform of this program would need a sincere collaboration between state and local governments, developers, planners, economists, housing advocates, and the community.

Limitations and Potential for Future Research

My analysis has several limitations that could be addressed with a more in-depth study. First, it was based on a limited sample of 64 observations in Sacramento County. Although there is abundance of data on online rental listings, information regarding affordable units is not readily available. A bigger sample with properties that have various ranges of affordable units would have yielded a much more detailed result. In addition to limitation in data, it was extremely difficult to convince property managers to take part in the study. This is probably because these were in-person interviews that demanded both time and commitment on the part of a manager. Perhaps an anonymous survey would have yielded a higher rate of response.

Although this study has its limitations and its findings cannot be generalized to an area outside of the study area, it suggests the possibility for future larger scale studies. We can look at the impact of Inclusionary Housing on different unit sizes instead of on the average for all units. This will identify which unit types suffer the most from the impact of the inclusionary units and provide guidance to developers on how to avoid larger losses. Another potential line of inquiry is to look at the impact of different levels of affordability on per square foot rent. My analysis included 32 mixed-income observations that included only Very Low-, Low-, and Moderate-Income units. It would be very beneficial to have observations with Extremely-Low Income units, since those are the ones that are believed to be the most significant negative externality. An

understanding of the impact of each level of affordability separately will better inform local governments about their Inclusionary Housing policies and requirements for each income level.

I believe that there is necessity for a statewide analysis of cost effectiveness of Inclusionary Housing policies. To provide valuable information, such an analysis should extend to the major disciplines involved in the housing development sector and generate a comprehensive result. After more than four decades of controversy on this essential land use policy tool, it is time to find out its true impact on affordable housing and housing in general.

APPENDIX A: Informed Consent Form

INFORMED CONSENT

INCLUSIONARY HOUSING AND THE TIPPING POINT:
THE IMPACT OF AFFORDABLE UNITS ON MARKET-RATE UNITS

You are invited to participate in a research study which will involve gathering information regarding the impact of affordable units on the rents for market-rate units within mixed-income properties. My name is Sahar Soltani, and I am a graduate student in the Urban Land Development program at California State University, Sacramento, department of Public Policy and Administration.

Your participation in this project is voluntary. Even after you agree to participate, you may decide to leave the study at any time.

The purpose of this research is to investigate the impact of inclusionary zoning policies on housing markets. If you decide to participate, you will be asked to answer a total of 15 questions regarding your property and your experience in the field. Your participation in this study will last 15-20 minutes. The property and the the property management firm's names as well as your name and affilication with the firm will be kept confidential. Risks associated with this study are not anticipated to be greater than those risks encountered in daily life. If you have any questions about your rights as a participant in a research project please call the Office of Research Affairs, California State University, Sacramento, (916) 278-5674, or email irb@csus.edu.

Your participation in this study indicates that you have read and understand the information provided above.

Signature _____ Date _____

APPENDIX B: Interview Questions

Property #: **Date:**

Interviewee:

Interviewer: Sahar Soltani

My name is Sahar Soltani, and I am a graduate student in the Urban Land Development program at California State University, Sacramento, department of Public Policy and Administration.

You are invited to participate in a research study which will involve gathering information regarding the impact of affordable units on the rents for market-rate units within mixed-income properties. The purpose of this research is to investigate the impact of inclusionary zoning policies on housing markets. If you decide to participate, you will be asked to answer a total of 15 questions regarding your property and your experience in the field. Your participation in this study will last 15-20 minutes and your name and your affiliation will be kept confidential.

Interview Questions

General Questions:

1. Do you have a waiting list for the affordable units in your building? If yes, how many people are on the waiting list? On average, how long a person is on the waiting list before getting in?
2. How many people on average visit the property every month?
3. What percentage of these visitors are interested in the market-rate units?

4. Are you marketing the affordable units together with the market-rate units? Is the annual per unit marketing expense for market-rate units different from affordable units? If yes, by how much?
5. Are you obligated to disclose to the prospective tenants that the property is mixed income? If not obligated, do you do so anyway, or only if the prospective renter asks?

Determining Rents for Market-Rate Units:

1. How do you determine the rents for the market-rate units in the building?
2. In order to determine the fair market rent for your market-rate units, what type of projects do you use as comparable (i.e. entirely market-rate or mixed-income)?
3. In addition to common factors such as building's age and overall condition, construction type, location, and on-site and off-site amenities, do you consider the project's income-mix as a factor in determining the rents for market-rate units?
4. Do you apply an additional discount on the market-rate rents solely because the project is mixed-income? If yes, how do you determine the discount amount? On average, what percentage is this discount if it is applied?
5. Overall, how does the presence of affordable units in the building affect the entire building and the market-rate units?
6. Is there more vandalism, crime, and noise complaints in mixed-income properties compared to fully market-rate properties? Are market rate renters more or less likely to lose their security deposit due to apartment damage?

Visitors' (potential tenants') Behavior:

1. Do visitors ask about building's income mix? If yes, on average, how many out of five/ten?

2. Have you had any potential tenants who lost interest in market-rate units once they found out that the building is mixed-income? If yes, please explain their reaction.
3. Do they ask questions about the percentage of affordable units and/or the level of affordability (Extremely Low, Very Low, Low, and Moderate)? Which income levels are they more concerned about?
4. Do they ask how much the affordable units are? Or what's the income threshold to qualify for those units?

End of Questions

APPENDIX C: Responses to Interview Questions

	Category Low Affordable 10-29% Affordable Units	Category Medium-Low Affordable 30-49% Affordable Units	Category Medium-High Affordable 50-79% Affordable Units	Category High Affordable 80-99% Affordable Units
1	Do you have a waiting list for the affordable units in your building? If yes, how many people are on the waiting list? On average, how long a person is on the waiting list before getting in?			
	Yes, 129 people are on the list. On average it takes 3-5 years for a person on the waiting list to move-in.	There's an interest list. There are less than 25 people on the list. The wait time is usually 6 months.	Closed waiting list. 182 people on the list (all for affordable units)	Yes, only for 4-bedroom units. 462 households as of December 2015.
2	How many people on average visit the property every month?			
	6 people per month	A lot. Thousands of people.	60-90 people a month.	5-7 per day (100-135 per month)
3	What percentage of these visitors are interested in the market-rate units?			
	Almost 100% are interested in market-rate units.	50% interested in market-rate units.	50% interested in market-rate units.	25% interested in market-rate units.
4	Are you marketing the affordable units together with the market-rate units? Is the annual per unit marketing expense for market-rate units different from affordable units? If yes, by how much?			
	Marketed separately. Affordable units get advertised on Craigslist and market-rate units are listed on property's website. Marketing costs are unknown.	All units are marketed at the same time and in the same location.	Yes, the same marketing expense.	All units are listed on property's website. Rent ranges show from lowest (affordable) to highest (market-rate).
5	Are you obligated to disclose to the prospective tenants that the property is mixed income? If not obligated, do you do so anyway, or only if the prospective renter asks?			
	Not obligated and would not disclose unless askes (which doesn't happen very often).	Not obligated.	Not obligated but they do anyway.	Since affordable rents are listed on the website, all visitors ask about lower rents and are informed about the income levels.

1	How do you determine the rents for the market-rate units in the building?			
	Maximize rents based on comp rents.	Market surveys.	Market surveys.	Use comparables.
2	In order to determine the fair market rent for your market-rate units, what type of projects do you use as comparable (i.e. entirely market-rate or mixed-income)?			
	Both fully market-rate and mixed-income projects with similar income mix.	Fully market-rate properties in the area.	Both market-rate and mixed-income.	Mixed-income properties.
3	In addition to common factors such as building's age and overall condition, construction type, location, and on-site and off-site amenities, do you consider the project's income-mix as a factor in determining the rents for market-rate units?			
	Location, amenities, building age.	No. One has nothing to do with the other. Completely different process.	No, income-mix does not affect rents.	It depends on the level of amenities in the property. In general, fully market-rate projects are nicer.
4	Do you apply an additional discount on the market-rate rents solely because the project is mixed-income? If yes, how do you determine the discount amount? On average, what percentage is this discount if it is applied?			
	No. Only use comparable properties to set rents.	No. One has nothing to do with the other.	No reduction on market-rate units.	No, it comes that to what one property can offer in comparison to the other. They will go as high as their comps.
5	Overall, how does the existence of affordable units in the building affect the entire building and the market-rate units?			
	Not related. It's mostly dependent on neighborhood characteristics.	In no way. It's just the characteristics of the neighborhood.	No effect on this community.	Just neighborhood characteristics. Not different between market-rate and mixed-income properties.
6	Is there more vandalism, crime, and noise complaints in mixed-income properties compared to fully market-rate properties? Are market rate renters more or less likely to lose their security deposit due to apartment damage?			
	Same deposit distribution	Refused to answer the question.	Affordable unit renters leave their apartments different from market-rate renters and sometimes there are more damages.	It has nothing to do with the income level and is solely dependent on the characteristics of the renter. Have seen both affordable and market-rate units in very bad or very good conditions.

1	Do visitors ask about building's income mix? If yes, on average, how many out of five/ten?			
	No, they don't.	Never.	No, people are not aware of affordable units.	Yes, either they want to know or they ask because they think they'll qualify.
2	Have you had any potential tenants who lost interest in market-rate units once they found out that the building is mixed-income? If yes, please explain their reaction.			
	This has happened, but very rarely. People who ask about it, have a problem with it.	Yes, sometimes they hang up or walk out.	No, has not happened.	Yes, one visitor just walked out when found out that there are low-income units in the community. Some think that it has a negative vibe.
3	Do they ask questions about the percentage of affordable units and/or the level of affordability (Extremely Low, Very Low, Low, and Moderate)? Which income levels are they more concerned about?			
	They don't know the different affordability levels.	They are unaware of what low-income means.	Yes, they do about the very low-income units.	Yes, and they refer to it as low-income and not affordable. They usually don't know that there are different income levels.
4	Do they ask how much the affordable units are? Or what's the income threshold to qualify for those units?			
	Never happened. People who are interested in market-rate units make too much money and are not qualified.	Always interested in finding out.	Yes, they ask about the rents for affordable (call to ask about income levels).	Yes, because affordable rents are listed on website.

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