THE CONTRIBUTING FACTORS TO ACCESSORY DWELLING UNIT (ADU) APPROVALS IN THE LOS ANGELES-LONG BEACH-ANAHEIM METRO AREA

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THESIS: THE CONTRIBUTING FACTORS TO ACCESSORY DWELLING UNIT (ADU) APPROVALS IN THE LOS ANGELES-LONG BEACH-ANAHEIM METRO AREA

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ABSTRACT

California's housing crisis has prompted legislation requiring cities to increase housing supply. Contributing factors include population growth, high living costs, rental shortages, and limited land. These limitations, combined with insufficient multifamily development, have intensified housing demand. Accessory Dwelling Units (ADU) have been promoted as a solution to the housing crisis, yet the factors that promote their adoption in cities remain unclear. This study investigates ADU approvals across 122 cities in the Los Angeles-Long Beach-Anaheim metropolitan statistical area (MSA). Using a quantitative approach, this research applies an Ordinary Least Squares (OLS) regression model to examine how city-level characteristics influence standardized ADU approvals. The regression analysis finds four of the twelve independent variables statistically significant. The percentage of the white population and the presence of ADU amnesty programs produced a significant positive relationship. In contrast, the proportion of ADU applications approved for rental purposes and median family income produced a significant negative relationship. The mixed findings provided the basis for recommendations aimed at enhancing ADU implementation while informing best practices.

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CHAPTER 1

INTRODUCTION

California's housing crisis has prompted legislation mandating cities to contribute to the supply of housing for all income levels. Rising population, cost of living, shortage of rental units, and limited land are some of the common issues cited as contributing to the rising housing crisis. In addition, the dominance of single-family zoning in the United States, which is nearly double that of the European Union, has promoted policy reforms aimed at unlocking the housing potential in single-family residential areas (Infranca, 2023). Menendian et al (2024) conducted a multi-year analysis of California's zoning and found that single-family zoning averages 77.82% of residential land across 519 jurisdictions, thus limiting the opportunities for denser and more affordable housing. Restrictive zoning and limited land availability highlight how multi-family housing developments are not enough to meet the current housing demand.

The housing affordability crisis is not limited to California and is present throughout the nation. Housing affordability is determined by the percentage of household income spent on housing. The California Department of Housing and Community Development considers a household cost-burdened if housing expenses exceed 30% of income (n.d.). Those who spend 50% or more of their income on housing are classified as severely cost-burdened. In 2021, over 40 million American households were cost-burdened, spending 30% of their income on housing, and an additional half a million Americans faced homelessness (Deng, 2024). However, renters are more prone to facing housing insecurity because of rising rents that are affordable to a variety of incomes.

According to data from the American Community Survey, over 21 million renter households, nearly half, spend more than thirty percent of their income on housing (United States

Census Bureau, 2024). The economic downturn is identified as a precursor to the housing crisis. Between 2008 and 2014, the number of severely cost-burdened homeowners increased from 2.1 million to 11.4 million. Most of this issue stemmed from foreclosures that forced homeowners into the rental market, resulting in a competitive rental market and a shortage of affordable housing (Trambley, 2021). In the 75 largest metropolitan areas in the United States, there is an overall shortage of about 4.4 million affordable housing units for households earning below 60% of the area median income (McClure and Schwartz, 2025).

Accessory Dwelling Units (ADUs) have been, through recent state policies, promoted as an infill solution to the housing crisis. The American Planning Association defines ADUs as independent residential spaces located on the same property as a primary residence (2022). These units can either be attached by converting existing space into a livable unit or detached, situated in the backyard, and sometimes have a separate address. In recent years, California has promoted ADUs to address the state's housing crisis by reducing regulatory barriers. Since 2016, the State Legislature has passed reforms that increase density, affordability, and permit efficiency. The legislature has enacted ministerial approval, the elimination of minimum lot size requirements, by-right standards, and support of ADUs on multifamily properties. Currently, California produces 80,000 homes annually, while 180,000 are needed (Tao et al., 2025). ADUs help address the housing crisis because they are smaller and less expensive units within existing neighborhoods that do not require extensive infrastructure improvements, and have been positioned as an appeal to populations that have been priced out of housing, such as retail or service workers (Ball & Lawler, 2020). Additionally, the American Planning Association emphasizes that ADUs enhance housing choices by expanding the variety of options, which allows seniors to remain close to their families and promotes efficient use of the existing housing stock.

This research aims to identify the city-level characteristics that may contribute ADU approvals. Marantz et al (2023) highlight the need for a comprehensive study analyzing ADUs statewide, so this research may help identify deficiencies or inform best practices, as some cities may encourage certain types of housing developments while preventing others. Although ADU law has become increasingly progressive, some cities may have internal settings that limit their production as an effective way to meet housing needs (Ramsey-Musolf, 2018). Previous research has primarily focused on property-level characteristics or state and local policy frameworks (Kim et al., 2023). To fill this research gap, this research explores how city-level characteristics, such as demographics, housing production measures, and local planning settings, contribute to the variation in ADU approvals, employing Ordinary Least Squares (OLS) regression as the research method. This study focuses on the relationship between ADU approvals and city characteristics in the Los Angeles-Long Beach-Anaheim metropolitan statistical area (MSA). The findings can support targeted strategies to improve ADU implementation and help cities align more effectively with state housing goals.

This study is guided by the central research question: What city-level characteristics influence ADU approvals? To address this question, several sub-research questions are explored through the statistical model:

1. What role do local ADU policies play in influencing ADU approvals?
2. How do socioeconomic and demographic characteristics influence ADU approval rates?
3. Does the ADU approval rate differ based on a city's urban setting?

As much previous research pointed out (Maaoui, 2018; Kim et al., 2021), it is reasonable to hypothesize that ADU approval rates are influenced by the attributes of cities, such as socioeconomic and demographic characteristics. The attributes will sway local governments' ADU policies, either supportive measures that may reduce barriers to development or the

enforcement of NIMBYism (not in my backyard) against ADU development. Finally, ADU approval rates are expected to vary significantly by a city's urban designation, with urban areas expected to have higher approval rates due to factors such as greater housing demand. This thesis comprehensively explores and tests these hypotheses.

This thesis is organized into six chapters. Following the introduction, the literature review outlines existing relationships between ADUs and significant factors. The methodology section outlines how the research was completed. The model's output is then outlined in the results section, followed by an interpretation of the results in the discussions section. The conclusion then addresses the research's limitations and provides recommendations for cities to follow.

CHAPTER 2

LITERATURE REVIEW

This study aims to identify the factors influencing ADU approvals in cities in the Los Angeles-Long Beach-Anaheim metropolitan statistical area (MSA). ADUs have been promoted as a solution to California's housing crisis, offering a way to increase housing supply in high-cost, single-family neighborhoods through discreet, small-scale units often hidden from street view. These units are generally more affordable than traditional homes and support multigenerational living, allowing family members to age in place (Marantz et al, 2023). The state has implemented several policies to encourage both ADU development and overall affordable housing production. The literature review aims to ground the purpose of the study by demonstrating how ADU development, stemming from approvals, differs across a variety of factors at different levels of analysis. Furthermore, the literature review will explore how ADUs contribute to the affordable housing supply, while also identifying how the characteristics of cities have led to varying outcomes and conditions for ADU development.

Introduction to ADUs

The American Planning Association (2022) defines ADUs as independent residential units located on the same lot as a single-family home. ADUs can differ from converted spaces within the main home, like garages, basements, or attics. ADUs can also be detached or standalone structures built in the backyard. ADUs differ from other housing types in several ways. They are smaller in scale, often hidden from street view, and added into existing neighborhoods with minimal visual disruption. Compared to other housing developments or options, ADUs do not require extensive infrastructure improvements, which makes them a more

cost- and time-effective way to increase housing (Volker et al., 2022). Therefore, ADUs offer a flexible and appealing option in areas facing housing shortages.

ADUs for Increasing Residential Density

Added density is associated with changes to the character of neighborhoods by adding congestion, noise, limiting parking, and more prevalent causing gentrification. However, the impact of upzonings on residential areas differs based on the existing demographics. For example, a study of New York City analyzed the impact of upzoning and neighborhood demographic change at the census tract level (Davis, 2021). The study found that the relationship between upzoning and the odds of a census tract becoming whiter was positively and significantly associated and, therefore, may contribute to the area becoming gentrified. In relation to ADUs, increasing density through them may benefit certain demographics or have the possibility of changing the character of the neighborhood.

Pfeiffer (2015) emphasizes that policies to promote secondary units must be written in a way that appeals to the needs or desires of the community relative to how they can benefit from them, depending on their shared needs. For example, he classifies suburbs in Pheonix as “new identity” (those typically with moderate income, faster growing, and family-oriented), “preserve identity” (those with high income and mainly elderly), and “threatened identity” (those with low-to-moderate income and increasing rates) to frame how ADUs can appeal to each type of community. Similarly, cities may as a whole have distinctive motives. One city whose motives or needs are comparable to those of a "new identity" community may frame their policies differently than those with characteristics comparable to a "preserve identity" or "threatened identity" community, and vice versa. So, planners can leverage or structure the ability of ADU policy to either meet density needs or accommodate multigenerational or aging needs. Moreover,

emphasizing the goal of planning to create solutions that are responsive to the needs of the population, making ADU development a tool to meet those needs.

NIMBYism Opposed to ADUs

One of the most common premises against affordable housing development in residential neighborhoods is the fear of declining property values or alteration of neighborhood character. An analysis of the costs and benefits of affordable housing development revealed variations in outcomes based on the demographic differences of neighborhoods. Diamond and McQuade (2019) studied the impacts of multifamily housing developments funded by the Low-Income Housing Tax Credit (LIHTC) and found that LIHTC development in areas where the median income was below $26,000 resulted in an increase in property values by approximately 6.5 percent. However, in neighborhoods where the median income exceeds $54,000, LIHTC development is associated with a decline in housing prices of 2.5 percent. This decline was observed only in high-income areas where the minority population is less than 50 percent.

The study's findings similarly depict the difference in outcomes that may be associated with ADUs, or as declining property values in high-income areas, and increasing them in low-income areas. However, other studies find no relationship between property values and ADUs. Gnagey et al. (2023) examined the impact of legalizing ADU rentals on property values in Ogden, Utah, and found no significant change in property values in areas with recently legalized ADUs compared to those unaffected (Gnagey et al., 2023). These findings help address the common concern that ADUs will decrease property values.

A study was conducted on a series of workshops and discussions with leaders of neighborhood councils in Los Angeles. The findings revealed that their primary concerns regarding ADUs included issues such as parking shortages, overcrowding, potential crime and

disorder, inadequate infrastructure, an increase in renters and low-income residents, safety, declining property values, and changes to the character of the neighborhood (Mukhija et al., 2014). Brinig and Garrett (2013) highlight opposition to ADUs in suburban jurisdictions, often from concerns about increased density and the potential increase of undocumented migrants or lower-income residents. In addition, other literature supports how some cities may have been successful in blocking affordable housing production or density. Monkkonen (2019) highlights that density is restricted in "stable" neighborhoods with land use controls used as a way to uphold racial segregation and also prevent low-income households from living in many neighborhoods. Therefore, legislation supporting ADUs breaks patterns of segregation enabled by land uses and provides housing opportunities for people of different income levels.

ADUs and the Informal Housing Market

Unpermitted ADUs are unauthorized converted garages or accessory structures that lack permits for compliance with Health and Safety Code standards or other regulations. The costs or difficulties related to legalizing these units cause their addition into the informal housing market and place occupants at risk. The prevalence of the informal housing market highlights how policies aimed at formalizing unpermitted ADUs could benefit homeowners and rental housing goals. For example, Jo et al. (2024) analyzed ADU permits from 2016 to 2020 in San Jose and found that 78.2% of detached ADUs were unpermitted. The study's findings helped explain the difference between U.S. Census-reported housing units and city-reported dwelling units during the study period, with unpermitted detached ADUs accounting for much of the gap. The study highlights how cities can leverage the creation of progressive ADU policies to meet state housing goals.

The potential of informal housing demonstrates how policies like ADU amnesty

programs may help cities improve their overall ADU approval rates while ensuring this type of housing is equitable. Informal housing, commonly used to meet the needs of lower-income families, tends to be located on the outer edges of metropolitan areas (Wegmann & Mawhorter, 2017). The prevalence of informal housing stresses how planners and policymakers may use unpermitted housing to meet state housing goals while also improving living conditions for residents in unpermitted units. Moreover, the informal housing market allows planners to address interconnected housing issues.

Between 1990 and 2010, informal housing units were added at a rate of 0.4% of the existing housing stock per year in California cities, while permitted housing grew at a rate of 1.3% annually (Wegmann & Mawhorter, 2017). This highlights how focusing on policies that formalize unpermitted ADUs can help jurisdictions meet their affordable housing requirements necessary to address informal housing, especially in areas with restrictive building regulations or high affordable housing demand. Informal housing has been a significant source of housing construction, particularly in denser cities where obtaining permits was more difficult.

When examining demographic characteristics, the study also found that unpermitted ADUs were more prevalent in neighborhoods with lower property values, lower populations of White households, and higher density. These findings suggest that unpermitted structures could allow cities to reduce barriers to ADU development. In assessing state-mandated progress toward affordable housing, unpermitted ADUs may lead to an undercount. For example, in San Jose, it was estimated that if unpermitted units were formally permitted, the city's progress toward meeting state housing goals would have been 15% higher.

California ADU Policies

Policymakers have prioritized legislation to address the housing shortage that increases residential densities through upzoning. Upzoning either adjusts zoning restrictions to allow higher density or increases the allowable floor area ratios or lot coverages. Senate Bill 1211 is an example of this type of recent legislation, allowing up to eight detached ADUs on lots with existing multifamily dwellings. Previously, only two detached ADUs were permitted (California Government Code § 66323, n.d.). This new legislation has the potential to significantly increase density in residential neighborhoods.

Between 2016 and 2023, the California State Assembly enacted 17 bills aimed at increasing density, affordability, and flexibility for ADU development statewide. Notable policies include SB 1069 and AB 2299 (2016), which require ministerial approval of ADUs; AB 68 and AB 881 (2019), which eliminate minimum lot size requirements and establish limits on how restrictive local maximum size requirements can be; and AB 976 (2023), which removes owner-occupancy requirements (Wielga, 2025). More recently, SB 1211 (2025) allows for an increased number of ADUs on properties zoned for multifamily housing (California Government Code §66323), while AB 1332 (2024) mandates that all jurisdictions create a pre-approved ADU design plan program by January 1, 2025 (California Government Code §65852.27).

The Legislature emphasizes that meeting California's housing needs for all income levels requires collaboration between the government and the private sector. Local governments ensure there is enough land suitable for developers to initiate projects. Moreover, local jurisdictions must contribute to the state's housing goals and are held accountable with their housing elements reviewed by the state's Department of Housing and Community Development (HCD). Since 1960, every city has been required to develop a housing element that outlines anticipated housing needs and includes goals, policies, programs, objectives, and resources aimed at facilitating

housing development. The state began implementing its own model for housing projections using the Regional Housing Needs Assessment (RHNA) model, in which the state projects housing growth needs to each Council of Governments (COG), and then the COG distributes housing requirements to each of its member jurisdictions. Part of the RHNA process that must be included in each housing element is an inventory of land suitable for residential development sufficient to meet the jurisdiction's share of the regional housing need. Jurisdictions may fulfill these requirements by methods such as rezoning for higher density or identifying sites for ADUs.

Since 2003, cities have been allowed to count potential ADUs towards their low-income housing requirements. However, the assumption that ADUs are being used to meet the RHNA needs for affordable housing is questionable. A study by Ramesey-Musolf (2018) highlights how the lack of zoning standards or other regulations limits the use of ADUs as affordable housing. Specifically, cities do not enforce ADUs as being affordable to low-income households. Ramsey-Musolf surveyed 57 low-, moderate-, and high-income cities and found that while many cities included potential ADUs in their low-income housing assessments, none had requirements that would make them affordable long-term, highlighting the need for policies to incentivize affordability.

Overall, research on the impact of government policies on housing production is limited. However, some literature suggests that state policies have less effect on affordable housing or on alleviating housing costs when compared to local policies. Freeman and Schuetz (2017) highlight how state policies like the RHNA process may have less impact on affordable housing production being there is a lack of consistent data to assess the effectiveness of government policies. For example, the RHNA process only requires cities to zone for units that are affordable to different income levels, yet does not require or mandate that the units are actually built.

Unless California updates its regulations to require that ADUs occupied by low-income

households be counted as part of the state's affordable housing inventory, it remains uncertain whether ADUs will fulfill their intended role in addressing low-income housing needs as reflected in housing element plans.

Factors Influencing ADU Development

Freeman and Schuetz (2017) suggest that local policies may have a greater influence on ADU development than state-led policies. For example, a study by Kim et al. (2023) examined ADU development in Los Angeles before and after the adoption of an ADU ordinance. The study prior to the ordinance ADU development was concentrated in areas with properties that met specific criteria. However, after the ordinance, ADU development became more diversified and prevalent in more neighborhoods with varying property types. Therefore, the ordinance's success in diversifying ADUs suggests local policies can improve ADU development beyond compliance with state law.

The development of ADUs varies across different jurisdictions due to zoning regulations, geographic settings, and population density. Cities aiming to expand their housing supply with ADUs to meet state objectives can examine how ADU development differs across these jurisdictions to determine the conditions that promote ADU development. Anacker (2024) finds that jurisdictions permitting mobile homes differ significantly from those that do not across a range of demographic and housing variables, including higher proportions of Hispanic/Latino residents and larger households, suggesting these communities may influence regulatory change.

Recent studies have revealed that the development patterns of ADUs can be affected by the characteristics of the parcels, the existing homes in the area, or even demographic profiles. For example, a study conducted for the Southern California Association of Governments (SCAG) analyzed the potential for ADU development at both the regional and local levels,

taking into account the eligibility of parcels for building detached ADUs. This study examined ADU development patterns in Los Angeles before and after the implementation of an ADU ordinance. The findings indicate that ADUs are more likely to be developed in areas with lower population density and more homogeneous land use patterns, particularly in primarily single-family residential neighborhoods (Kim et al., 2021). Additionally, other research supports the idea that accessory dwelling unit (ADU) development patterns tend to vary primarily in uniform urban environments. For instance, a study examining the location characteristics of secondary and non-secondary units in the East Bay found that secondary units were typically situated in areas that are less walkable, have lower crime rates, and are less likely to be near freeways compared to non-secondary units (Wegmann & Chapple, 2012). This supports the conclusion that secondary units are more common in lower-density neighborhoods.

Another study by Magda Maaoui (2018) analyzes household factors that contributed to ADU development in unincorporated areas of King County in Seattle. Maaoui's study challenges the notion that ADU legislation, primarily assumed to benefit suburban, middle-class, and white households, may help minority homeowners aiming to benefit from the transformation of their residences. Maaoui highlights how unincorporated areas generally have lower density, are fragmented, and may have segmented land. However, development in these areas can offer insights into the development patterns of the general metropolitan area. For example, Maaoui finds that in terms of ADU permitting, black and Hispanic households have a positive relationship (Maaoui, 2018). This suggests that ADU development in unincorporated areas may help understand how housing policy can support more equitable access to housing opportunities.

CHAPTER 3

METHODOLOGY

Study Context

This study investigates ADU approvals across cities in the Los Angeles-Long Beach-Anaheim metropolitan statistical area (MSA). The MSA primarily consists of Los Angeles and Orange Counties in Southern California. As of 2024, Los Angeles County, the most populous county in the state, has nearly 10 million residents. San Diego County follows with 3.3 million residents, and Orange County with 3.2 million residents. These counties are part of the larger

Southern California metropolitan region, which faces significant challenges related to housing affordability along with racial and economic diversity.

The Southern California region, represented by the Southern California Association of Governments, includes six counties, including Los Angeles and Orange. This region has some of the highest housing costs in the United States, a severe shortage of affordable housing, and is expected to accommodate over one million new residents from 2020 to 2030 (Garde & Song, 2022). Los Angeles produced the most ADUs, with HCD's Annual Progress Report (APR) data showing 10,741 ADU applications approved between 2021 and 2023. Additionally, with limited available land, the demand for infill housing solutions, such as ADUs, has increased.

In terms of demographics, Los Angeles County is comprised of 49% Hispanic or Latino, 26% white, 14% Asian, and 8% Black residents (Los Angeles County Chief Executive Office, n.d.). In Orange County, the demographics are 34% Hispanic or Latino, 37% white, 4% Asian, and 2% Black (United States Census Bureau, 2024). The unit of analysis is the individual local jurisdiction, comprised of a sample of 122 cities within these counties. This area is suitable for research due to its large and diverse population, geographic variation, and significant need for housing.

Research Method

This research employs a quantitative method. Quantifying the variety of features of the cities, this research constructs an ordinary least squares (OLS) linear regression model that tests the features influencing the number of ADUs approved in the cities. The OLS model can identify the factors contributing to ADU development in cities in the study area. The study focuses on city-level factors that may relate to ADU approvals, as many relevant factors related to housing production in California operate at the city level. As recent state legislation has increasingly

placed responsibility for addressing the housing crisis on local jurisdictions, understanding how city-specific policies and characteristics are linked to ADU development will help fill a critical gap in the research on local governance and housing production.

Dependent Variable

The dependent variable is the normalized ADU permit counts. In other words, the ADU approval for each city was normalized by dividing it by the city's count of single-family detached units. Since ADUs are primarily built in single-family properties, I decided to normalize the cities' ADU permits by single-family housing units. The source of the ADU applications is HCD's APR, which compiles development data for each jurisdiction, and several attributes, such as the unit category, the approval status, and the intended income category, accompany the data entry for each property. The APR data from 2021 to 2023 were collected. The data lists every housing development project approved in the state. Thus, I filtered only to select ADU as the unit category.

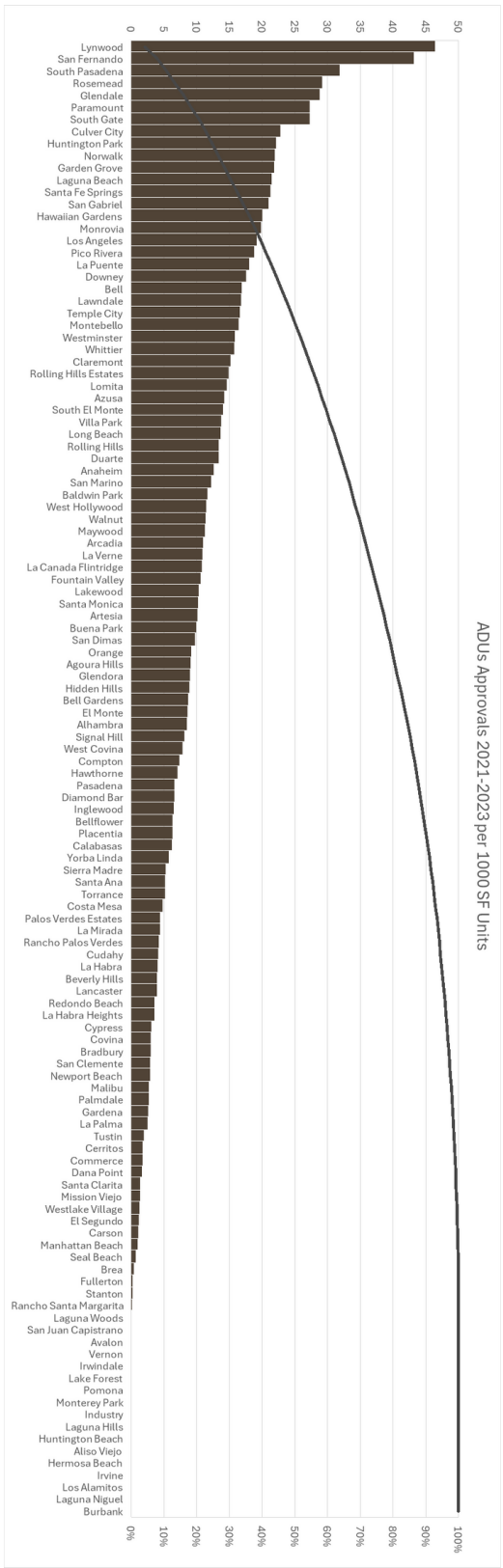

Figure 1 Distribution of ADU Approvals by City

A total of 23,388 approved ADU applications were found during the study period. The identified ADU counts were aggregated by city. On average, 192 ADUs were approved per city between 2021 and 2023. The cities with the highest number of ADU approvals were Los Angeles, Long Beach, and Glendale, with 10,741, 998, and 736, respectively. Conversely, the cities with the fewest ADU approvals included Bradbury, Rancho Santa Margarita, Laguna Woods, and Westlake Village, with under 5 ADUs approved during the study period. Figure 1 illustrates the distribution of ADU approvals by city, standardized per 1,000 single-family housing units. This shows significant variation among the cities, with some approving as few as 0 ADUs per 1,000 housing units, while others approved more than 45 ADUs per 1,000 housing units during the study period.

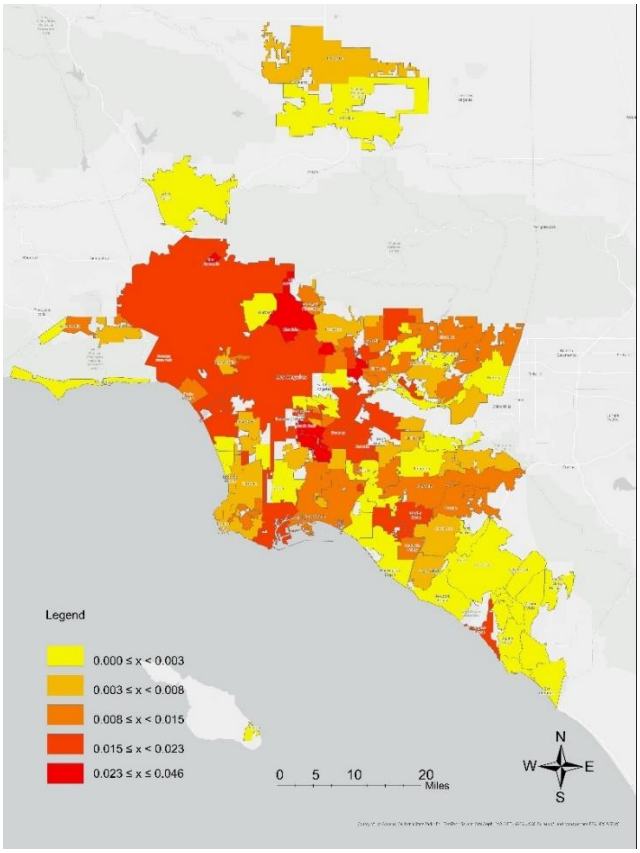

Figure 2: ADU Applications 2021-2023 per Detached Single-Family Housing Unit

The dependent variable in the model is the logged number of ADU applications per the number of detached housing units. Since the resulting normalized ADU approvals were far off from a normal distribution, they were log-treated. Since the dependent variable is a continuous numeric value, this research employed the OLS modeling approach. Figure 2 depicts a map of ADU applications approved by each city, with the darker shades indicating higher approval numbers.

Independent Variables

Table 1 represents the twelve variables used to identify significant factors influencing ADU approvals at the jurisdiction level. These independent variables can be categorized into socioeconomic or demographic indicators, urban settings, RHNA performance measures, and the presence of specific ADU programs in the city. A similar study analyzes city-level characteristics to examine whether there is an association between zoning and factors linked to exclusion, including income levels and age demographics, particularly regarding elderly and White populations (Monkkonen et al., 2023).

Table 1: List of Independent Variables

Category	Variable	Source	Description
Socioeconomic and demographic characteristics	Fam_Inc	Census Bureau 2022 ACS 5-year estimates	Median family income
	Dens	Census Bureau 2022 ACS 5-year estimates	Population density (population/acres)
	White	Census Bureau 2022 ACS 5-year estimates	Percent of the White population
	Rent	Census Bureau 2022 ACS 5-year estimates	Median Rent
Urban setting	LA_OC		City is within Los Angeles or Orange County
	Prime_Sub		Prime and inner suburban cities
RHNA performance measures	VLI_LI_com	5th Cycle RHNA Progress Report	The percentage summed of Very Low Income and Low-Income units completed during the 5th cycle RHNA
	AMI_MI_com	5th Cycle RHNA Progress Report	Percentage summed of Moderate Income and Above Moderate-Income units completed during the 5th cycle RHNA
	RHNA6_comp	5th Cycle RHNA Progress Report	6th cycle RHNA compliance as of the deadline
	ADU_rent	5th Cycle RHNA Progress Report	Percent of ADU applications approved in 2021-2023 planned for renters' use
ADU policy	Pre_ADU	City Websites	City offers pre-approved ADU plans
	Amn_ADU	City Websites	City has an ADU amnesty program or discusses legalization on the City website

The OLS model included 12 independent variables classified into four categories: socioeconomic and demographic characteristics, urban setting, RHNA performance measures, and ADU policy. The variables, Fam_Inc, Dens, White, and Rent, are drawn from the 2022

American Community Survey 5-year estimates and are included based on prior literature examining the socioeconomic and demographic factors that influence housing, particularly around ADU approval and implementation. The Fam_Inc variable is the median family income and was included, given the state's emphasis on ADUs as an affordability tool. Median income provides insight into the economic need that may motivate jurisdictions to approve or streamline their development. Dens refers to population density, or population per acre, and was included based on existing research suggesting higher-density areas are more open to infill housing. White is the jurisdiction's percentage of white population and was included to assess whether racial composition influences ADU approval, building on Maaoui's (2018) finding that ADU development may be positively associated with minority households in lower-density, unincorporated areas. Rent is the jurisdiction's median rent and may identify whether higher housing costs are related to ADU approvals in response to affordability challenges.

RHNA performance measures were drawn from the 5th Cycle RHNA Progress Reports compiled by HCD to assess whether ADU approvals correlate with local performance on state-mandated housing targets. ADU_rent captures the proportion of ADUs intended for rental use, assessing whether ADUs contribute to broader affordability goals or serve alternative purposes such as owner-occupancy. The variable VLI_LI_com represents the percentage of Very Low- and Low-Income units completed during the 5th cycle, indicating each jurisdiction's progress in meeting affordable housing obligations. In contrast, AMI_MI_com reflects the percentage summed of Moderate- and Above Moderate-Income units completed during the same period, providing context on whether housing production is skewed toward higher-income categories. The variable RHNA6_comp is a binary nominal form that indicates compliance with the sixth cycle RHNA as of the reporting deadline. This variable was also included to examine whether current planning efforts align with ADU development. Cities with compliant housing elements

were coded as 1, while those without compliant housing elements were coded as 0.

To assess the impact of local policies on ADU approvals, two variables were created to capture whether cities offer pre-approved ADU plans or ADU amnesty programs. These policies were identified by reviewing official city websites, focusing on planning department pages, and using search terms such as "ADU" or "pre-approved plans" via city homepage search engines. Cities offering pre-approved plans were coded as 1, and those without were coded as 0. Pre_ADU identifies cities offering pre-approved ADU plans. Pre-approved ADU plans are ADU architectural plans that already comply with a city's municipal code and help streamline the ADU entitlement process by minimizing the time needed to review plans. They may also reveal how committed a city is to simplifying the processes related to residential development. Thus, the variable was included to assess whether local policies can help improve ADU processing. Figure 2 illustrates Pasadena's pre-approved ADU Standard Plans Program and the type of information used to determine which cities qualify under this category.

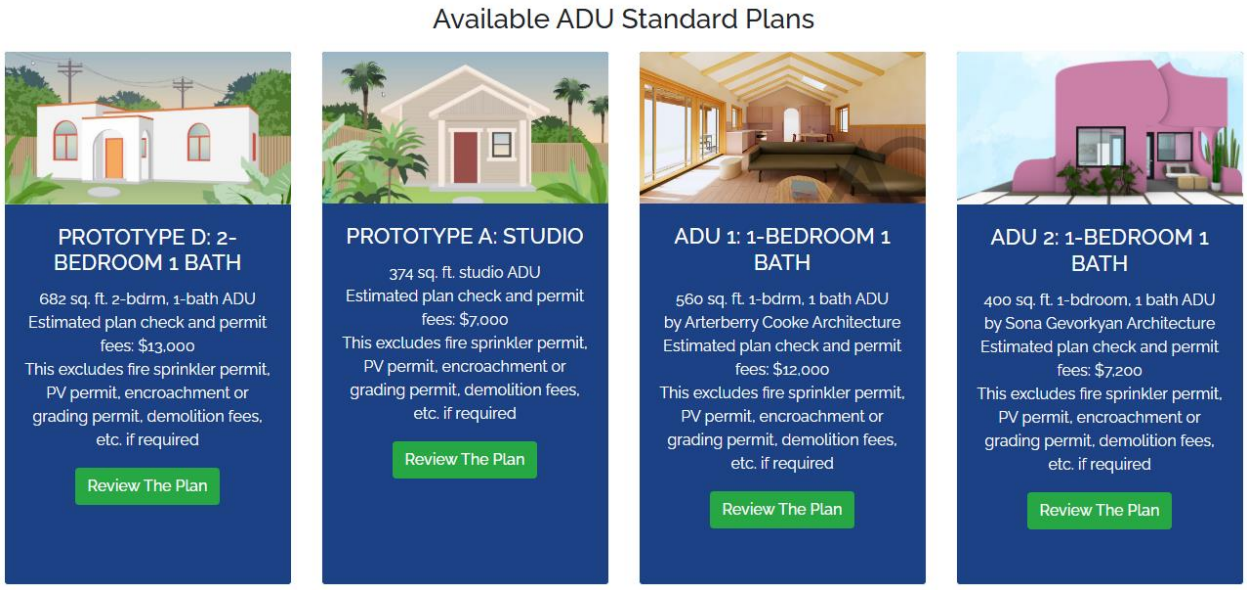

Figure 3: City of Pasadena's ADU Standard Plans Program featured on its official website.

Source: https://www.cityofpasadena.net/planning/planning-division/community-planning/accessory-dwelling-units/adu-standard-plans-program/

The variable Amn_ADU identifies cities that have programs allowing homeowners to legalize unpermitted accessory dwelling units without facing severe penalties. These programs enable homeowners to bring their unpermitted units up to code. Additionally, this variable highlights cities that offer steps or information on legalizing unpermitted units, even if they do not explicitly label this assistance as an amnesty program. Some cities provide guidance for legalizing unpermitted units without using the term "amnesty." Figure 3 demonstrates the ADU Amnesty Program of South Pasadena as displayed on its official website. Including this variable helped assess whether supportive local policies, such as amnesty programs or informational resources for unpermitted units, lead to higher approval rates for ADUs.

Figure 4: City of South Pasadena's ADU Amnesty Program featured on its official website.

Source: https://www.southpasadenaca.gov/files/assets/public/v/1/community-development/documents/adu-amnesty-program-flyer.pdf

The urban characteristics of the cities helped assess whether factors like proximity to central areas influence the development of ADUs. The urban setting variables were included in the model to identify the spatial patterns of ADU approvals. It is reasonable to hypothesize that ADU approvals vary by county (urban vs. suburban setting) and by the type of city (core vs. suburban cities). To test the hypothesis, I included two variables: LA_OC and Prime_Sub. The LA_OC variable indicates the county to which each city belongs. The variable is in a binary dummy form. I coded 1 for cities in Los Angeles County and 0 for the cities in Orange County. The Prime_Sub variable refers to the geographical characteristic of the cities. Like the LA-OC variable, it was coded with 1 (primary cities and inner suburban cities) and 0 (otherwise). I identified the core cities defined by the U.S. Census, including Los Angeles, Long Beach, Anaheim, Glendale, Santa Ana, and Irvine. Inner suburban cities were defined as cities that shared a boundary with the core cities. Using geographical information systems (GIS) software,

ArcGIS Pro, I identified the inner suburban cities using their geographical relationship with the core cities.

CHAPTER 4

RESULTS AND FINDINGS

Table 2 represents the descriptive statistics of the variables to help identify whether certain variables differ significantly across cities. Specifically, the standard deviations are a measure of dispersion between a set of values by identifying the distance from the value to the mean. The standard deviations for a few RHNA performance measures of housing production affordable to each income level are relatively high, indicating notable differences in housing production during the 5th cycle, suggesting housing development during the 5th cycle is trivial. The cities only meet 17.62 and 4.73 percent of moderate and above moderate-income housing and very low-income and low-income housing, respectively. The much higher mean value of AMI_MI_com (17.62) than that of VLI_LI_com (4.73) suggests that the cities are more favorable to moderate and above moderate-income housing projects than very low-income and low-income housing. However, the larger standard deviation (94.30) of AMI_MI_com than VLI_LI_com (16.64) also implies the wide variations of moderate and above moderate-income housing projects. Cities offering pre-approved ADU plans also vary greatly when comparing the standard deviation (.45) to the mean (.27), suggesting some cities may be more proactive or have more resources than others to help streamline efficient ADU processes.

Table 2: Descriptive Statistics

Variables	Min.	Max.	Mean	**σ**

Socioeconomic and demographic characteristics				
Fam_Inc	52264	250000	123818.75	49063.99
Dens	0	33	10.54	6.92
White	0.7	89.1	33.07	24.39
Rent	0	3500	2088.92	606.2
Urban setting				
LA_OC	0	1	0.72	0.45
Prime_Sub	0	1	0.39	0.4
RHNA performance measures				
VLI_LI_com	0	118	4.73	16.64
AMI_MI_com	0	885.5	17.62	94.3
RHNA6_comp	0	1	0.6	0.49
ADU_rent	0	1	0.62	0.43
ADU policy				
Pre_ADU	0	1	0.27	0.45
Amn_ADU	0	1	0.07	0.26

The linear regression results in Table 3 reveal that four out of the twelve independent variables have statistically significant relationships with ADU approvals. Among the four categories, the urban setting was the only one that did not yield a statistically significant variable. The median family income and the proportion of approved ADU applications intended for renters' use are both significant at the 99% confidence level. The white population is significant at the 95% confidence level, while the presence of an ADU amnesty program shows significance at the 90% confidence level. The VIF scores were used to evaluate multicollinearity and the strength of the correlation among the predictor variables. All independent variables that showed VIF scores between 1 and 5 confirm that the model is unaffected by multicollinearity, since VIF scores lower than seven commonly indicate a lack of multicollinearity.

Table 3: The Output of the Linear Regression Model

Category	Variables (n=122)	B	σ	VIF	t	Sig.
Socioeconomic and demographic characteristics	Fam_Inc	-9.59E-06	0.000	4.781	-3.288	***0.001
	Dens	-0.002	0.012	1.539	-0.156	0.876
	White	0.012	0.005	3.645	2.336	**0.021
	Rent	7.53E-05	0.000	2.108	0.481	0.632
Urban setting	LA_OC	-0.069	0.172	1.397	-0.024	0.981
	Prime_Sub	-9.59E-06	0.141	1.121	-0.487	0.627
RHNA performance measures	VLI_LI_com	-0.001	0.005	1.895	-0.218	0.828
	AMI_MI_com	0.000	0.001	1.739	-0.450	0.654
	RHNA6_comp	0.058	0.146	1.213	0.398	0.692
	ADU_rent	-1.166	0.163	1.156	-7.141	***0.000
ADU policy	Pre_ADU	0.2	0.162	1.223	1.235	0.219
	Amn_ADU	0.506	0.262	1.108	1.928	*0.057

The direction of the relationships demonstrates how the independent variables impact ADU approvals. For example, the negative relationship between median income and ADU approvals suggests that lower-income cities approve more ADUs. The positive relationship with the white population indicates that cities with more white residents approve more ADUs. Additionally, the proportion of ADUs approved for renters' use has a negative relationship with ADU approvals, suggesting they are more intended for owners' use. Lastly, a city having an amnesty program has a positive relationship with ADU approvals, suggesting that local supportive ADU policies may increase ADU approvals overall.

The model output produced an R^2 of 0.383, indicating the model's moderate ability to predict variation in ADU approvals by city. Based on the results, the independent variables can explain about 38% of the variation in ADU approvals by city. Although 38% is a moderate model fit, it suggests that other factors can explain a larger portion of the variation or that the factors included have a limited impact on ADU approvals, aside from the variables that produced

statistically significant results. The Durbin-Watson statistic for the model was 1.8, indicating a mild positive autocorrelation in the residuals. While this value is slightly below the ideal value of 2, it remains within an acceptable range, suggesting that autocorrelation is not a significant concern for the model.

CHAPTER 5

DISCUSSION

This research aims to identify jurisdictional factors that influence ADU approvals. By analyzing factors, this research aims to provide a basis for recommendations and policy

interventions that may expedite ADU approvals and improve their role in affordable housing production. This research seeks to fill a gap by analyzing significant factors at the jurisdiction level, emphasizing the jurisdictions' role in creating conditions that promote housing development, as mandated by the state. The study found that demographic or economic factors and local policies, rather than RHNA performance measures arising from state mandates, significantly impact ADU approvals. The discussion provides an analysis of the findings and an opportunity to explore further research that can explain or investigate the results and findings to explore ADU approvals thoroughly.

ADU Acceleration with Local Policies

This study finds a statistically significant positive relationship between ADU approvals and cities that offer ADU amnesty programs or outline steps for ADU legalization on their official websites. The positive correlation between local policies aimed at reducing barriers to ADU development suggests that such policies may have a greater and direct impact on ADU approvals than broader state policies, such as the RHNA, which related performance measures showed no effect on ADU approvals.

This study finds a statistically significant positive relationship between ADU approvals and cities that offer amnesty programs or provide clear steps for ADU legalization on their official websites. These results suggest that local-level efforts to reduce barriers to permitting, such as amnesty policies, may play a more meaningful role in facilitating ADU development than broader state-level mandates. In contrast, RHNA performance measured by progress on very-low and low-income housing goals in the fifth cycle was not significantly associated with ADU approvals in this model. This finding implies that state housing targets alone may not prompt ADU production without complementary local actions addressing regulatory and

procedural barriers. Local policies like amnesty programs may address ADU potential more effectively than high-level planning goals alone by emphasizing practical support for homeowners. These results support the importance of examining whether jurisdictions are setting goals and how they are implementing policies to meet them.

State intervention is centered on holding jurisdictions accountable for creating policies or settings necessary to promote housing, which may also encourage local jurisdictions to develop policies that address local needs. Statewide policies, like the Housing Element Law, prompt jurisdictions to ease zoning restrictions or provide incentives for increased density or affordable housing units (Ramsey-Musolf, 2016). Local policies, like ADU amnesty programs, may be more effective in addressing local housing needs because they allow jurisdictions to tailor their strategies. For example, even though state laws may standardize specific ADU requirements, local governments may continue to use solutions or policies that respond to their areas' housing realities or needs. Wielga's study (2025) also noted that when a state enforces a new standard, jurisdictions may update their already compliant standard to better mirror the state's standard, which may prevent issues with enforcement or accountability. Therefore, states may have the ability to enhance ADU approvals if they set new standards that push jurisdictions to consider its local context of housing.

Lack of Compliance with the State Policies

However, in this study, compliance with state law showed no statistically significant relationship with ADU approvals. Similarly, Ramsey-Musolf's study (2016) on Housing Element Compliance and Affordable Housing Production (AHP) analyzed the relationship by regressing the compliance status of Low-Income Housing production and AHP in cities within the Los Angeles and San Francisco COGs. Although this study found no significant relationship between

5th cycle compliance and ADU approvals, Ramsey-Musolf found a statistically significant association between compliance and a -.22% decrease in AHP, suggesting that the implementation of the Housing Element Law could be improved and questions the effectiveness of state regulations.

State regulations preempt local land use regulations, with ADU policies being a key example. Wielga (2023) analyzes how local governments in California responded to state mandates of ADU maximum unit sizes. He emphasizes that while state mandates aim to standardize regulations, local governments have a fair amount of freedom with how they implement or respond to these changes in law. As laws continue to progress to ease barriers to housing and promote equity, it's safe to infer that cities may anticipate where legislation is headed and implement policies that address issues specific to their jurisdictions before they become mandated by state requirements, such as in the case of the few cities that already have ADU amnesty programs before it may become a requirement.

The study's results also question the idea that ADUs significantly contribute to affordable housing supply by implying that cities tend to approve ADUs for owner-occupancy rather than for a renter's use. In addition, there is no significant relationship between the approval of ADUs and the RHNA measures for affordable housing units completed for various income levels. These findings question the role of ADUs in achieving affordable housing goals. The findings also raise concerns about whether ADUs are being kept for their recorded owner-occupancy status, rather than being used as rental units without going through required processes. For example, some cities require landlords to obtain a business license and pay other fees. A study by Wegmann and Chapple (2012) also demonstrates that secondary units in San Francisco may operate with informal characteristics, such as being maintained without following regulations. Weggman and Chapple's observations raise questions and provides a basis for cities to ensure that resources are

available to assist people with properly maintaining their ADUs, while also ensuring that rental ADUs are being recorded accurately to help maintain housing production data for the state.

Exploring ADU Approvals and Jurisdictional Socio-economic Characteristics

One significant finding is the relationship between income and ethnicity and ADU approvals by jurisdiction, specifically the negative relationship with family income and the positive relationship with whiter cities. The findings from previous research on this topic are debatable rather than consensual. Previous research report mixed findings which support this study's nuanced findings. For example, Pfeiffer (2019) finds that areas of whiter and wealthier people had less restrictive ADU ordinances and processed more ADU applications than more ethnically diverse communities, which may support that such advantages create a more lenient regulatory setting. However, Maaoui (2018) analyzed building permit data for unincorporated King County in Seattle and found that ADUs were in predominantly Black and Hispanic neighborhoods. Maaoui's findings support the general reasoning that ADUs have been used for underserved households to either generate additional income or provide multigenerational living. Similarly, the research by Brueckner (2024) shows that ADUs are commonly near commercial districts, light-rail stations, and educational institutions. They are less frequent in higher-income neighborhoods and predominantly Black areas.

The negative relationship with family income supports the argument made by Maaoui and Brueckner. This finding suggests the potential of ADUs for the supply of affordable housing. Cities with lower incomes could benefit most from affordable housing. The cities may also have a high demand from the residents for using ADUs as a second income source or to rent to non-relatives. These demands in the cities may contribute to the increase of ADUs. The positive relationship with whiter cities aligns with Pfeiffer's study. It is reasonable to hypothesize that the White may have a better understanding of and utilize cities' ordinances and policies. Their

knowledge may lead to a higher number of ADU permits.

These findings may suggest the complexity of the relationship between the socio-economic characteristics and ADU approvals. The findings demonstrate that the relationship between ADUs and cities may be difficult to measure or identify, especially in ethnically diverse areas like Los Angeles or Orange County. Like Chapple et al. (2020) pointed out, it is hard to associate ADUs with an exclusive socio-economic group. The conventional norm that considers whiter cities as high-income cities may not be applicable anymore, particularly in ethnically diverse areas like the study area. For example, according to U.S. Census, the ethnic group with the highest median household income is not White but Asian. Thus, future research needs to deeply investigate this topic beyond the conventional norm.

Limited Regional Specifications

The study by Chapple et al (2020) emphasizes the importance of an analysis that targets a specific local jurisdiction rather than a regional scale. The analysis allows understanding of distinctions by local jurisdictions. To understand the spatial patterns and variations by cities' location, the study attempted to identify the variations of ADU approvals by the county the cities belong to and by the type of the cities. However, no correlation was found with variables in the urban setting category. In general, conventional observation may assume that ADUs may be more popular or supported in urban counties like Los Angeles County than suburban areas like Orange County. Similarly, ADUs may be restricted in outer suburban cities mainly occupied by low density, single family residential areas, compared to core cities and inner suburbs being more friendly to high density. However, the finding confirms that the observation does not apply in the study area. This implies that ADU approvals are consistent rather than patterned regardless of the locations of the cities.

A factor that may influence this finding is the short time frame of this research. The ADU permit data for three years may not be long enough to fully capture the nuance of the spatial variations. Thus, future studies need to measure the regional variations with more accumulative data that covers a longer longitudinal period.

CHAPTER 6

CONCLUSION

This research aimed to identify the contributing factors to a city's ADU approvals in Los Angeles and Orange Counties. A linear regression model identified statistically significant factors related to ADU approvals. The findings revealed that socioeconomic and demographic characteristics are correlated with ADU approvals. However, no correlation was found in urban settings. Additionally, most of the RHNA performance measures did not show a correlation with ADU approvals, although there was a relationship with the proportion of ADU applications intended for rent. The findings provide the opportunity to address ADU approvals through local policy implementation. The study also found that a city's local policy is correlated with ADU approvals, particularly if the city has an ADU amnesty program. However, only nine out of the 122 cities had such programs or resources in place, suggesting an opportunity to enhance resources in this metropolitan area.

Municipalities may improve their ADU resources, such as on city webpages, to improve public understanding of ADU processes, especially for residents seeking to legalize ADUs. Cities can facilitate ADU growth by removing barriers related to ADU adoption, in which informal ADUs are a relevant opportunity. Local governments should work to promote the provisions of AB 2533. This law limits fees and requires cities to provide resources that outline permitting procedures and checklists for identifying substandard housing. Additionally, it mandates resources such as building and safety inspections to review compliance with health and safety standards for unpermitted ADUs built before January 1, 2020. If cities prioritize health and safety standards while loosening restrictive requirements, then homeowners may be more inclined to legalize their ADUs and thus contribute to formal housing production. Additionally, local

jurisdictions may optimize ADU development by developing local amnesty programs that build on the provisions of AB 2533 to simplify legalizing unpermitted ADUs. Ultimately, cities can promote ADU growth and humanize housing by focusing on policies that center health, safety, and well-being rather than exclusion or code enforcement.

Although preapproved programs did not show a significant correlation with ADU approvals across the study area, it is worth noting that the top five cities that approved the most ADUs (Los Angeles, Long Beach, Glendale, Garden Grove, Anaheim) all had preapproved plans in common. This may be because most of these cities are larger and potentially have more resources to implement such programs. However, smaller jurisdictions may receive support from regional planning bodies, such as their local Council of Governments (COG). The San Gabriel Valley Council of Governments (SGVCOG) offers a pre-approved ADU plans program for member cities. Through the program, the SGVCOG provides a selection of ADU plans that are reviewed and chosen by member cities to provide for use in their jurisdiction. Once a city shares the plans, applicants only have to submit for a plan check review that ensures compliance with building and safety. The process streamlines procedures prior to pulling a building permit by reducing the time spent on reviewing architectural designs that align with code or development standards.

This study aims to identify the jurisdictional factors influencing ADU approvals, however there are limitations that limit the reliability of this research. For example, some jurisdictions lacked data for ADUs approved between the study period. Additionally, this study was limited to a small sample size. A study that includes more cities, such as an analysis of SCAG member jurisdictions, may provide a better understanding of regional ADU patterns. Furthermore, this study does not take into account certain factors that are challenging to aggregate at the city level due to time constraints, such as development fees. Future studies

should consider examining impact fees, design standards, and the capacity of planning departments.

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