Urban Village Zoning in San José, CA: Exploring Zoning Locations and Neighborhood Change

by

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DISSERTATION ABSTRACT

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This dissertation explores questions pertaining to the role of zoning in structuring urban inequalities. I attempt to answer two primary research questions. First, what factors best explain how zoning changes are located in urban areas? Second, what effect do zoning changes have on the racial and economic composition of neighborhoods? I investigate these questions by conducting empirical investigations of San José, CA. In 2011, San José adopted a new zoning strategy, urban villages, intended to address many of the problems associated with the city's largely suburban form. This new strategy reflects an important change and provides the opportunity to examine how changes associated with it unfold over time.

To answer my research questions, I use two different approaches. First, I examine the factors associated with the siting of urban village zoning in San José by evaluating factors associated with different theories in urban sociology. Those include homevoter, growth machine, and sociospatial theories. Second, I examine the impacts of urban village zoning application in San José, examining how zoning is associated with changes in both Latinx composition and per capita household income of neighborhoods. In addition, I also examine those relationships in the context of the three theoretical perspectives. I conduct my analyses using binary logistic and spatial regression models that incorporate measures to account for spatial influence.

The analyses produce mixed results. For the analysis of the factors associated with the siting of urban village zoning, I find that growth machine theory, which emphasizes proximity to urban amenities, best predicts the locations of urban village zones. Concerning the relationship between urban village zones and changes in both the Latinx composition and per capita household income of neighborhoods, I find no significant relationship. However, I do find that the theoretical models are useful for explaining those changes. The analyses provide mixed support for the theoretical models, but the strongest support is for sociospatial theory, which emphasizes the way that historical urban inequalities are embedded in space and serve to further concentrate disadvantage in those areas.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: INTRODUCTION

This dissertation explores questions pertaining to the role of zoning in structuring urban inequalities. Namely, how can incorporating an analysis of zoning into urban sociology help us better understand the development and maintenance of structural urban inequalities? In addition, how can theories of urban sociology provide context for how zoning is applied to space as well as the effects of that application? I investigate these questions using two different approaches. First, I examine the factors associated with the application of urban village zoning codes to the City of San José, CA by evaluating factors associated with different theories in urban sociology. Second, I examine the impacts of urban village zoning application in San José, examining how zoning is associated with changes in both Latinx composition and per capita household income of neighborhoods. In general, I argue that zoning, as a form of urban policy, is an important, yet overlooked, factor that structures urban inequalities. It would benefit urban sociological analysis if researchers incorporated it into their studies.

Urban Villages in San José

The urban villages examined in this study are examples of zoning codes, they dictate how space in San José can be developed and establish strict requirements that influence both the form and function of the land and buildings. The City of San José established its urban village zoning codes with the adoption of its 2011 general plan, *Envision San José 2040* (City of San José 2023). While they reflect only one of the 12 development strategies in the plan, they take on additional significance because they are intertwined with many of the other strategies, and they are seen to address many of the development-related problems the city faces. I will explore those more below. Urban

villages are one of the few areas in the city where housing development is permitted (Wang 2019). With only 67 sites zoned for urban village development, San José's general plan established urban villages as the future of development for the city.

The City of San José intends for urban villages to help solve many of the city's development-related problems. The general plan describes their purpose as a way to facilitate the "transformation of strategically identified and historically underutilized Growth Areas into higher-density, mixed-use, urban districts […] which can accommodate employment and housing growth and reduce the environmental impacts of that growth by promoting transit use and walkability" (City of San José 2023:484). This highlights several of the problems the city needs to solve. First, the emphasis on high-density, mixed-use development reflects a shift away from the suburban form that dominates in San José. Ninety-four percent of the land in San José where housing is permitted is zoned for detached single-family dwellings (Badger and Bui 2019). The City argues that the sprawling nature of the suburbs makes it more costly to provide services to residents and that the imbalance of housing to business creates problems with tax revenue (Wang 2019). Urban village zoning codes require a mixture of both residential and commercial development, which is intended to spur business growth as well as create a more compact urban form. This compact urban form, combined with an emphasis on siting urban villages near public transportation, provides a solution to another problem that factors prominently into the City's development plans: environmental degradation. Suburban sprawl and the car use associated with it are both significant factors in the creation of pollution and other types of environmental damage. The compact nature of urban villages is intended to make them more walkable, and the city hopes that proximity

to public transportation will encourage urban village residents to use it more often. The city's emphasis on urban villages marks an important shift away from the development approaches of the past and reflects a path forward that could begin to transform the city.

San José's urban villages are not unique to the city; they are associated with a movement and urban planning paradigm called new urbanism. This is important because San José's urban villages are not just a form of zoning that facilitates redevelopment, they are also linked to an approach to development that could promote inequalities in urban neighborhoods. I examine this connection more below. First, however, it is important to establish the importance of urban villages as a type of zoning.

Zoning

Zoning is both a type of policy and a process. As policy, zoning dictates what can be built where and it structures urban development in almost all municipalities within the U.S. (Hirt 2014). In municipalities, zoning "divide[s] the jurisdiction into geographically defined *zones* and specif[ies] what can and cannot be built in each zone" (LeGates 2005:784). Zoning also includes control over buildings and restricts both form and bulk (Hirt 2014). Zoning ordinances in larger cities are typically codified in cities' comprehensive plans, which map out appropriate land uses for the entire city. As policy, zoning is a straightforward set of rules and regulations that can be uniformly applied to space.

As a process, zoning is much less straightforward. It is a part of the broader urban planning process which, on its face, is a professional practice that is primarily concerned with the technical aspects of land uses, building locations, transportation networks, and the structure of many of the other physical artifacts of the city. The planning process,

however, is also embedded in the larger systems of power and inequality that structure social life (Gans 1969). Planners play only an advisory role in the planning process, and, in the end, it is primarily the public and elected officials that determine whether plans will be adopted (Gottdiener, Hohle and King 2019). However, other powerful individuals and/or groups can also play an influential role in the process. Logan and Molotch (2007) argue that groups of "urban elites," comprised of developers, business leaders, financial institution officials, and other powerful stakeholders form coalitions with elected officials in order to control urban processes and promote their own financial interests. In addition, Fischel (2001) argues that homeowners, whom he refers to as *homevoters*, also play a very influential role in this process as they tend to be very involved in local politics and ensure that their interests are prioritized. The overlap of the interests of these competing individuals and groups provides the possibility for the broader inequalities that structure social life to be reproduced through the zoning process.

Zoning and Urban Change

Zoning emerged in the U.S. in the early twentieth century to separate land uses and, since their inception, zoning laws have been principally exclusionary and focused on protecting single-family neighborhoods from other types of land uses (Fischel 2004, Hirt 2007). In the U.S., zoning laws typically only allow land to be used for a single purpose and are organized around residential, commercial, industrial, and agricultural uses. These land uses are further subdivided into subclasses. For instance, with residential zoning, these subclasses typically include single-family, two-family, and multi-family (Hirt 2007). This subdivision is especially important with respect to residential zoning laws in the U.S. They have almost universally promoted and protected single-family

neighborhoods (Fischel 2004, Hirt 2007). Single-family zoning reflects the largest single share of the territory of any U.S. city (Hirt 2007) and, once zoned and built as single-family housing, those areas rarely change (Levine 2005).

While there is little prior sociological research examining zoning policy, what research has been performed makes it very clear that zoning affects both urban form and urban inequalities. Most of the available sociological studies of zoning focus on density zoning. Density zoning primarily focuses on establishing minimum lot sizes but also dictates whether land must be developed to accommodate single- or multi-family housing. One form, low-density zoning, is associated with the residential zoning I described above. It is responsible for shaping the single-family suburban form that dominates in the U.S. It has also been referred to as "exclusionary" zoning because in some cases, "standards in residential areas were increased to the point that in some districts whole classes of people could not afford to construct large enough homes on large enough lots" (Hirt 2014:40). It has provided an effective way to exclude lower-income families from suburban communities (Fischel 2004). Studies like those conducted by Neiman (1980) and Shlay and Rossi (1981) demonstrate that communities with larger lot sizes are associated with higher-value homes as well as families with higher incomes. In a much broader analysis looking at class segregation in the 50 largest metropolitan areas in the U.S., Rothwell and Massy (2010) find that density zoning policies are strongly associated with class segregation. In a more recent study, Lens and Monkkonen (2016) perform an analysis of zoning regulations in the 95 largest metropolitan areas in the U.S. and find that they are positively associated with economic segregation and the concentration of affluence.

While the exclusionary nature of density zoning primarily function as a form of economic segregation, it is also racialized (Fischel 2004). Pendall's (2000b) study of the relationship between zoning policy and racial segregation across the 25 largest U.S. metropolitan areas found that lower-density zoning reduced the prevalence of rental housing and, as a result, also limited the number of Black and Latinx residents. In a similar study, Rothwell and Massey (2009) examined patterns of Black residential segregation across metropolitan areas in the U.S. and found that Black-White segregation and Black isolation were predicted by a municipality's adoption of stricter density limits. They suggest that these dynamics are produced by economic exclusion, as "restrictive density produces higher housing prices in White areas and limits opportunities for people with modest incomes to leave segregated areas" (Rothwell and Massey 2009:801). In a similar study, Rothwell (2011) discovered similar patterns for Latinx and Asian residents.

Despite the clear relationship between zoning and neighborhood change based on race and income, it can be difficult to examine the relationship between the two. While zoning dictates how land can be used, it only provides a framework for development, it does not dictate what will be built and when. In other words, space being zoned for a particular type of use does not mean that it will be physically developed (or *re*developed) that way. The studies described previously involve general zoning codes as widely used in metropolitan areas in the U.S. and they tend to focus on broad patterns. Not all zoning codes are this broad, however, and they have been adapted and implemented in diverse ways across urban areas. This makes developing different strategies for incorporating zoning analysis into sociological studies important.

Zoning as a Signal

One fruitful way to examine zoning may be to not only think of it in terms of the physical developments it is responsible for structuring, but also as a "signal" to developers that area is being targeted for (re)development (Immergluck 2009). This may lead to speculative developments in the surrounding areas even before any physical development begins. There is a small body of research that reinforces this. Immergluck (2009) examined the effects of the urban planning process on a major project in Central Atlanta. He found that the media coverage of the project, which started before development began, was associated with increases in home prices during a three-year period. Likewise, Knaap, Ding, and Hopkins (2001) found that planning for light rail stations in Washington County, Oregon led to increases in property values around the planned sites before development began. Gatzlaff and Smith (1993) documented similar results based on the announcement of a new rail system in Miami. Dehring, Depken, and Ward (2007) found that the announcement of a possible new stadium (that never came to fruition) in the Dallas-Fort Worth area led to increased home values in the area surrounding the proposed development site. Other studies have documented property value changes associated with the announcement of group homes (Colwell, Dehring and Lash 2000) and airports (Jud and Winkler 2006). These studies demonstrate that policy and the urban planning process may spur changes even before project development has begun.

Urban Villages, Urban Planning, and New Urbanism

As I described previously, San José's urban villages are zoning codes that are linked to a planning paradigm called new urbanism. It is important to consider how this

paradigm influences urban development because it has been widely adopted by municipalities across the U.S. It purports to provide solutions to many of the problems that cities face, but it has also been criticized for reproducing those same problems. I explore these dynamics more below.

New urbanism developed as a response to postwar suburban development in the U.S. and reflects an attempt to develop places that are more distinctly "urban" (Trudeau and Malloy 2011:250). It aims to recreate "traditional" cities, using pre-modern cities that developed more organically and pluralistically as an the ideal for urban living (Hirt 2009). The architects, designers, and academics who launched the movement, calling themselves the Congress for the New Urbanism (CNU) (CNU 2024a), describe their mission as "…the restoration of existing urban centers and towns … the reconfiguration of sprawling neighborhoods into communities of real neighborhoods and diverse districts, the conservation of natural environments, and the preservation of our built legacy." The movement aims to accomplish these goals through "human-scaled" urban design, which prioritizes things like compact (multi-family) development, mixed-use space, walkability, and access to public transportation (Congress for the New Urbanism 2024b). New urbanism also emphasizes infill development that will help to revitalize city centers and reclaim suburban space (Ellis 2002). This approach has been widely embraced within urban planning and has significantly influenced policy (Talen 2005) because it offers a way to stimulate new development while also addressing concerns about things like sustainability, urban sprawl, and social and spatial segregation (Garde 2020).

While the new urbanist emphasis on physical design primary lends itself to matters of livability and sustainability, the movement is also associated with explicitly

social goals (Talen 2002). The mission statement, quoted above, emphasizes establishing "diverse" communities and the movement's charter argues that providing "a broad range of housing types and price levels can bring people of diverse ages, race, and incomes into daily interaction…" (Congress for the New Urbanism 2024c). This reflects a physically deterministic approach to urban planning, and new urbanism suggests that physical design can be used to address social problems (Day 2003, Hanlon 2010, Harvey 1997, Hirt 2009). Of primary interest to this analysis is the goal of integrating a mix of housing styles and price levels in a neighborhood (Talen 2002). This, new urbanists argue, will increase socioeconomic diversity and promote equitable access to resources.

Critiques of New Urbanism

Proponents of new urbanism claim it provides an alternative to the exclusionary suburban development patterns of the past as well to increase the diversity, and particularly the *economic* diversity, of neighborhoods. However, many studies challenge these claims. For instance, after examining an urban village development in Illinois, Zimmerman (2001:16) concludes that it "will only serve to maintain—and in some instances accelerate and harden—the social and economic patterning of the American city produced and sustained under the suburban ethos." Likewise, in his study of new urbanist developments in London, Butler (2007:14) found that the developments reflected gentrification and were "middle-class enclaves in otherwise non-middle-class boroughs." In her analysis of a new urbanist development in Canada, Grant (2007) concludes that while new urbanism purports to encourage diversity by recreating traditional cities, it has more in common with gated communities that are organized around economic exclusion. Markley's (2018a) examination of new urbanist developments in Atlanta also revealed

evidence of exclusion. He discovered decreases in the Latinx population of neighborhoods surrounding new urbanist developments. This research suggests that new urbanist developments may not promote economic and racial diversity as proponents suggest and may reinforce them.

Theoretical Perspectives

This study incorporates three theoretical perspectives to provide context for how zoning decisions are applied to space as well as account for other factors that are associated with changes in racial composition and income in urban neighborhoods. I explain how these theories are specifically applied in each subsequent chapter so my aim here is only to briefly introduce how they encourage us to think about zoning and urban change.

Homevoter theory. Fishchel's (2001) homevoter theory suggests that homeowners, or "homevoters," play a significant role in local government decisions. Fischel likens homeowners to shareholders in municipal corporations since homeowners have a significant financial stake in their homes. Fischel (2001:24) characterizes this as a "mercenary concern with property values" that encourages them to focus on improving conditions in their neighborhoods as well excluding anything or anyone they see as a threat. As a result, homeowners tend to be much more active than others in local governance to minimize risk and ensure the greatest return on their investment. Fischel (1985) argues that the economic interests of residential voters are the best predictors of zoning and that homeowners use zoning to control land use in their communities.

Growth machine theory. Growth machine theory suggests that urban development is controlled by powerful coalitions of urban elites like developers, landowners, and

politicians (Molotch 1976). Logan and Molotch (2007) refer to the members of these coalitions as "place entrepreneurs" because their fortunes are tied up in the property values of the regions. As a result, their primary goal is to maximize the value of land and buildings in urban areas rather than generate profit from production. To that end, they promote an agenda that focuses on driving urban growth and development, which they accomplish by exerting control over the zoning process via political influence (Been, Madar and McDonnell 2014, Lens 2022).

Growth machine coalitions view urban environments primarily in terms of their exchange value; as a way to collect rents (Logan and Molotch 2007). Their interest is always in maximizing their profits by intensifying land use near existing urban infrastructure. In this view, transportation networks, parks, cultural amenities, and even neighborhoods, are assets to be leveraged. This makes poor people's neighborhoods particularly vulnerable to transformation because the poor themselves have little value to urban elites (Logan and Molotch 2007). The lower property values in poor communities also makes them more attractive for redevelopment as it creates more opportunity for profit (Been, Madar and McDonnell 2014, Logan and Molotch 2007). Though more affluent communities have greater political power and are better able to resist changes in or near their communities, Logan and Molotch argue that they are still susceptible to change because they may serve as "showpiece" neighborhoods that allow urban elites to collect greater rents if they redevelop and concentrate land uses near areas with lower property values.

Sociospatial theory. Compared to homevoter and growth machine theories, the sociospatial perspective takes a more integrated view and incorporates economic,

political, and cultural dimensions into the analysis of the development of urban space (Gottdiener, Hohle and King 2019). It includes the emphasis on real estate and property values shared by the other theories but rather than focus on the autonomy of urban elites or homeowner control, it focuses more on the political economy of cities and the role that investment patterns, both public and private, play in establishing "differential trajectories" for communities over time (Liévanos 2020). Spending is not equally distributed across space and capital investment constantly shifts in pursuit of the highest returns. This produces a "seesaw" effect, referred to as "uneven development" that unfolds over time (Smith 2010). The theory of uneven development describes unequal patterns of urban growth that reproduce race- and class-based inequalities as well as development patterns like segregation, inner-city disinvestment, and suburban sprawl (Gotham and Greenberg 2014).

Dissertation Agenda

While prior sociological research has established that zoning affects urban form and structures urban inequalities, it is still understudied (Lens 2022). This study aims to address gaps in the research by incorporating an analysis of the different factors and power dynamics that influence zoning outcomes and help to explain the reproduction of urban inequalities. Below, I describe the research plan for each subsequent chapter in this project.

In the second chapter, I examine the adoption of urban village zoning in San José. San José's development trajectory, which is very similar to that of other Sunbelt cities, is one of rapid, sprawling suburban expansion, followed by strategies to curb outward expansion and encourage density (Bays et al. 2005). While this helped to reduce urban

sprawl (Lopez 2014), it also fueled a housing crisis. These conditions led to the adoption of San José's urban village zoning policy, which reflects a redevelopment strategy that combines both housing and commercial development and is intended to promote sustainability and social equity (Wang 2019). However, critics charge that urban villages may not be the panacea they are claimed to be, and research has linked urban village developments to the same exclusionary processes they are intended to correct (Grant 2007, Harvey 1997, Markley 2018a, Markley 2018b, Zimmerman 2001). This raises important questions about how urban village zoning is applied to space. In the chapter, I examine urban village zone siting in the context of the three theoretical perspectives I introduced previously to determine which one best explains variation in urban village zoning outcomes in San José.

In the third and fourth chapters, I turn my attention to the examination of neighborhood inequalities and neighborhood change. I examine how neighborhoods in San José have changed since the adoption of the City's urban village zoning and explore how those changes are associated with urban village zoning. Prior research reveals that zoning is associated with both racial (Pendall 2000a, Rothwell and Massey 2009, Rothwell 2011) and economic exclusion (Lens and Monkkonen 2016). Given that zoning has historically been used as a mechanism to reinforce racial and economic exclusion, it is important to examine its application in San José. I also examine neighborhood change in the context of the three theoretical perspectives. In the third chapter, I specifically explore the relationship between zoning and change in the Latinx composition of neighborhoods. In chapter four, I perform the same analysis but examine change in per capita household income.

The final chapter concludes with a summary of this dissertation's contributions to the study of zoning and to urban sociology in general.

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CHAPTER II: URBAN PLANNING AND URBAN VILLAGES IN SAN JOSÉ, CA: AN EXPLORATION OF ZONING OUTCOMES

ABSTRACT

The City of San José's development trajectory was one of sprawling suburban expansion, like many other U.S. cities. As the economic, environmental, and social problems associated with sprawl became more evident, the city adopted policies to curb outward expansion and promote density. Due to the city's continued growth as the heart of Silicon Valley, and as the result of other barriers to housing production, a housing crisis developed in the region. In 2011, the City of San José attempted to address issues of housing production and other problems associated with sprawl with the adoption of their urban village zoning policy. Urban villages are an example of new urbanist planning, which reflects a paradigm committed to redeveloping urban space under the model of "traditional," pre-modern cities. Proponents argue that the compact, walkable, and sustainable developments that new urbanists promote can solve many of the problems cities face today. However, critics charge that they reproduce the exclusionary nature of the suburbs and reflect an extension of the policies of the past. This raises important questions about the zoning process and how the City of San José selected sites for urban village zoning. Using binary logistic regression, I examine urban village zone siting in the context of the three theoretical perspectives: homevoter theory, growth machine theory, and sociospatial theory. The study produced mixed results but provides the strongest support for growth machine theory.

INTRODUCTION

The City of San José, CA has a land use problem. While the problem could be traced back further in time, much of it began with a period of rapid expansion in the 1950s. San José, like many other Sunbelt cities in the United States, experienced rapid population growth after 1950. The city's population, which was about 100,000 in 1950, quadrupled to over 400,000 by 1970 (Trounstine and Christensen 1982). The city's urban footprint grew rapidly during this period too. In 1950, the city occupied 17 square miles. By 1970, it had expanded to over 149 square miles (Trounstine and Christensen 1982). San José's development during this period followed the same trajectory as most of the urban development occurring in the United States: suburbanization. This cemented San José's urban form and established the conditions that would shape decision-making in the city well into the future.

Reactions and resistance to San José's rapid expansion began in the 1970s, as concerns about unrestricted growth led city leaders to implement growth management strategies to encourage increased density rather than further expansion (Bays et al. 2005). These initially focused on development within or adjacent to areas that were already developed but culminated in the City's adoption of an urban growth boundary in 1996 (Bays et al. 2005) that firmly established where development in the city could, and *could not*, take place. While these strategies were successful in reducing the city's urban sprawl (Lopez 2014), they also contributed to a slowdown in new housing development and skyrocketing housing costs. This became a primary foundation for conflict in the city, as the city's population continued to grow. San José had a population of nearly a million people in 2010 (United States Census Bureau 2010) and that continued population growth

required significant development that needed to be contained within the City's existing boundaries.

While the development path of rapid suburban expansion, followed by constraints on further growth, laid the foundation for the struggles city officials face now, several other factors also influence development today. First, city officials have not necessarily been as concerned about the lack of housing development as others. San José has long been a "bedroom community" for the rest of Silicon Valley; residents tend to live in San José and work in neighboring cities. This has produced an imbalance in the city's housing-to-jobs ratio, which has been a concern for city officials based on the thinking that 1) it is more costly to provide services, like schools, parks, libraries, police, fire, and more to residents than it is to employers and workers and 2) businesses produce more tax revenue than residences (Wang 2019). Single-family housing, and the suburban form it is associated with, exacerbate this problem. As such, city officials have sought to promote land uses that will increase employment and the development of multi-family housing. Second, the city's emphasis on increasing employment and multi-family housing runs counter to the interests of many single-family homeowners who are opposed to non-residential and denser land uses near their homes (Wang 2019). This is driven by concerns about the character of their neighborhood, as well as how this may affect their home values. Finally, concerns about residential displacement as the result of increasing housing costs and gentrification are also a major concern (Wang 2019). These conditions have made land-use decision-making difficult and contentious.

The City's solution to its land use problems arrived with the adoption of its 2011 general plan, *Envision San José 2040*, and its newly developed zoning designation,

referred to as "urban villages" (City of San José 2023). Urban villages slot neatly into the City's development goals and, at least theoretically, work well to address its land-use problems. Urban villages are denser, mixed-use urban developments that combine housing with commercial development to reduce the need for residents to travel by car. Their implementation is referred to as "upzoning," which is a zoning strategy that allows for higher development intensity in select sites (Gabbe 2018).[1] Where urban villages are located within the city is very important, and they are intended to be infill developments that are located: 1) in areas that are easily accessible by foot and bike, and 2) on vacant or underused parcels in previously developed areas (Wang 2019). They are intended to address the City's land use problems by providing a clear development plan that promotes density and increases employment, while also preserving the character of the city's single-family neighborhoods.

The adoption of urban village planning seemingly fits well within the context of San José and the land use issues that the city faces. Urban village upzonings should allow the City to meet the demands of all stakeholders. City leaders framed the *Envision San José 2040* general plan "… as a so-called grand bargain, in which residents agree to allow infill development in commercial areas or on main streets in return for the city and developers leaving residential neighborhoods untouched" (Wang 2019:10). In principle, the City's plan allows it to increase commercial and housing development without encroaching on single-family communities. The urban village upzonings are also meant to take advantage of underutilized properties like older commercial complexes and

[1] The City of San José's urban villages are not technically upzonings because the approved plans did not automatically change the existing zoning. They can be described as upzoning, however, because they make a space eligible for upzoning with subsequent approval from the San José City Council.

parking lots (City of San José 2023), which should minimize the impact on vulnerable communities. The zoning process, however, is much more than a simple technical application and reflects a highly contentious political process (Been, Madar and McDonnell 2014). This raises questions of how zoning changes are determined and the factors that are associated with how land-use decisions are applied to space.

Research on the factors that structure urban decision-making and zoning suggests three competing explanations that structure the process. According to "growth machine" theory, urban decision-makers are part of an elite coalition whose primary interest is economic growth (Logan and Molotch 2007). Logan and Molotch (2007:155) argue that while zoning has been presented as a defense of the public interest, its actual purpose has been to "…[serve] as a tool for the safeguarding and increasing of rents." It is used, in other words, to enrich members of the elite coalition. A competing explanation, the "homevoter theory," suggests that homeowners have become the "dominant players" in most cities and that they use their influence on policymakers to shape zoning decisions that will protect their interests (Fischel 2001). Homeowners are primarily interested in property values and maintaining the character of their suburban neighborhoods. Finally, sociospatial theory argues that urban decision-making is shaped by patterns of "uneven development." Scholars working from the sociospatial perspective accept the growth machine suggestion that zoning is controlled by urban elites to promote growth but argue that zoning decisions, like upzoning, that affect urban redevelopment will be more likely to applied to historically disadvantaged areas where rents are lower and the potential for profit is greater (Gottdiener, Hohle and King 2019).

The City of San José's adoption of the urban village zoning designation in its 2011 general plan provides an opportunity to empirically examine the factors that influence zoning decisions. With the adoption of the general plan, the City created 67 upzoned sites for potential urban village development that were situated across the city. These sites are displayed in Map B in Figure 1. While the City's stated justification for the site locations was based on the feasibility of denser developments that would allow them to build housing while also meeting job creation goals, zoning is a political process that is subject to influence by other powerful interests. Using multiple data sources, I examine where the urban village upzonings were sited within the context of all 372 Santa Clara County census tracts, the county which fully contains San José. I examine the location of urban villages based on the spatial distribution of other factors, like home ownership, transportation networks, and racial and economic inequalities to determine which of the three theoretical perspectives, homevoter theory, growth machine theory, or sociospatial theory better explains how the zoning decisions were applied.

LITERATURE REVIEW

Zoning dictates what can be built where and structures urban development in almost all municipalities within the United States (Hirt 2014). In municipalities, zoning "divide[s] the jurisdiction into geographically defined zones and specify what can and cannot be built in each zone" (LeGates 2005:535). Zoning also includes control over buildings and restricts both form and bulk (Hirt 2014). Zoning ordinances in larger cities are typically codified in cities' comprehensive plans, which map out appropriate land uses for the entire city. While zoning as a *product* is a set of rules and regulations which can be uniformly applied to space, zoning as a *process* is far less straightforward.

Zoning is a product of the urban planning process. Urban planning is a professional practice that is largely concerned with the technical aspects of land uses, building locations, transportation networks, and the structure of many of the other physical artifacts of the city. However, it is also embedded in the larger systems of power and inequality that structure social life (Gans 1969). Planners play only an advisory role in the planning process, and, in the end, it is the public and elected officials that determine whether plans will be adopted (Gottdiener, Hohle and King 2019). There is, therefore, considerable opportunity for groups with competing interests to influence the zoning process and shape how zoning codes are applied to space.

Theoretical Perspectives

In this study, I examine three competing perspectives that can be used to explain zoning outcomes in urban areas.

Homevoter theory. Homevoter theory suggests that homeowners play a significant role in shaping local government policies and may be the primary determinant of zoning policy (Fischel 2001). Homeowners, by using their voting power, become a dominant political force in local politics. Their primary interest is in preserving their home values, and Fischel (2001:24-25) argues that this "mercenary concern with property values … motivates citizens to organize and make personal sacrifices for such things and public schools and amenable amenities." In general, however, homeowners typically advocate for regulations that will limit change, creating a "regulatory stasis" (Gabbe 2018). Homeowners tend to be risk-averse and seek to avoid any changes that might negatively impact their home values because their homes represent such a large proportion of their wealth and most are unable to diversify that wealth (Fischel 2001).

Homevoter theory does not suggest that other players in local land-use decision-making are powerless, but it does suggest that they are overshadowed by the influence of homeowners (Fischel 2001). Fischel (2001:22) argues that the influence of developers, for example, is that of "supplicants and salesmen." They rely on the support of local officials who are, in turn, beholden to homeowners. Homevoter theory suggests that city officials with control of the zoning process will attempt to appease homeowners and avoid zoning changes near majority homeowner communities (Been, Madar and McDonnell 2014).

Growth machine theory. Growth machine theory suggests that the motivations for zoning policy changes stem from the interests of a powerful coalition of urban elites. This coalition is comprised of various stakeholders but primarily includes developers, landowners, and politicians. Logan and Molotch (2007) refer to these groups as "place entrepreneurs" because their fortunes are tied up in the property values of the region. This leads them to push an agenda for cities that focuses on driving urban growth and development; on increasing the exchange value of places (Logan and Molotch 2007). They can accomplish this, in part, by exerting control over the zoning process via political influence (Been, Madar and McDonnell 2014, Lens 2022).

Growth machine coalitions view urban environments primarily in terms of their exchange value; as a way to collect rents (Logan and Molotch 2007). Their interest is always in maximizing their profits by intensifying land use near existing urban infrastructure. In this view, transportation networks, parks, cultural amenities, and even neighborhoods, are assets to be leveraged. It suggests that zoning changes are more likely to be located near existing urban amenities.

While more affluent communities have greater political power and are better able to resist changes in or near their communities, Logan and Molotch (2007) argue that growth machine coalitions still view those communities primarily as assets for growth. They serve as "showpiece" neighborhoods that symbolize "urban vitality." In addition, they are very attractive sites for adjacent development. Logan and Molotch (2007:121) argue that there are "extraordinary rents that can be collected by those able to intensively develop land within or adjacent to such ordinarily low-density neighborhoods." This highlights the fact that while more affluent communities may be able to better shield themselves from change, their communities are still viewed by growth machine coalitions primarily as assets for promoting urban growth.

Sociospatial theory. Rather than focus on a single principal cause of urban development, like homeowner power with the homevoter hypothesis or the role of "place entrepreneurs" with growth machine theory, sociospatial theory "takes an integrated view of [urban] development as the linked outcome of economic, political, and cultural factors" (Gottdiener, Hohle and King 2019:79). It incorporates the emphasis on real estate and property values shared by the other theories, and it acknowledges that politics are strongly linked to urban development (Gottdiener, Hohle and King 2019). However, rather than emphasize urban elite or homeowner capture, sociospatial theory focuses on "uneven development;" a "seesaw" effect created by processes of growth and decline, and investment and disinvestment that occurs over time (Smith 2010).

While the theory of uneven development primarily emphasizes the economic foundation of urban change, it is also an explicitly racialized process (Gotham 2002, Hernandez 2009, Liévanos 2020). Uneven development is "racialized…when it is given

meaning and produced with symbolic categories and variety of institutional mechanisms that different people and place by 'race'" (Liévanos 2020:3).

The sociospatial perspective suggests that it is the relationship between real estate, politics, and racism that is responsible for urban development. In this view, zoning changes will be primarily associated with economically depressed communities of color that have been shaped by discrimination based on race and socioeconomic status.

Prior Research

There has been very little research on the factors associated with zoning changes. There are two relevant studies on this topic, both of which evaluate the homevoter and growth machine theories. Gabbe (2018) performed a study of upzonings in Los Angeles and found that there were some "low hanging fruit" for upzoning locations, which were sites with lower-intensity land uses, like parking, agriculture, and manufacturing. Those sites are more likely to be located away from areas where residents (including howeowners) live, making them easy targets for zoning changes. Gabbe also found that homeowners were associated with "regulatory stasis;" upzonings were less likely to be located near neighborhoods with high shares of homeowners. In a similar study, Been, Madar, and McDonnell (2014) tested the homevoter and growth machine theories by examining the factors associated with the locations of *rezonings* in New York City. Rezoning includes both upzonings and downzonings (decreases in the allowable residential development). Their analysis provided strongest support for the homevoter hypothesis, though some of their results were mixed. For instance, while they found that upzonings were more likely to be located near fixed amenities (like rail stations, buses, and parks) which is consistent with the growth machine hypothesis, they also found that

those areas were equally likely to be downzoned, which is consistent with homevoter theory. Both studies provide the greatest support for homevoter theory.

San José as a Case Study

San José is a useful case study due to the city's size, economic growth, and urban form. In 2010, San José had just under a million residents, making it the third largest city in California and the tenth largest city in the U.S. It is part of the greater San Francisco Bay Area and is the heart of Silicon Valley. Silicon Valley is well known for its connection to the tech industry, and that has promoted massive growth in the region for several decades. Between 2009 and 2017, the GDP of the San José metropolitan region grew by 84 percent, compared to 35 percent nationally (Gabbe, Kevane and Sundstrom 2021). Home prices in the city rose by about 185 percent between 2000 and 2019, compared to 86 percent nationally (Gabbe, Kevane and Sundstrom 2021). Of the 50 most populous metropolitan areas in the U.S. from 2010 to 2012, the San José-Sunnyvale-Santa Clara, CA metropolitan region had the highest median home value at $624,800 (Flanagan and Wilson 2013). About 94 percent of the residential land in San José is designated for single-family homes (City of San José 2024b), and in 2010 the homeownership rate was about 59 percent (United States Census Bureau 2010). While the relative affluence of Silicon Valley shapes its popular perception, that obscures the deep income and wealth inequalities that structure the lives of many people who live there (Pendall and Hedman 2015). These conditions are responsible for the creation of a housing crisis that has driven politics and urban planning in the city for over a decade.

San José's current struggles largely originated in its rapid expansion in the 1950s. The city had a population of about 58,000 in 1930, which, by 1950, had increased by 65

percent, to about 95,000. The population of the greater Santa Clara County doubled during that same period, from a population of 145,000 to 291,000. Between 1950 and 1960, each more than doubled in population once again (Trounstine and Christensen 1982). This was a period of rapid growth and development, but most of that growth was centered in the suburbs and even immediately outside of San José, in surrounding municipalities. According to Trounstine and Christensen (1982), by 1963, San José accounted for only 9.4 percent of the county's retail sales, which had declined from 67 percent in 1920. By 1970, they claim, *every* downtown department store had closed or moved elsewhere. Downtown San José's decline was clear by 1956, when the San José Redevelopment agency was established to address blight across the city. Downtown was one of the primary areas the agency focused on, leading to several large redevelopment projects in the urban core that would destroy more than 200 buildings (McDaniel 2017). Despite these redevelopment efforts, Downtown San José continued to struggle, a pattern that persists today (Kadah 2022).

San José's development during the period of rapid expansion and suburbanization was also structured based on race and ethnicity. By 1970, Latinxs accounted for 21.9 percent of San José's population. A 1973 Rand report indicated that while their economic position had improved alongside that of the city's white population, the city "exhibited no tendency to narrow the wide gap between its ethnic minority and the majority" (Alesch and Levine 1973:21). In addition, 70 percent of Latinx households had incomes below the white median in 1970 and increasing ethnic and economic segregation suggested the gap would continue to grow (Alesch and Levine 1973).

The practice of redlining helps to explain these inequalities. While the Fair Housing Act of 1968 banned housing discrimination based on factors like race, the practice of redlining continued to affect mortgage lending. In 1977, the California Department of Savings and Loan (CDSL) released the *Fair Lending Report* based on an investigation into the ongoing practice of redlining by mortgage lenders in major California cities. The report concludes that the problem was created by several factors, including suburban expansion, neglect of the urban core, and lending standards which continued to discourage lending to residents of devalued communities (State of California 1977). The report suggests that the problem of redlining was largely one associated with older, devalued areas associated with the urban core, which bears out in San José. However, the report also reveals that the discriminatory lending practices extended beyond the downtown core into East San José, home to a large proportion of the city's Latinx community.

Discrimination against San José's Latinx community continued in the 2000s, with the subprime mortgage crisis and the resulting Great Recession (Carey 2007). Subprime loans are those "with interest rates substantially higher than those for conventional financing" (Hernandez 2009:291). While some subprime loans may benefit non-conventional borrowers who could not obtain a loan otherwise, many of them are predatory and designed to deplete the wealth of those who are already disadvantaged (Squires 2005). Squires (2005) characterizes this as a form of "reverse redlining" whereby residents of previously redlined communities become targets for further exploitation. The connection between race and subprime lending is well-established, with Blacks and Latinxs being disproportionately represented in the subprime market (Been,

Ellen and Madar 2009, Bond and Williams 2007, Immergluck 2009, Rugh 2015, Wyly et al. 2006). Research has also demonstrated that, beyond looking at race alone, neighborhood segregation is strongly correlated with subprime lending (Hwang, Hankinson and Brown 2015). These patterns also reflect San José's development, which I explore more below.

These historical patterns of development shaped the zoning decision-making that took place with the creation of the *Envision San José 2040* general plan. According to the plan, city officials adopted urban village planning to "shape the transformation of strategically identified and historically underutilized Growth Areas into higher-density, mixed-use, urban districts […] which can accommodate employment and housing growth and reduce the environmental impacts of that growth by promoting transit use and walkability" (City of San José 2023:484). While urban villages are one of only 12 major strategies described in the general plan, it overlaps with eight additional strategies, like "streetscapes for people" (strategy six), which emphasizes New Urbanist design principles. Another example of the overlap with urban village planning is strategy nine, "destination downtown," which seeks to establish Downtown San José as the "cultural center" of the city, a goal that the development of urban villages factors into. That the City of San José established urban villages and new urbanist principles as a central pillar of its future development is also evidenced by the fact that areas zoned for urban villages are one of the few areas in the city where housing development is permitted (Wang 2019). There are only 67 sites zoned for urban village development (see Figure 1), so the City's general plan focuses most of the City's future housing development in a relatively small area of the city.

These conditions make San José's urban village upzonings a crucial factor in its development plans and provide an opportunity to explore the factors associated with their application to space.

HYPOTHESES

Hypothesis One: The Homevoter Hypothesis

Homevoter theory suggests that homeowners, by way of their voting power, come to dominate local politics and ensure that their interests dominate decision-making (Fischel 2001). Since homeowners are generally resistant to any changes in or near their neighborhoods due to concerns about housing values, the theory suggests that homeowners would be opposed to urban village developments in their communities. Based on this, my homevoter hypothesis suggests that neighborhood homeownership rates will be negatively associated with the likelihood of that neighborhood containing an area zoned for an urban village.

Hypothesis Two: The Growth Machine Hypothesis

Growth machine theory suggests that a group of urban elites, the urban growth coalition, exert influence over local politics and decision-making (Logan and Molotch 2007, Molotch 1976). Many of these "place entrepreneurs" are heavily invested in urban property and businesses and stand to profit from urban growth. While the relative affluence or poverty may make some neighborhoods more or less attractive and may provide their residents more or less power to resist change, the growth machine theory suggests that development priority will primarily focus on existing urban amenities that can be leveraged. Based on this, my growth machine hypothesis suggests that neighborhood amenities like proximity to public transportation and proximity to

Downtown San José will be positively associated with the likelihood of a neighborhood containing an area zoned for an urban village.

Hypothesis Three: The Sociospatial Hypothesis

Sociospatial theory suggests that historical patterns of uneven development, of investment and disinvestment, will shape zoning decision-making. In this view, neighborhoods where historical forms of racial discrimination and disadvantage have been concentrated will be more likely to be targeted for redevelopment. Based on this, my sociospatial hypothesis suggests that neighborhood levels of historical disadvantage will be positively associated with the likelihood of that neighborhood containing an area zoned for an urban village.

DATA AND METHODS

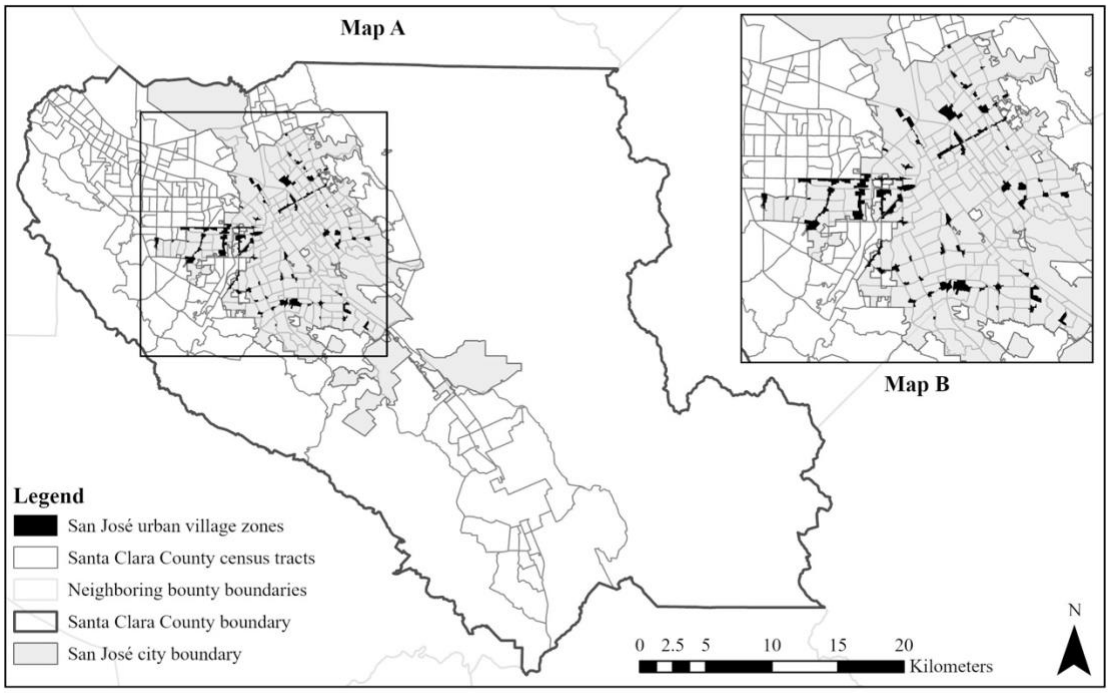
Units of Analysis

This study uses 2010 census tracts as its units of analysis and representation of "neighborhoods." These are displayed in Map A in Figure 1. Census tracts are statistical areas with boundaries that "generally follow visible and identifiable features" as well as nonvisible legal boundaries (U.S. Census Bureau 2012:12). Though they do not perfectly align with local definitions of neighborhoods, they are created with input from local participants (U.S. Census Bureau 2012). In addition, they are also the smallest geographic units that reliable data is available for in this study.

Though this analysis is primarily focused on the City of San José, it uses census tracts for the entirety of Santa Clara County (n = 372). Santa Clara County contains the City of San José in its entirety and is the heart of "Silicon Valley." This region is better thought of as a collection of "realms" that are not neatly contained within city boundaries

(Gottdiener, Hohle and King 2019). These realms create a multi-centered region composed of varying social and economic activities that are integrated by transportation networks. I include all Santa Clara County census tracts in the analysis because the characteristics of census tracts outside of the city's boundary should be expected to have at least some effect on those within it.

Figure 1. (A) 2010 census tract boundaries for Santa Clara County. (B) San José city boundary and urban village zones.



Dependent Measure

The dependent variable is based on the City of San José's urban village zoning designation that was established in the City's 2011 general plan, *Envision San José 2040* (City of San José 2023). I derived the locations of these zones from a spatial dataset accessed via the City of San José's (2024a) Open Data Portal. I compared the zones documented in the dataset to the City's general plan and a list of all urban villages from a

SPUR report (Wang 2019), which revealed that the dataset was incomplete. I manually amended the dataset so it contained all urban villages.

The dependent variable is a binary measure evaluating whether an area zoned for an urban village is present in a census tract. I created this variable by intersecting the urban village spatial data with the 2010 census tract boundaries and calculating the percent of each tract that was covered by areas zoned for urban villages. One hundred and twenty-eight total tracts intersected areas zoned for urban villages, with 10.6 percent average coverage and a maximum of 61.2 percent. All 128 tracts with overlap were visually inspected and manually evaluated to determine whether the overlap was indicative of the presence of an urban village in the tract. In some instances, with larger census tracts in particular, tract boundaries bordered large areas zoned for urban villages but did not meaningfully "contain" urban village zones. Nine census tracts, with overlap percents up to 2.0 percent, were removed from the overlapping tracts, leaving a total of 117 census tracts that contained urban villages.

Independent Measures

Homevoter measures. I include a single measure associated with homevoter theory, the percent of homeowner-occupied housing units within each tract. I derived this from the 2010 Census (Manson et al. 2023).

Growth machine measures. I include four measures associated with growth machine theory. This includes measures of transportation stops and two measures of San José's urban form. The Valley Transportation Authority (VTA), which manages public transportation for Santa Clara County, provided the data I used to derive the public transportation stop measures. A VTA representative provided the coordinates of all bus

stops in April 2010 (VTA 2023b). Due to the large number of stops (n = 3128) I use the density of stops per tract (number of stops divided by tract area, in square kilometers). The light rail stop data came from the VTA Open Data Portal (VTA 2023a). It contained all stops in 2019. I verified that each stop in the data file was in operation in 2010 and that no stations had been closed in the intervening period. For the final list of stations (n = 61), I calculated the distance, in kilometers, to the nearest light rail station from the center of each tract.

For the first measure of San José's urban form, I calculated the distance, in kilometers, from the center of each census tract to the center of Downtown San José.[2] I created the final growth machine measure, percent tract within city limits, by intersecting the census tracts boundaries for Santa Clara County with the San José city boundary. The San José city boundary data came from the City of San José's Open Data Portal (City of San José 2024a).

Sociospatial measures. Following Hernandez (2009) and Liévanos (2020), I derived the first sociospatial measure, based on redlining in the 1970s, from the Fair Lending Report produced by the CDSL (State of California 1977). It contains maps documenting loan volumes, by census tract, for the years between 1972 and 1976. These maps included two primary classifications: tracts where the per capita loan volume was less than 10 percent of the county average and tracts where the loan volume was 10 to 25 percent of the county average. I extracted areas where the loan volume was less than 10

[2] Defining "downtown" was challenging as there isn't a single clearly defined "downtown" neighborhood. I opted to use the downtown boundary as defined in Google Maps (2023) because it most accurately reflected the city's historic urban core. I determined the center point of that boundary and used that to represent the downtown center.

percent of the county for each year.[3] To create a single measure from the data that was spread across five years, I counted the number of years that each tract was classified as having a loan volume of less than 10 percent and then calculated the average for each tract over the five-year period (c.f., Liévanos 2020). Twenty-nine tracts were classified as having a loan volume less than 10 percent and, among those, the average time across the five years was 38 percent. I identified 12 census tracts above the average. I extracted those tracts and then intersected them with the 2010 tracts, calculating the percent that each 2010 tract overlapped with 12 above-average tracts. Among the 2010 census tracts, 68 tracts overlapped.

I derived the second sociospatial measure, percent of high-cost loans between 2004 and 2006, from data provided by the Department of Housing and Urban Development's (HUD) (HUD 2011) Neighborhood Stabilization Program. That data provides tract-level about high-cost mortgages that were issued between 2004 and 2006, taken from the Federal Reserve's Home Mortgage Disclosure Act (HMDA) data. High-cost mortgages are defined as any "where the rate spread is 3 percent points above the Treasury security of comparable maturity" (HUD 2011). These loans are high-risk or "subprime" and contributed to the Great Recession of 2007 to 2009 as well as the associated foreclosure crisis. The spatial distribution of these loans is an indicator of socioeconomic inequalities (Liévanos 2020). I calculated the measure by determining the proportion of high-cost loans per census tract; dividing the number of high-cost loans issued by the total estimated number of loans issued during the same period.[4]

[3] I included only the areas where the per capita loan volume was less than 10 percent of the county average to capture the areas of the city that were most impacted by redlining.
[4] The HUD data was calculated based on 2000 census tract boundaries and I used the aerial apportionment method as described by Logan, Xu, and Stults (2014) to apportion the data to 2010 tract boundaries.

For the third sociospatial measure (Liévanos 2020), I collected information about foreclosures from the website PropertyRadar.com (2023). I produced a list of coordinates for all properties that entered preforeclosure in 2007 (n = 5282) and 2008 (n = 10,742). After removing duplicate entries for properties that appeared in both years and entries with missing values, I had a final list of 15,161 properties. To calculate the foreclosure rate, I divided the preforeclosure count for each tract by the total number of housing units in that tract from the 2010 Census.

The fourth and final sociospatial measure is the percent Latinx composition of census tracts in 2010. I derived that measure from the 2010 Census (Manson et al. 2023)

Spatial Dependence. To address spatial dependence in the logistic regression model, I created a measure of the percent of the nearest 45 census tracts that contained areas zoned for urban villages. The 45-nearest-neighbor threshold best addressed spatial autocorrelation in the residuals from the logistic regression analysis. The creation of this measure is described in more detail below.

Analytic Strategy

For the first step of the analysis, I use descriptive statistics to explore the relationship between the explanatory variables and census tracts that contain areas zoned for urban villages. Then, in the second step, I compare the explanatory variable means for the census tracts based on whether an urban village zone was present in the tract. In the third step, I use binary logistic regression to measure the effect of the explanatory variables on the presence of urban village zones. Finally, in step four, I use a spatial weights matrix to check for spatial dependence and develop an additional term that was incorporated into the regression model to account for spatial lag (Anselin 2009, Liévanos

2019). An analysis of the residuals from the initial regression analyses using global Moran's *I* tests revealed significant and positive spatial autocorrelation. To account for this spatial dependence, I performed Moran's *I* tests on the regression model residuals using nearest neighbor thresholds ranging from five to 90. The Moran's *I* value decreased as the nearest neighbor threshold increased, but leveled off between 40 and 45 nearest neighbors, indicating that spatial extent best characterized the spatial effects that influenced the location of urban village zones (Budd, Liévanos and Amidon 2020; Liévanos, Evans, and Light 2021). This is described in more detail in the results section.

Principal Component Analysis

Four of the sociospatial variables used in this study were highly correlated with each other. To address these issues of collinearity, I used principal component analysis (PCA) to develop a measure of "concentrated disadvantage" (Liévanos 2019). PCA is a "useful tool to develop composite measures that represent underlying and complex dimensions of population vulnerability (or other analytical constructs) that cannot be captured using separate indicators of vulnerability" (Liévanos 2018:11). PCA is often used in social science studies of environmental inequality to address issues of collinearity among measures of population vulnerability (Liévanos 2015, Liévanos 2018, Liévanos 2019). This approach is appropriate in this study because it reflects a social process like those studied in the environmental inequality literature. It allows census tract-level indicators of structural and population disadvantage to be combined to establish a more general measure of vulnerability to harmful effects and further disadvantages.

I developed a single PCA that includes the four independent measures reflecting cumulative spatial disadvantage associated with sociospatial theory. Those include the

percent of 1970s redlining overlap, the percent of high-cost loans, the percent of foreclosures, and the percent Latinx population. I created a component factor I called "racialized uneven development" because these measures all captured racialized spatial disadvantage (Liévanos 2020). Consistent with previous research, eigenvalues greater than 1.00 and listwise deletion for missing values were used (Liévanos 2019). A varimax rotation was used to produce high factor loadings for a smaller number of variables, increasing the variation between the factors (Cutter, Boruff and Shirley 2003, Liévanos 2019). I assessed the validity of each factor by evaluating the percent of the total variance it explained and the reliability using Chronbach's alpha scores.

Table 1 summarizes the PCA. The factor is spatially oriented, reflecting measures that were concentrated in the same geographic space.

Table 1. Principal component analysis for racialized uneven development factor

Variables	**Racialized Uneven Development Component Factor Loadings**
Percent 1970s redlining overlap	0.523
Percent high-cost loans, 2004 to 2006	0.924
Percent foreclosures, 2007 and 2008	0.870
Percent Latinx composition, 2010	0.910

Regression Analysis

I used binary logistic regression analyses to examine the location of urban village zones as they relate to the explanatory variables. Each model used the following equation:

$$\left(\frac{P}{1-P}\right) = \alpha + \sum \beta_k X_k$$

Where (P/1-P) is the probability of a Santa Clara County census tract containing an area zoned for an urban village in 2010, α is the intercept, and $\sum\beta_k X_k$ is the sum of coefficients β for the k number of X independent variables.

RESULTS

Descriptive Statistics

Table 2 provides descriptive statistics for each variable included in the study. About a third (31 percent) of the 372 2010 Santa Clara County census tracts (n = 117) in the study area contained areas zoned for urban villages.

Table 2. Descriptive statistics for variables used in the logistic regression analysis. (n = 372 census tracts).

Variables	Mean	S.D.	Min.	Max.	Moran's *I*
Dependent Measures					
Census tract contains an urban village zone	0.31	0.46	0.00	1.00	0.24***
Homevoter					
Percent homeowners, 2010	59.24	22.26	0.14	94.26	0.20***
Growth Machine					
Bus stop density (sq. km)	4.94	3.92	0.00	36.00	0.17***
Distance to the nearest light rail stop (km)	4.55	5.77	0.07	35.47	0.42***
Distance to the downtown center (km)	12.07	8.74	0.36	49.34	0.63***
Percent tract within city limits	50.59	47.53	0.00	100.00	0.62***
Sociospatial					
Percent 1970s redlining overlap	4.89	20.74	0.00	100.00	0.15***
Percent high-cost loans, 2004 to 2006	11.03	7.98	0.00	49.73	0.54***
Percent foreclosures, 2007 and 2008	2.94	3.34	0.00	24.65	0.55***
Percent Latinx composition, 2010	26.76	20.27	1.78	86.09	0.48***
Racialized uneven dev. factor	0.00	1.00	-1.16	3.85	0.58***
Spatial Context					
Percent nearest 55 census tracts that contain an urban village zone	35.84	22.45	0.00	73.33	0.85***

[1]Moran's *I* test of residuals conducted with 9999 permutations and 45-nearest neighbor spatial weights matrix. *** indicates that the Moran's *I* was significant at the <.001 level.

The descriptive statistics reveal some variability among the growth machine measures. The two public transportation-related variables are both illustrative of development patterns in San José. Bus stops are present in 350 (94.1 percent) of the 372 census tracts, with a mean of 4.94 bus stops per square kilometer. The Moran's *I* value (*I* = 0.15) is significant and reflective of a less clustered spatial distribution. The mean distance to the nearest light rail stop from the tract center is 4.55 kilometers and the large standard deviation (5.77 kilometers) is reflective of the small service area of the light rail. The light rail spans across much of the county but, as was the case with bus stops, does not penetrate the more suburban areas.

There is also variability evident among the sociospatial measures. The 1970s redlining documented in the Fair Lending Report highlights the uneven spatial distribution of urban inequalities. Sixty-eight (18.28 percent) of the 372 tracts overlapped with 1970s census tracts where the loan volume was less than 10 percent of the county average. The 1970s redlining is much more spatially concentrated than that might suggest though, as 18 of those tracts had a percent of overlap greater than 85 percent, while the percent of overlap in the remaining 50 was less than 10 percent. Among those 18 tracts, four are in San José's urban core (8.33 percent), 11 (61.11 percent) are in East San José[5], and 3 (16.66 percent) were in the northwest of Santa Clara County (outside of the city limits). This highlights the spatial inequalities associated with uneven development as

[5] For the purposes of this study, East San José includes any census tract that is located to the east of U.S. Route 101 and the west of the Diablo Range foothills. The northern and southern boundaries are formed the Alum Rock and Evergreen neighborhoods, respectively. It is composed of 47 2010 census tracts, some of which are unincorporated areas that have San José addresses but fall outside of the city boundary. These boundaries reflect popular understandings of the area, but definitions of the area vary.

well as the way that they shift across urban space. The distribution of 1970s redlining can be seen in Map D found in Figure 3.

The spatial inequalities evidenced by the sociospatial variables from the 2000s display much clearer patterns of uneven development. The racial and ethnic segregation of San José is evidenced by the distribution of the city's Latinx population, which is largely concentrated in Downtown and East San José. The average percent of the Latinx population in Santa Clara County census tracts in 2010 is 26.76 percent. In East San José, 35 tracts (74.47 percent) are above the mean. The significant Moran's *I* value ($I = 0.48$) is indicative of moderate levels of clustering despite the elevated levels in East San José. The distribution of the Latinx population across the study area can be seen in Map B in Figure 3.

The mean percent of high-cost loans across all census tracts is 11.03 percent and displays significant but moderate overall clustering with elevated concentrations in particular areas of the city. In East San José, 39 (80.85 percent) of the 47 tracts are above that average, and 20 (42.55 percent) of those are two to three times greater. In San José's urban core, 11 (84.62 percent) of the 13 tracts are above the average. This is consistent with the rates in East San José but the greater proportion of owner-occupied units in East San José makes the impacts there more severe. While the average percent of high-cost loans is greater in East San José census tracts (19.44 percent) than it was in the urban core census tracts (17 percent), the difference in the average number of high-cost loans per tract in each area is even greater. In East San José, the average number of high-cost loans administered per tract is 167.97 while it is only 79.1 among the urban core census

tracts. This clustering is evidenced by the measure's moderate and significant Moran's *I* value (*I* = 0.54). The distribution of high-cost loans is displayed in Map A in Figure 3.

The percent of foreclosures between 2007 and 2008 displays a pattern that is like that of the other sociospatial measures. The mean percent of foreclosures across all Santa Clara County census tracts is 2.94 percent but displays considerable variability (*SD* = 3.34 percent) and is moderately spatially concentrated. Foreclosures during that period were highly concentrated in East San José. Of the 47 census tracts in East San José, only four had *below-average* foreclosure rates. The average foreclosure rate for the area is 7.15 percent. In San José's urban core, the mean is slightly lower than the rest of the county, at 2.35 percent. The significant Moran's *I* value of 0.55 is indicative of moderate overall clustering. The distribution of foreclosures across census tracts is displayed in Map D in Figure 3.

Average Differences Between Tracts with and Without Urban Village Zones

Table 3 compares the independent variable means by the presence of an urban village zone, providing preliminary indication of the influence of all three theoretical models. The results are consistent with the predictions made by each model. In the case of homevoter theory, the presence of an urban village zone in a tract is associated with a smaller percent of owner-occupied units. Concerning growth machine theory, the presence of urban village zones is associated with greater bus stop density, less distance to both the downtown center and the nearest light rail stop, and a larger percent of the tract within the city boundary. For sociospatial theory, areas zoned for urban villages were associated with the tract having been redlined in the 1970s. Areas zoned for urban villages were also associated with tracts where a greater percent of high-cost loans were

administered, where foreclosure rates were greater, and where the percent of Latinx composition was also greater. Finally, the spatial dependence measure reveals that tracts containing urban village zones were more likely to be located near other tracts containing urban village zones.

Figure 3. Santa Clara County census tracts and (A) the percent of high-cost loans in 2010; (B) percent Latinx in 2010; (C) percent of foreclosures in 2007 and 2008; and (D) percent of tract redlined in the 1970s.

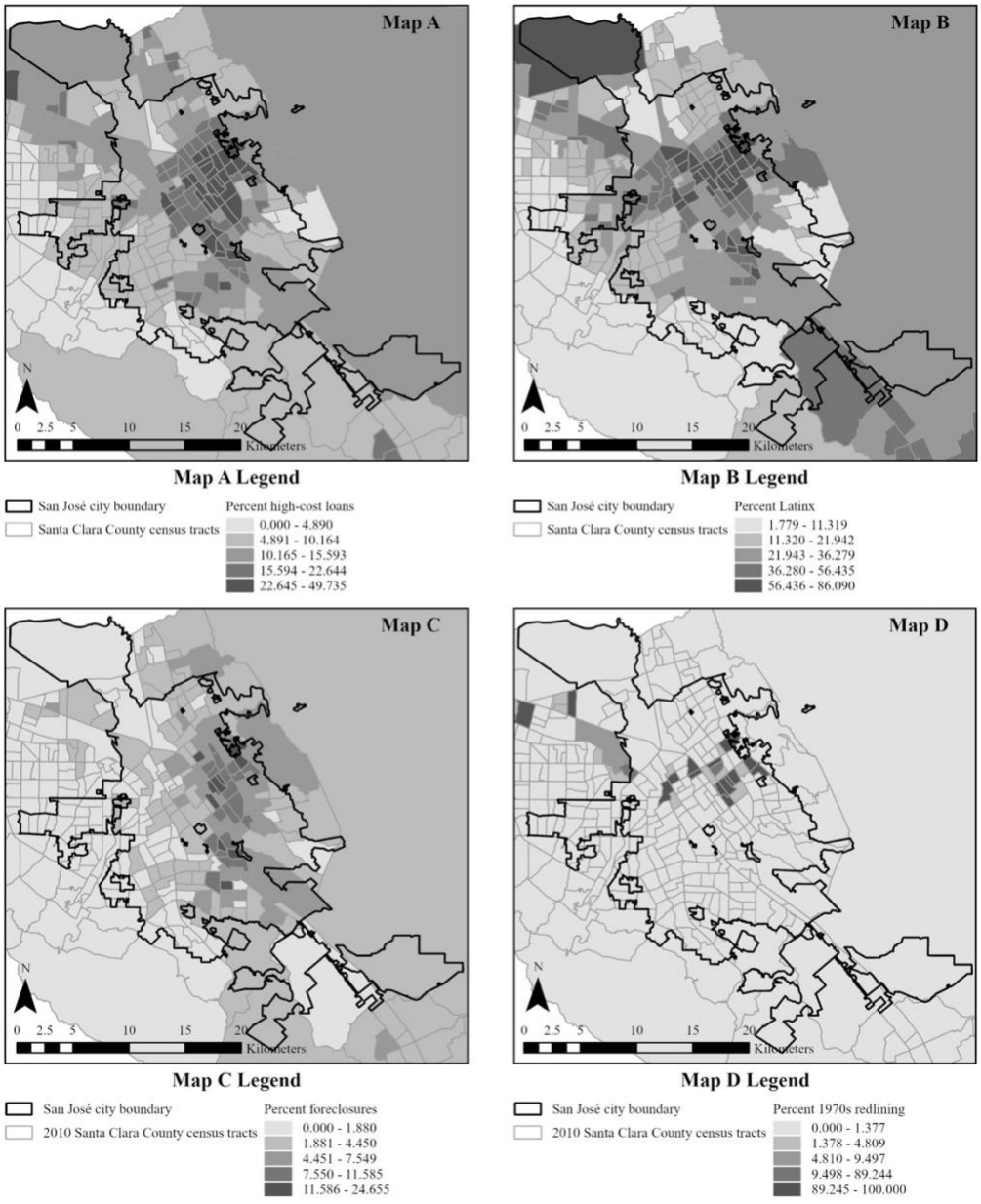


Table 3. Comparison of independent variable means by the presence of an urban village ($n = 372$).

Variables	No Urban Village Zone Present	Urban Village Zone Present
Homevoter		
Percent homeowners, 2010	60.269	56.994
Growth Machine		
Bus stop density (sq. km)	4.442	6.024
Distance to the nearest light rail stop (km)	5.543	2.400
Distance to the downtown center (km)	14.303	7.218
Percent tract within city limits	33.380	88.093
Sociospatial		
Percent 1970s redlining overlap	3.683	7.521
Percent high-cost loans, 2004 to 2006	9.992	13.292
Percent foreclosures, 2007 and 2008	2.711	3.445
Percent Latinx composition, 2010	24.388	31.943
Racialized uneven dev. factor	-0.117	0.255
Spatial Concentration		
Percent nearest 45 census tracts that contain an urban village zone	28.218	52.460

Logistic Regression Analyses

Tables 4 and 5 summarize the results from the logistic regression analysis. Odds ratios greater than one suggest a one-unit increase in the independent variable is associated with a greater likelihood of a census tract containing an urban village zone. Odd ratios less than a one-unit increase in the independent variable is associated with a decreased likelihood of a census tract containing an urban village zone.

Table 4 summarizes the results for Models 1 through 3, each of which includes the measure(s) associated with one of three hypotheses—homevoter, growth machine, and sociospatial, respectively. This allows for the comparison of the effects of each set of measures independently.

Models 2 and 3 in Table 4 both have statistically significant model chi-square values, which suggest the models significantly and reliably predict whether a tract will contain an urban village. The chi-square value for Model 1 is not statistically significant.

Table 4. Models 1 to 3 logistic regression results for the presence of an urban village in a census tract (n = 372 census tracts).

Variables	Model 1		Model 2		Model 3	
	Odds Ratio[1]	**95% Confidence Interval**	**Odds Ratio**	**95% Confidence Interval**	**Odds Ratio**	**95% Confidence Interval**
Homevoter						
Percent homeowners, 2010	0.993	0.984 to 1.003				
Growth Machine						
Bus stop density (sq. km)			1.022	0.948 to 1.103		
Distance to the nearest light rail stop (km)			0.972	0.840 to 1.123		
Distance to the downtown center (km)			0.921*	0.851 to 0.998		
Percent tract within city limits			1.024***	1.016 to 1.033		
Sociospatial						
Racialized uneven dev. factor					1.430***	1.153 to 1.774
Model diagnostics						
-2 log likelihood	461.534		334.655		452.521	
Model chi-square	1.730		128.609***		10.743***	
Degrees of freedom	1		4.000		1.000	
Pseudo R-squared	0.007		0.410		0.040	

[1]Odds ratios for the constant not displayed in the table; [2]Moran's I test of residuals conducted with 9999 permutations and 45-nearest neighbor spatial weights matrix. *Correlation is significant at the 0.05 level (two-tailed). **Correlation is significant at the 0.01 level (two-tailed). ***Correlation is significant at the 0.001 level (two-tailed).

Model 1 presents the effect of the homevoter measure, the percent of owner-occupied units in a census tract, on the likelihood that a tract contains an urban village. The model reveals that a one-point increase in the percent of owner-occupied units is associated with 0.07 percent decrease in the likelihood that a tract will contain an urban village zone (odds ratio (OR) = 0.993; 95 percent confidence interval (CI) = 0.984 to 1.003).

The effects of the growth machine measures are presented in Model 2. In this model, two measures are significant predictors of whether an urban village zone will

contain an urban village. The first of these is the distance to the center of Downtown San José, for which a 1-kilometer increase in the distance from a tract center to the center of Downtown is associated with a 7.9 percent decrease in the likelihood of containing an urban village zone (*OR* = 0.921; *CI* = 0.851 to 0.998). The other significant predictor is the percent of a tract that is contained within the San José city boundary, for which a 1-point increase in the percent of a tract within the boundary is associated with 2.4 percent increase in the likelihood of containing an urban village zone.

Model 3 presents the effect of the sociospatial measure, the racialized uneven development factor, on the likelihood of a tract containing an urban village zone. A 1-point increase in the racialized uneven development factor is significantly associated with a 43 percent increase in the likelihood of a tract containing an urban village zone. This is the strongest effect among any of the included measures.

Table 5 summarizes the results of Models 4 and 5, which incorporate all the measures from the previous three models. In addition, Model 5 includes a measure of spatial dependence. Models 4 and 5 both have statistically significant model chi-square values, which suggest the models significantly and reliably predict whether a tract will contain an urban village.

Consistent with the previous three models, the results of Model 4 identify the same three measures as being significantly associated with the likelihood of a tract containing an urban village zone. In that model, a 1-kilometer increase in the distance from a tract center to the center of Downtown San José is associated with a 10.2 percent decrease in the likelihood that the tract contains an urban village zone (*OR* = 0.898; *CI* = 0.822 to 0.981). This effect grew by 2.3 percent compared to Model 2. Likewise, a 1-

point increase in the percent of a tract within the boundary is associated with 2.6 percent increase in the likelihood of containing an urban village zone (*OR* = 1.026; *CI* = 1.013 to 1.031). This reflects a slight increase in the strength of the effect (0.2 percent) compared to Model 2. Finally, the racialized uneven development factor was also a significant predictor in Model 4, with a 1-point increase in the racialized uneven development factor being associated with a 26.8 percent *decrease* in the likelihood of a tract containing an urban village zone (*OR* = 0.732; *CI* = 0.549 to 0.976). This reflects a reversal of the effect compared to Model 3, where it was analyzed independently.

Table 5. Models 4 and 5 logistic regression results for the presence of an urban village in a census tract (n = 372 census tracts).

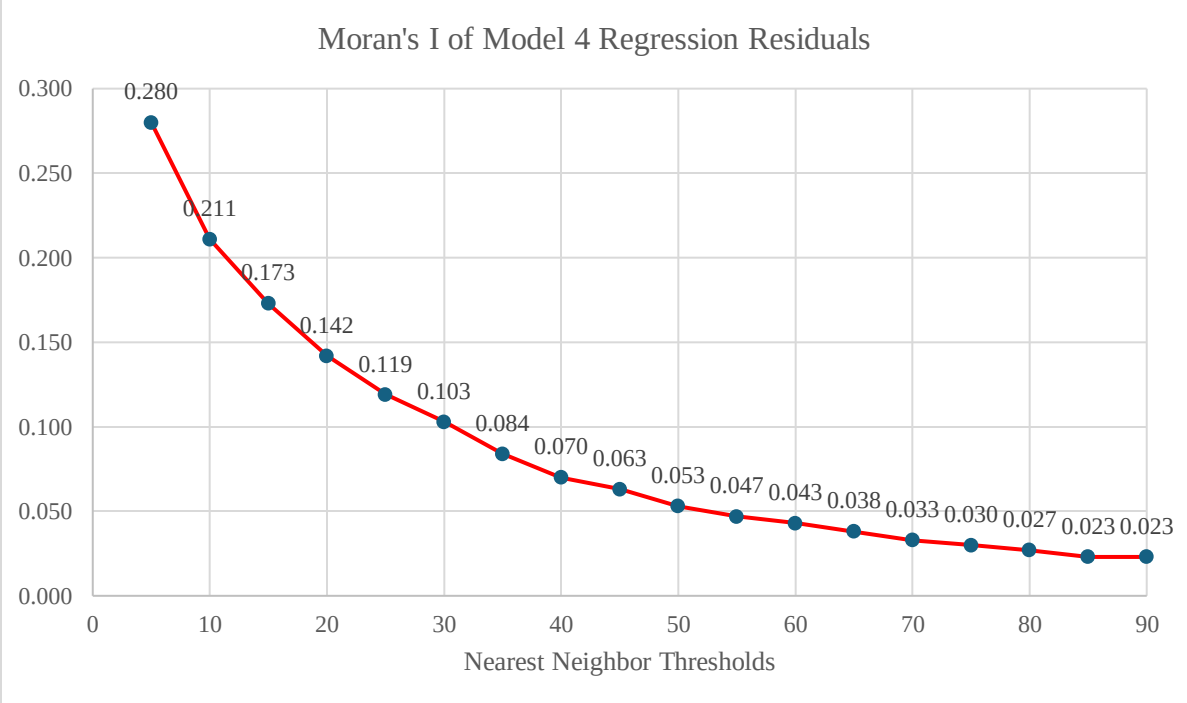
Variables	Model 4		Model 5	
	Odds Ratio	**95% Confidence Interval**	**Odds Ratio**	**95% Confidence Interval**
Homevoter				
Percent homeowners, 2010	1.000	0.985 to 1.015	0.994	0.979 to 1.009
Growth Machine				
Bus stop density (sq. km)	1.023	0.942 to 1.111	1.032	0.949 to 1.123
Distance to the nearest light rail stop (km)	0.968	0.8030 to 1.129	1.038	0.904 to 1.192
Distance to the downtown center (km)	0.898**	0.822 to 0.981	0.966	0.879 to 1.061
Percent tract within city limits	1.026***	1.017 to 1.035	1.022***	1.013 to 1.031
Sociospatial				
Racialized uneven dev. factor	0.732*	0.549 to 0.976	0.783	0.589 to 1.042
Spatial Dependence				
Percent nearest 45 census tracts that contain an urban village zone			1.049***	1.025 to 1.073
Model diagnostics				
-2 log likelihood	329.905		311.682	
Model chi-square	133.359***		151.581***	
Degrees of freedom	6.000		7.000	
Pseudo R-squared	0.423		0.470	
Moran's I for regression residuals	0.063***		0.004	

[1]Odds ratios for the constant not displayed in the table; [2]Moran's *I* test of residuals conducted with 9999 permutations and 45-nearest neighbor spatial weights matrix. *Correlation is significant at the 0.05 level (two-tailed). **Correlation is significant at the 0.01 level (two-tailed). ***Correlation is significant at the 0.001 level (two-tailed).

Figure 4 shows the Moran's *I* values for the residuals from Model 4. That model includes all the measures associated with the theoretical perspectives being tested. Moran's *I* is a measure of spatial autocorrelation used to evaluate how the attributes of a given measure are distributed across space. It is used to determine where attributes are randomly distributed or if they are clustered. Smaller values, nearer 0, indicate a random

distribution while larger values, nearer 1, indicate complete clustering. As can be seen in the graph in Figure 4, the Moran's *I* steadily decline and then taper off slightly at the 45 nearest neighbor threshold. Following the strategy employed by Budd, Liévanos, and Amidon (2020) and Liévanos, Evans, and Light (2021), I explored the different effects produced by the closest neighbor thresholds and found that the 45 nearest neighbor threshold best reflected the spatial distribution of the factors that influence whether a census tract contains and urban village zone. I used this threshold to create my spatial dependence measure, reflecting the percent of census tracts among each tract's 45 nearest neighbors that contain an urban village zone. This measure of spatial dependence was incorporated into Model 5.

Figure 4. Spatial autocorrelation analysis results. [6]



[6] I analyzed the residuals from Model 4, including all measures except for the spatial dependence variable. The 45 nearest neighbor threshold Moran's *I* value of 0.063 reflects the first point after the decline in values where the Moran's *I* values level off slightly. That nearest neighbor threshold was selected for the spatial dependence measure incorporated into the full regression model reflected in Model 5.

The results for Model 5, which incorporates the spatial dependence measure, are displayed in Table 5. In that model, two measures are significant predictors of whether a census tract contains an urban village zone. Consistent with the previous models, a 1-point increase in the percent of a tract within the city boundary is associated with 2.4 percent increase in the likelihood of containing an urban village zone (*OR* = 1.024 *CI* = 1.016 to 1.033). The other significant predictor is the added spatial dependence measure. A 1-point increase in the percent of a tract's 45 nearest neighbors that contain an urban village is associated with 4.9 percent chance that a tract will contain an urban village. Adding the measure of spatial dependence also produced changes in other measures. The significant effects of the distance of a tract center to the center of Downtown San José (*OR* = 0.966; *CI* = 0.879 to 1.061) and the racialized uneven development factor (*OR* = 0.783; *CI* = 0.589 to 1.042) went away.

Including the spatial dependence measure in Model 5 helped account for spatial dependence in the urban village zone location predictors and improve the model fit. The significant Moran's *I* value (*I* = 0.063) for the regression residuals in Model 4 decreases in Model 5 (*I* = 0.004) and is no longer significant. Including the spatial dependence measure in the model also reduced the -2 log likelihood and increased the Pseudo R^2 value.

DISCUSSION

In this study, I explored the factors that predict the location of urban village zoning in San José, CA. I evaluated these factors based on three hypotheses. The homevoter hypothesis suggested that neighborhood homeownership rates will be negatively associated with the likelihood of that neighborhood containing an area zoned

for an urban village. The growth machine hypothesis suggested that neighborhood amenities like proximity to public transportation and proximity to Downtown San José will be positively associated with the likelihood of a neighborhood containing an area zoned for an urban village. Finally, the sociospatial hypothesis suggested that neighborhood measures of historical disadvantage, factors associated with racialized uneven development of urban space, would be positively associated with the likelihood of that neighborhood containing an area zoned for an urban village.

The study produced mixed results but provided the strongest support for the growth machine hypothesis. The percent of the tract that was located within the city boundary was a significant predictor across all models that included the growth machine measures and the distance to the downtown center was also significant across all models except for Model 5, which accounted for spatial dependence. While urban village zones designated by the City of San José *cannot* exist outside of the city boundaries, the large difference in the average percent of the tract within the boundary that contain an urban village zone (88 percent) compared to that of tracts that do not contain an urban village zone (33 percent) suggests that urban villages are not likely to be located on the city's margins. This corresponds with the analysis of the distance to the center of Downtown San José measure, which predicts that urban villages are more likely to be located near Downtown, which is centrally located within the city. The growth machine theory suggests that urban elites will influence zoning decision-making to favor developments in areas with existing infrastructure that can be leveraged. Contrary to the expectations of growth machine theory, neither bus stop density nor distance to the nearest light rail stop were significant predictors of an urban village being in a census tract. While there was a

small positive effect associated with bus stops, they are distributed more uniformly across the city. The lack of significant effect associated with light rail stops may be due to the limited service area of the light rail in San José. While the light rail lines are more centrally located and did display some positive spatial autocorrelation, its service area is limited enough that it may not serve as an existing resource that can be adequately leveraged.

Contradicting previous studies that tested the homevoter hypothesis, this study did not find that the percent of owner-occupied units in a tract was a significant predictor of urban village zone location. Previous studies have revealed that "homevoter" influence on local politics is a significant factor shaping zoning decisions, but the percent of owner-occupied units was not a significant predictor in any of the three models it was included in for this study, including when it was analyzed independently. This is surprising given the popular resistance to development near San José's single-family communities, but it may indicate that the City's "grand bargain," whereby they focus on redeveloping commercial areas that are *adjacent to*, but not located within, single-family neighborhoods has worked (Wang 2019).

This study provides support for the sociospatial hypothesis only when the measure used to evaluate it, the racialized uneven development factor, was analyzed independently. In that context, past and contemporary racial and economic inequalities resulting from redlining, the Great Recession, and the racial/ethnic composition of neighborhoods was a significant predictor of whether an urban village zone would be in a neighborhood. However, when analyzed in the full model that included all measures, the

effect of the racialized uneven development factor was reversed.[7] This suggests that the process of uneven development may affect zoning decisions but, in the context of San José, measures that reflect the growth machine theory are stronger predictors.

This study has two primary limitations. First, its generalizability is limited. It reflects the conditions in one city in a region of the country with a particular history as well as socioeconomic and racial composition. While there are many cities across the United States that have adopted similar urban village planning strategies, the content of the policies and how they are implemented can vary significantly based on the social and institutional context. As this study highlighted, the specific historical contexts are also important to consider and the further we delve into history, the more likely we are to encounter idiosyncratic factors that shape urban development. San José, for example, is considered the heart of Silicon Valley, an area that is defined by the unique factors that structured its development. With that said, redlining and other inequalities that are structured based on race and socioeconomic status are common throughout much of the urban America and could be used to analyze the implementation of urban policy in other U.S. cities (Hernandez 2009; Liévanos 2020).

CONCLUSION

This study provided the greatest support for the growth machine theory, demonstrating the location of urban village upzoning is most strongly associated with the percent of a neighborhood that is contained within the city boundary and its proximity to Downtown. This suggests that urban village upzoning locations were more likely to be influenced by proximity to fixed amenities, rather than by the percent of homeowners in a

[7] A subsequent analysis revealed that two measures, distance from the tract center to the Downtown center and the percent of the tract within the San José city boundary are responsible for reversing the effect.

neighborhood or historical patterns of racialized uneven development. This contradicts previous studies of upzoning locations based in Los Angeles (Gabbe 2018) and New York (Been, Madar and McDonnell 2014) suggesting that local contexts for zoning decisions may play an important role.

The relationship discovered in this study may also change over time, however. The City of San José upzoning strategy as outlined in its general plan (City of San José 2023) deliberately targets sites that are similar to what Gabbe (2018) describes as "low hanging fruit" in his study of Los Angeles. Those are sites associated with lower-intensity land uses, like parking, agriculture, and manufacturing that tend to be further away from areas where residents live. Gabbe still found support for homevoter theory despite LA's focus on lower-intensity land uses, but it may be that the City of San José found enough low hanging fruit that it didn't need to extend into areas where there are greater numbers of homeowners. As the pressure to develop more housing and commercial properties increases, the City may need to rethink its zoning strategies and could wind up facing resistance from homeowners.

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CHAPTER III: URBAN VILLAGES AND LATINX CHANGE IN SAN JOSÉ, CA

ABSTRACT

While prior research has established that zoning plays an important role in structuring urban inequalities, it is understudied in sociology. Zoning is a form of policy that that dictates what land is used for and how it is developed. It is the basis for the suburban form that dominates U.S. cities and, since its inception, has been used to reinforce residential segregation and exclude people of color from suburban communities. Suburbanization is also associated with other economic, social, and environmental problems, which has led many U.S. cities to adopt updated zoning policies to address them. In 2011, the City of San José, CA adopted their urban village zoning strategy with the goal of establishing a new pattern of development for the city. Urban villages are an example of new urbanist planning, which reflects a paradigm committed to redeveloping urban space under the model of "traditional," pre-modern cities. Proponents argue that the compact, walkable, and sustainable developments that new urbanists promote can solve many of the problems cities face today. However, critics charge that they reproduce the exclusionary nature of the suburbs and reflect an extension of the policies of the past. This raises important questions about the effect that urban village zoning has had on the neighborhoods where the zones were located. To address this question, I examine the change in the Latinx composition of San José neighborhoods between 2010 and 2020 using spatial regression. I also examine the change in the context of the three theoretical perspectives: homevoter theory, growth machine theory, and sociospatial theory that may also help to explain how racial change occurs in cities. The results of the study suggest that urban village zoning is not associated with changes in the

Latinx composition of neighborhoods. The results provide mixed support for the theoretical models, suggesting that additional analysis is necessary.

INTRODUCTION

It is well established within sociology that individuals, groups, and organizations "exert causal power" over space and zoning is one of the primary mechanisms by which this occurs (Gans 2002). It is also well-understood that zoning, as both a historical and ongoing process, is embedded in larger racial- and class-based processes that structure inequalities (Gans 2002, Herbert and Orne 2021, Hirt 2014). Lens (2022:422) argues that it has been "weaponized to maintain social stratification." However, despite the important role that zoning plays in structuring urban environments and the acknowledgment that it is embedded in larger systems of power, sociologists have done little to explore its effects on cities (Lens 2022).

Despite the clear relationship between zoning and urban change, it can be difficult to examine the relationship between the two. While zoning dictates how land can be used, it only provides a framework for development, it does not dictate what will be built and when. In other words, space being zoned for a particular type of use does not mean that it will be physically developed (or *re*developed) that way. This inconsistent relationship between zoning and development may make it difficult to measure the effects of zoning. This is likely why research examining urban change has tended to focus on the effects of development themselves, rather than the zoning policies that structure them.

While the relationship between zoning, development, and urban change is difficult to examine, prior research has established that zoning (and the urban planning process more generally) serves as a "signal" to developers and may lead to speculative

developments in the surrounding areas even before any physical development begins (Immergluck 2009a). Therefore, identifying a newly implemented type of zoning and tracking changes associated with it over time may provide a fruitful way to evaluate its effects.

In this study, I attempt to address the lack of analysis of zoning by examining the relationship between zoning decisions and racial change in San José, CA. I focus on a particular type of zoning, *urban village zoning*, which is an example of new urbanist planning, an approach that has been linked to gentrification and the creation of racially and economically exclusionary spaces (Butler 2007, Grant 2007, Markley 2018a, Markley 2018b, Zimmerman 2001). San José's urban village zoning reflective a more recent, unique approach to urban development and went into effect in 2011, with the adoption of its *Envision 2040 General Plan* (City of San José 2023). This established more than 60 urban village zones across the city. Now, over 10 years later, this provides a foundation for examining how the neighborhoods around those zones have changed.

Using spatial regression, I aim to answer two primary questions about zoning and racial change in San José. The first question I address is: How does the presence of urban village zones affect changes in the Latinx population of neighborhoods? San José has a large Latinx population that has historically been marginalized, making it susceptible to the effects of urban redevelopment initiatives like urban village planning. The second question I address asks: How can theories in urban sociology provide additional context for understanding changes in the Latinx composition of neighborhoods? In addition to examining the effects of zoning, this study aims to situate zoning within broader sociological theories that explain urban change. To answer these questions, I perform

spatial regressions that examine the relationship between the presence of urban village zones within neighborhoods and evaluate three different sociological theories that attempt to explain the factors associated with urban change.

LITERATURE REVIEW

Zoning and Race

Much of the sociological work that explores the relationship between zoning and urban change has focused on racial segregation. Zoning reflects one of the primary ways that space has been racialized (Lipsitz 2007); whereby racial meanings and hierarchies have been embedded in the physical environment (Liévanos 2019b, Omi and Winant 2015). Many of the earliest zoning codes implemented in the United States were used to establish and maintain racial segregation (Hirt 2014, Lens 2022, Silver 1991). While the US Supreme Court struck down racial zoning in 1917, municipalities did not simply give up on racialized zoning practices (Fischel 2015, Lens 2022, Rothstein 2017, Silver 1991). Rothstein (2017) explains municipalities transitioned to using single-family zoning ordinances, which were developed with "open racial intent" to reinforce residential segregation. They achieved this primarily through economic exclusion, as single-family homes were unaffordable for lower-income families of all racial backgrounds. Likewise, Fischel (2015) argues that the effectiveness of zoning ordinances in achieving racial exclusion is evidenced by their use even in communities that had restrictive covenants in place. That restrictive covenants, which restricted the sale of homes to people of color, were insufficiently exclusionary is evidence that zoning served as an exclusionary mechanism that other discriminatory approaches could not match.

Sociologists have also explored the relationship between race and density zoning, which controls the number of housing units that can be built per acre. Pendall's (2000) study of the relationship between zoning policy and racial segregation across the 25 largest U.S. metropolitan areas found that lower-density zoning reduced the prevalence of rental housing and, as a result, also limited the number of Black and Latinx residents. In a similar study, Rothwell and Massey (2009) examined patterns of Black residential segregation across metropolitan areas in the U.S. and found that Black-White segregation and Black isolation were predicted by a municipality's adoption of stricter density limits. They suggest that these dynamics are produced by economic exclusion, as "restrictive density produces higher housing prices in White areas and limits opportunities for people with modest incomes to leave segregated areas" (Rothwell and Massey 2009:801). In another study, Rothwell (2011) discovers similar patterns for Latinx and Asian residents.

The results of the studies exploring density zoning, on their face, suggest that San José's urban villages should be associated with increased racial diversity and *increases* in the Latinx population in the surrounding areas. Urban villages are higher-density, multi-family developments that are intended to challenge the lower-density development patterns that have dominated U.S. cities. However, urban villages, as a type of *new urbanist* development, reflect a particular type of multi-family development that has been criticized for its exclusionary nature. I will explore that more in the following section.

New Urbanism and Race

San José's urban villages reflect a movement and urban planning paradigm called new urbanism. New urbanism is generally understood as an attempt to recreate "traditional" cities, using pre-modern cities as an ideal for urban living (Trudeau and

Malloy 2011). The approach is characterized by its emphasis on "human-scaled" urban design, emphasizing things like compact, mixed-use development, walkability, and access to public transportation (Congress for the New Urbanism 2024). While new urbanism's focus is primarily on physical design, the movement also includes social goals, like building community and encouraging social diversity and equity (Talen 2002). It frames diversity in factors like age, race, and income as fundamental to creating "healthy" communities (Cabrera and Najarian 2013).

While new urbanism stresses racial diversity and purports to promote it, studies examining the diversity of new urbanist developments produce mixed results. Grant and Perrott (2009) found some evidence of racial diversity in their examination of a new urbanist development in Ontario, Canada, while Cabrera and Najarian's (2013) study of a development in Arizona revealed a community that was almost entirely white. These studies are both limited, however, because they only examine the populations of a single new urbanist community. In a much more expansive study, Trudeau and Kaplan (2016) examine the racial diversity of 70 new urbanist developments across the United States by comparing them to control neighborhoods. They found that new urbanist developments were significantly less racially diverse.

There are also other limitations associated with the previously mentioned studies. First, they only look at diversity *within* new urbanist communities and do not consider the surrounding neighborhoods. Second, they do not measure change over time. These are both important considerations as new developments will also affect the surrounding neighborhoods, and we cannot evaluate racial change without a time comparison. Markley (2018a) addresses those in his study of new urbanist developments in suburban

Atlanta. He examines how new urbanist projects built between 2000 and 2013 impact racial change in the neighborhoods where they were built. His examination revealed declining Latinx populations and increasing white populations in those neighborhoods.

Zoning as a Signal

As I established previously, examining the relationship between zoning and urban change can be difficult because zoning does not dictate exactly what will be built or when. It provides a framework for development that may or may not be adopted. This means that it may be more productive to examine the effects of developments themselves, rather than the zoning policies that dictate how and where they are built. However, a small body of scholarship demonstrates that zoning changes and the planning process serve as a "signal" to developers and may generate speculative developments in the surrounding areas. Immergluck (2009a) examined the effects of the urban planning process on a major project in Central Atlanta. He found that the media coverage of the project, which started before development began, was associated with increases in home prices during a three-year period. Likewise, Knaap, Ding, and Hopkins (2001) found that planning for light rail stations in Washington County, Oregon led to increases in property values around the planned sites before development began. Gatzlaff and Smith (1993) documented similar results based on the announcement of a new rail system in Miami. Dehring, Depken, and Ward (2007) found that the announcement of a possible new stadium (that never came to fruition) in the Dallas-Fort Worth area led to increased home values in the area surrounding the proposed development site. Other studies have documented property value changes associated with the announcement of group homes (Colwell, Dehring and Lash 2000) and airports (Jud and Winkler 2006). These studies

demonstrate that the urban planning process, including zoning updates, may serve as signals for developers and can prompt changes even before physical development begins.

Theoretical Perspectives

Many competing theories explain how urban development unfolds and what sorts of factors are associated with neighborhood racial change. This study examines three competing explanations that seek to explain which neighborhoods are most likely to experience change. These provide context for understanding how racial change occurs in urban environments.

Homevoter theory. Fishchel's (2001) homevoter theory suggests that homeowners, or "homevoters" play a significant role in local government decisions. Fischel likens homeowners to shareholders in municipal corporations since homeowners have a significant financial stake in their homes. As a result, they tend to be deeply invested in the success of their communities and are more active in local governance to minimize risk and ensure the greatest return on their investment. Fischel (1985) argues that the economic interests of residential voters are the best predictors of zoning and that homeowners use zoning to control land use in their communities.

Homevoter theory also suggests that homeowner control over urban decision-making is a racialized process and one that is explicitly produced through control over zoning. Fischel (2004) maintains that the exclusionary nature of single-family suburban communities is primarily an income- or class-based phenomenon, but he also acknowledges that racial anxieties fuel concerns about declining property values. This, he argues, is what initially led to the embrace of zoning laws in the 1960s. Shelley *v.* Kraemer in 1948 undermined racial covenants and fair-housing laws that were enacted

because the civil rights movement made informal types of racial exclusion, like private discrimination and steering by real estate agents, difficult and ineffective. Homeowners, therefore, embraced policies like density-based zoning to maintain their racially segregated communities. These policies were effective because they were not overtly racial. They had the effect of excluding lower-income people from suburban communities, which also served as an effective strategy for excluding people of color.

The exclusionary nature of homeowner-dominated communities and their resistance to change suggest that homeowners are likely to oppose new developments in their communities. This would be especially true for those like new urbanist developments that utilize higher housing densities. Homevoter theory suggests that city officials, who exert significant control over the zoning process, are likely to try and appease homeowners by avoiding zoning changes in or near majority homeowner communities (Been, Madar and McDonnell 2014). This would push redevelopment into less affluent areas of the city and communities composed of greater proportions of people of color.

Growth machine theory. Growth machine theory suggests that urban development is controlled by powerful coalitions of urban elites like developers, landowners, and politicians (Molotch 1976). Logan and Molotch (2007) refer to the members of these coalitions as "place entrepreneurs" because their primary goal is to maximize the value of land and buildings in urban areas rather than generate profit from production. As a result, they promote an agenda that focuses on driving urban growth and development. They accomplish this by exerting control over the zoning process via political influence (Been, Madar and McDonnell 2014, Lens 2022).

Growth machine coalitions view urban environments primarily in terms of their exchange value; as a way to collect rents (Logan and Molotch 2007). As a result, their primary interest is maximizing profit by leveraging existing urban infrastructure. This can make poor communities, where people of color are more likely to live, vulnerable to redevelopment and transformation. However, according to growth machine theory, more affluent communities, like single-family neighborhoods, may also be vulnerable to change. This is because growth machine coalitions may view them as "showpiece" neighborhoods that reflect "urban vitality" (Logan and Molotch 2007). Developments in and near these neighborhoods may produce greater rents. While affluent communities have greater political power and will be better able to resist changes, growth machine theory suggests change may still occur there.

As growth machine coalitions view urban environments in terms of their exchange value, their interest is always in maximizing their profits by intensifying land use near existing urban infrastructure. In this view, transportation networks, parks, cultural amenities, and even neighborhoods, are assets to be leveraged. It suggests that zoning changes are more likely to be located near existing urban amenities.

Centering Race in homevoter and growth machine theories. Incorporating racial theory and context about the racial identity of homeowners and of neighborhoods proximate to urban amenities in a given area could help to center racial considerations in homevoter and growth machine theories. Those insights, in turn, could guide empirical analyses of the extent to which racialized homeowner communities and neighborhoods proximate to urban amenities influence the location of redevelopment zones, such as urban villages, in a manner that contributes to neighborhood racial change.

Sociospatial theory. Compared to homevoter and growth machine theories, sociospatial theory takes a more integrated view and incorporates economic, political, and cultural dimensions into the analysis of the development of urban space (Gottdiener, Hohle and King 2019). It includes the emphasis on real estate and property values shared by the other theories but rather than focus on the autonomy of urban elites or homeowner control, it focuses more on the political economy of cities and the role that investment patterns, both public and private, play in establishing "differential trajectories" for communities over time (Liévanos 2020). Investment is not equally distributed across space and capital investment constantly shifts in pursuit of the highest returns. This produces a "seesaw" effect, referred to as "uneven development" that unfolds over time (Smith 2010). The theory of uneven development describes unequal patterns of urban growth that reproduce race- and class-based inequalities as well as development patterns like segregation, inner-city disinvestment, and suburban sprawl (Gotham and Greenberg 2014).

While the theory of uneven development describes a general urban process, scholars have also documented how it is explicitly racialized; how "it is given meaning and produced with symbolic categories and a variety of institutional mechanisms that differentiate people and places by 'race'" (Liévanos 2020:3). Scholars have established how historical forms of discrimination are inscribed in space and linked to contemporary patterns of racial inequality (Gotham 2002, Hernandez 2009, Liévanos 2020, Liévanos 2019b). Hernandez (2009), for example, documents how racial inequities take on a "generational quality" by demonstrating how different forms of racial discrimination,

including restrictive covenants, urban renewal programs, redlining, and subprime lending that develop over time are spatially linked.

San José as a Case Study

I use San José as a site to examine the effects of zoning and to explore neighborhood-level racial change for two primary reasons. First, its development aligns well with the theoretical perspectives introduced in this article. I highlight the relevance of each theoretical perspective below. Second, San José's adoption of urban village planning in 2011 reflects a significant shift in the City's zoning policy. Urban villages are intended to transform development patterns in the city and their association with new urbanism, which has been linked to racial exclusion (Cabrera and Najarian 2013, Markley 2018a, Trudeau and Kaplan 2016), provides an opportunity to critically examine their effects.

In the context of the homevoter perspective, San José's suburban form, which is comprised of mostly single-family homes, makes it an excellent example to study. San José, like many other Sunbelt cities, expanded rapidly after WWII and took on a mostly sprawling, suburban form (Trounstine and Christensen 1982). About 94 percent of the residential land in San José is designated for single-family homes (City of San José 2024b) and in 2010 the homeownership rate was about 59 percent (Manson et al. 2023). As a result of this, homeowners play a powerful role in the city. This is evidenced by the fact that part of the City's development strategy is to avoid disturbing its suburban character (Wang 2019). The racialized nature of homeownership suggested by the homevoter perspective is also evidenced by the racial distribution of homeownership in

the city. Table 1, below, presents the racial composition of homeownership relative to the overall racial composition of the city in both 2010 and 2020 (Manson et al. 2023).

Table 1. The racial composition of San José and homeownership, 2010 and 2020.

Racial/Ethnic Group	2010		2020	
	Percent of Population	Percent of Homeowners	Percent of Population	Percent of Homeowners
White	36.31	49.72	29.50	40.13
Black	2.88	1.84	2.75	1.34
Asian	33.20	29.95	40.60	40.35
Latinx	26.76	16.26	25.52	14.83

San José also serves as a useful case for analysis based on the growth machine perspective. Trounstine and Christensen (1982) link San José's post-WWII development to growth machine politics. They document a growth coalition of urban elites, headed by the city manager, whose primary goals were urban development and expansion. The region was much less developed at the time so growth in that period was accomplished primarily through outward expansion to grow the city spatially as well as through promoting industrial and residential development to expand the city's tax base. To accomplish these aims, the growth machine launched a very aggressive program of urban annexation that involved providing lucrative deals to landowners and developers. The growth machine also developed an advertising campaign to attract industrial development and "catered to industry's every whim when it located in the city" (Trounstine and Christensen 1982:92). Finally, they also established lax zoning policies to facilitate rapid suburban and industrial development.

San José's development also aligns well with the sociospatial perspective and its emphasis on racialized uneven development. San José's Latinx population has long faced discrimination and did not benefit from the city's growth as other racial/ethnic groups

did. By 1970, Latinxs accounted for 21.9 percent of San José's population and a 1973 Rand report indicated that while their economic position had improved alongside that of the city's white population, the city "exhibited no tendency to narrow the wide gap between its ethnic minority and the majority" (Alesch and Levine 1973:21). In addition, 70 percent of Latinx households had incomes below the white median in 1970, and increasing ethnic and economic segregation suggested the gap would continue to grow (Alesch and Levine 1973). These inequalities can be linked, in part, to the ongoing practice of redlining even into the 1970s in California. In 1977, the California Department of Savings and Loan (CDSL) released the *Fair Lending Report* which documented redlining by mortgage lenders in major California cities. The report concludes that the problem was created by several factors, including suburban expansion, neglect of the urban core, and lending standards which continued to discourage lending to residents of devalued communities (State of California 1977). While the report suggests that redlining was largely associated with older, devalued areas of the city, it also reveals that the discriminatory lending practices extended beyond the downtown core into East San José, home to a large proportion of the city's Latinx community. The Latinx community in East San José was also disproportionately affected by the subprime mortgage crisis and the resulting Great Recession (Carey 2007).

San José also serves as a useful site to analyze the effects of zoning due its adoption of the urban village zoning designation with its 2011 general plan, *Envision San José 2040* (City of San José 2023). San José's urban villages are technically an implementation of *upzoning*, which is a zoning strategy that allows for higher

development intensity in select sites (Gabbe 2018).[8] Where urban villages are located within the city is very important, and they are intended to be infill developments that are located: 1) in areas that are easily accessible by foot and bike, and 2) on vacant or underused parcels in previously developed areas (Wang 2019).[9] Even though they are intended to take advantage of vacant or underused spaces (which may include open lots or spaces like large parking lots), urban villages are still a form of redevelopment that is located within previously developed communities. As such, they may serve as a form of gentrification, displacing existing residents (Butler 2007).

San José's urban village zoning designation is also useful for analysis because urban villages are a type of new urbanist development. As I described previously, new urbanism is a movement and urban planning paradigm aimed at revitalizing urban areas that has been criticized for reproducing urban inequalities. It has been linked to gentrification (Butler 2007) and associated with racial and economic exclusion (Day 2003, Grant 2007, Harvey 1997, Hirt 2009, Markley 2018a). It is therefore important to consider how these types of developments could produce racial displacement.

With the adoption of its 2011 general plan, the City of San José designated 67 sites for urban village development (City of San José 2023). Urban villages are one of the key strategies included in the plan and, in a shift from the previous general plan, became

[8] The City of San José's urban villages are not technically upzonings because the approved plans did not automatically change the existing zoning. They can be described as upzoning, however, because they make a space eligible for upzoning with subsequent approval from the San José City Council.

[9] I previously examined the three theoretical models used in this article to determine if they help to predict the siting of urban villages (DeHaan 2024). The results of that study revealed mixed support for growth machine theory but none of the models were strong predictors. In this study, I use the factors associated with these theoretical models to examine their connection to racial change in the context of urban village zoning.

one of the few locations where the city will allow residential development (Wang 2019). However, over 10 years later, the San José city council has only approved plans for 18 urban village developments (City of San José 2020). Urban villages have not been popular with developers (Wang 2019) and research indicates that they have had little economic impact on the city (Gabbe, Kevane and Sundstrom 2021). This raises questions about the potential effects of urban village zoning but a more thorough analysis that examines the impact on the surrounding neighborhoods may be more fruitful.

HYPOTHESES

Hypothesis One: Urban Village Influence

San José's urban villages developed from the new urbanist planning paradigm. Prior research has linked new urbanist developments to gentrification and demonstrated that they reproduce exclusionary racial dynamics. Based on this, my urban village influence hypothesis suggests that neighborhoods where a greater amount of the area is zoned for urban villages are more likely to experience decreases in the Latinx population.

Hypothesis Two: Homevoter Influence

Homevoter theory suggests that homeowners, by way of their voting power, dominate local politics and ensure their interests dominate the decision-making process. Homeowners tend to be most concerned about property values and, as a result, are opposed to any changes or other influences in their neighborhoods that may cause property values to decline, including the presence of Latinx residents. Based on this opposition to change, we might expect neighborhoods with a greater percent of homeowners not to experience change. However, given that the Latinx population of San José declined by 1.25 percent between 2010 and 2020 (Manson et al. 2023), my

homevoter hypothesis suggests that the Latinx populations of neighborhoods with a greater percent of homeowners will be likely to stay the same or decrease. In addition, I expect to find the same relationship in communities where the percent of homeownership increased between 2010 and 2020.

Hypothesis Three: Growth Machine Influence

Growth machine theory suggests that urban elites exert influence over local politics and decision-making. These "place entrepreneurs" are heavily invested in urban property and businesses and stand to profit from urban growth. While the relative affluence or poverty may make some neighborhoods more or less attractive and may provide their residents more or less power to resist change, growth machine theory suggests that development priority will primarily focus on existing urban amenities that can be leveraged. Areas that experience redevelopment are more likely to experience gentrification and race-based displacement. Based on this, my growth machine hypothesis suggests that neighborhoods that are closer to urban amenities like bus stops, light rail stops, and Downtown San José are likely to experience decreases in Latinx population.

Hypothesis Four: Sociospatial Influence

Sociospatial theory suggests that historical patterns of uneven development embed inequalities, including patterns of racial discrimination, in the urban form. In this view, neighborhoods that have historically been sites of race-based discrimination based on things like redlining, subprime lending, and foreclosures, become sites of ongoing concentrated disadvantage. In San José, these types of discrimination have primarily affected Latinx residents, resulting in those neighborhoods having a larger percent of

Latinx residents. Based on this, and even in light of the overall decrease in the Latinx population of San José during the study period, I expect that neighborhoods that are more strongly associated with historical patterns of racialized uneven development are more likely to be associated with increases in the Latinx population.

DATA AND METHODS

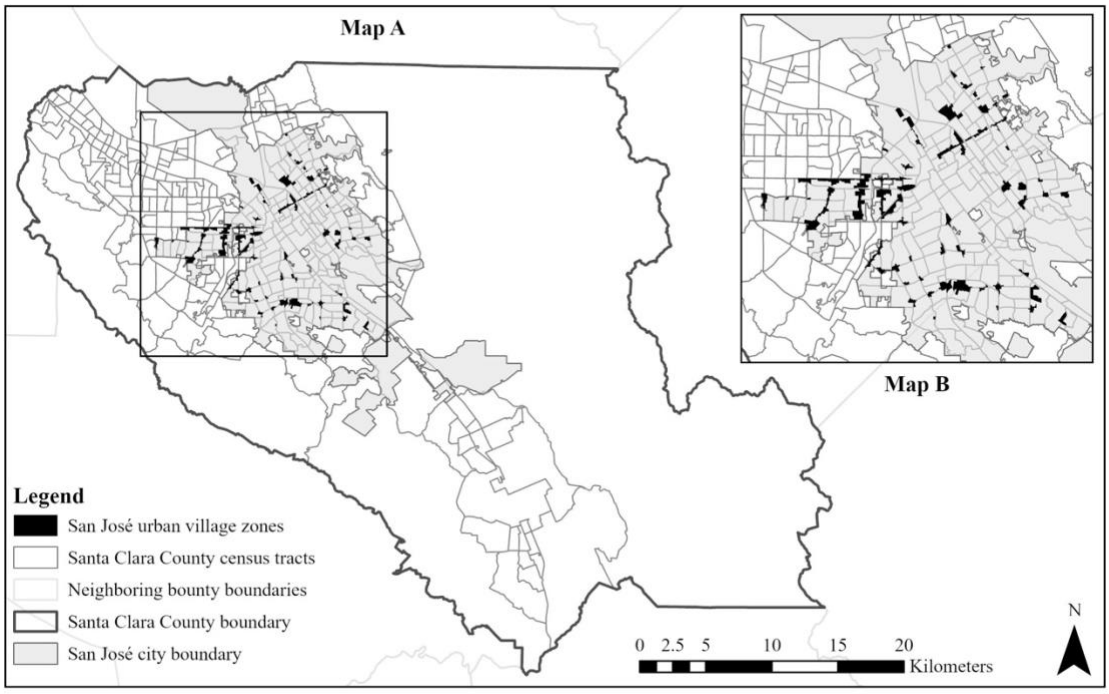
Units of Analysis

This study uses 2010 census tracts as its units of analysis and representation of "neighborhoods." These are displayed in Map A in Figure 1. Census tracts are statistical areas with boundaries that "generally follow visible and identifiable features" as well as nonvisible legal boundaries. Though they do not perfectly align with local definitions of neighborhoods, they are created with input from local participants (U.S. Census Bureau 2012). In addition, they are also the smallest geographic units that reliable data is available for in this study. The census tract spatial data came from the U.S. Census Bureau for the years 2010 (United States Census Bureau 2022) and 2020 (United States Census Bureau 2024).

Though this analysis primarily focuses on the City of San José, it uses census tracts for the whole of Santa Clara County (n = 372), which fully contains the city. This area is popularly known as "Silicon Valley," a multicentered metropolitan region that "extends over a large region, spilling out across political, municipal boundaries; and … contains many separate manufacturing areas, retail centers, and residential areas…" (Gottdiener, Hohle and King 2019:5). Silicon Valley extends over the entirety of Santa Clara County and even beyond its borders and is best thought of as a collection of "realms" that are not neatly contained within municipal boundaries (Gottdiener, Hohle

and King 2019). These realms are linked by transportation networks and the varying social and economic activities that take place within these them spill across municipal boundaries. I include all Santa Clara County census tracts in the analysis because the characteristics of census tracts outside of the city's boundary should be expected to have at least some effect on those within it.

Figure 1. (A) 2010 census tract boundaries for Santa Clara County. (B) San José city boundary and urban village zones.



Dependent Measure

The dependent measure for this study reflects the percent change in the Latinx population of Santa Clara County census tracts between 2010 and 2020. The data used for this measure comes from the Longitudinal Tract Database (LTDB) (Logan, Xu and Stults 2024). The census tracts for Santa Clara County changed between 2010 and 2020

and consistent boundaries are necessary when calculating changes over time[10]. The LTDB uses area-weighted interpolation (Logan, Xu and Stults 2014) to transform measures of race and ethnicity from 2020 to 2010 boundaries.

Analysis of the dependent measures revealed that it is approximately normally distributed with a skewness value (-0.464) between 0 and 1. This meant that no additional transformation was necessary to prepare it for use in the regression analysis.

Independent Measures

Urban villages. The measure of urban village presence used in this study, the percent of urban village overlap, reflects the percent of each tract that is covered by areas zoned for urban villages. The spatial data documenting the location of urban villages came from the City of San José's Open Data Portal (City of San José 2024a). A comparison of the urban village zones in that data file with the City's General Plan (San José 2020) as well as Wang's (2019) report for the San Francisco Bay Area Planning and Urban Research Association revealed that the City's documentation was incomplete. I manually amended that dataset so that it contained all areas zoned for urban villages.

Homevoter measures. This study includes two measures associated with the homevoter hypothesis. First, I include the percent of homeowner-occupied units within each tract, which I derived from the 2010 Census (Manson et al. 2023). The second, homeowner change, reflects the change in the homeownership rate for each census tract between 2010 and 2020. I derived that measure from the Longitudinal Tract Database (LTDB) (Logan, Xu and Stults 2024).

[10] Santa Clara County contained 372 tracts in 2010. That increased to 408 in 2020.

Growth machine measures. The measures used to evaluate growth machine theory come from two different sources. First, there are two included public transportation stop variables. Those come from data provided by the Valley Transportation Authority (VTA), the organization that manages public transportation for Santa Clara County. For the first variable, bus stop density, a VTA representative provided the coordinates of all bus stops in April 2010 (VTA 2023a). Due to the large number of stops (n = 3128) the variable is based on the density of stops per tract (number of stops divided by tract area, in square kilometers). I derived data for the second public transportation stop variable, distance to the nearest light rail stop, from a dataset containing all stops in 2019 (VTA 2023b). I verified that each station in the dataset was in operation in 2010 and that no stations had been closed in the intervening period. For the final list of stations (n = 61), I calculated the distance, in kilometers, to the nearest light rail station from the center of each tract.

Sociospatial measures. Following Hernandez (2009) and Liévanos (2020), I derived the first sociospatial measure, the percent 1970s redlining overlap, from the California Department of Savings and Loan's 1977 Fair Lending Report (State of California 1977). That report contains maps that document loan volumes, by census tract, for the years 1972 to 1976. While the report provides information about varying classifications of loan volumes, I am primarily interested in the areas most severely impacted by redlining during that time, so I extracted data for the areas where the loan volume was less than 10 percent of the county average.[11] I intersected those areas with the 2010 census tract boundaries and calculated the percent of overlap for each tract.

[11] To create a single measure from data spread across five years, I counted the number of years that each tract was classified as having a loan volume of less than 10 percent and then calculated the average for each tract over the five years. Twenty-nine tracts were ever classified as having a loan volume less than 10

I derived the second sociospatial measure, the percent of high-costs from 2004 to 2006, from data provided by the Department of Housing and Urban Development's (HUD 2011) Neighborhood Stabilization Program. It provides tract-level data about high-cost mortgages issued between 2004 and 2006, taken from the Federal Reserve's Home Mortgage Disclosure Act data. High-cost mortgages are defined as any "where the rate spread is 3 percentage points above the Treasury security of comparable maturity" (HUD 2011). These loans are high-risk or "subprime" and contributed to the Great Recession of 2007 to 2009 as well as the resulting foreclosure crisis. The spatial distribution of these loans is an indicator of socioeconomic inequalities (Liévanos 2020). I created the measure by calculating the percent of high-cost loans per census tract. I divided the number of high-cost loans issued by the total estimated number of loans issued during the same period.[12]

I derived the third sociospatial measure (Liévanos 2020), the percent of foreclosures in 2007 and 2008, from data from the website PropertyRadar.com (2023). I created a list of coordinates for every property that entered preforeclosure in Santa Clara County in 2007 and 2008. After removing duplicate entries for properties that appeared in both years and for entries with missing values, 15,161 properties remained. I calculated the foreclosure rate by dividing the preforeclosure count for each tract by the total number of housing units in that tract in 2010 (Manson et al. 2023).

The fourth and final sociospatial measure is the percent Latinx composition of census tracts in 2010. I derived that measure from the 2010 Census (Manson et al. 2023).

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percent and, among those, the average time across the five years was 38 percent. I identified 12 census tracts above that average.

[12] The HUD data was calculated based on 2000 census tract boundaries and I used the aerial apportionment method as described by Logan, Xu, and Stults (2014) to apportion the data to 2010 tract boundaries.

As I document in my description of my analytic strategy below, I combine these four sociospatial measures to create a single factor variable I call the racialized uneven development factor. I describe the four initial variables in the descriptive results but use the factor variable in the correlation and regression analysis.

Analytic Strategy

For the first step in this analysis, I used principal component analysis (PCA) to create a composite measure of concentrated spatial disadvantage that is integrated into my regression analyses. Then, I use descriptive statistics to explore the distributions of the variables and correlation to explore relationships between them. Next, I perform multiple regression analyses to explore the relationship between the dependent variable, change in the Latinx population of census tracts and two different types of explanatory variables, the percent of urban village overlap, and the theoretical factors that may help to explain racial change. Finally, I use a spatial weights matrix to check for spatial dependence and develop an additional term that I incorporate into a regression model to account for spatial error.

Principal Component Analysis

Analysis revealed that the four sociospatial variables used in this study were highly correlated with one another. To address issues of collinearity, I used PCA to develop a measure of "concentrated disadvantage" (Liévanos 2019a). PCA allows for the transformation of larger sets of variables into one or more composite measures that still represent "the underlying and complex dimensions" of the original variables that cannot be captured by including them separately (Liévanos 2018:11). This transformation is justified in this study based on the correlations between the measures and because they

capture similar dimensions of different types of neighborhood-level disadvantage. This approach has been used successfully in previous analyses that link various aspects of social disadvantage with exposure to environmental risk (Liévanos 2015, Liévanos 2017, Liévanos 2018). I use a similar approach in this study, exploring how the combined effects of social disadvantage are linked to another urban inequality, racial displacement.

This study uses a single PCA that includes the four independent measures of cumulative spatial disadvantage associated with sociospatial theory. Those include the measure of redlining from the 1970s, the percent of high-cost loans, the foreclosure rate, and the percent of Latinx composition in 2010. I used PCA to create a single component factor I call "racialized uneven development" because it reflects different dimensions of disadvantage the Latinx population in San José has faced since the 1970s. A summary of the component factor loadings for the measure can be found in Table 2. Consistent with previous research, eigenvalues greater than 1.00 and listwise deletion for missing values were used (Liévanos 2019a). A varimax rotation was used to produce high factor loadings for a smaller number of variables, increasing the variation between the factors (Cutter, Boruff and Shirley 2003, Liévanos 2019a). I assessed the validity of each factor by evaluating the percent of the total variance it explained and the reliability using Chronbach's alpha scores.

Table 2. Principal component analysis for racialized uneven development factor

Variables	**Racialized Uneven Development Component Factor Loadings**
Percent 1970s redlining overlap	0.523
Percent high-cost loans, 2004 to 2006	0.924
Percent foreclosures, 2007 and 2008	0.870
Percent Latinx composition, 2010	0.910

Regression Analysis

The typical ordinary least squares (OLS) linear regression model assumes that the observations are independent of each other. This becomes a problem when an analysis includes values that may display spatial dependence, like those included in this one. Spatial dependence, also referred to as spatial autocorrelation, suggests that values at any given location in space may be dependent on others that are located nearby (Chakraborty 2009). This creates bias in traditional statistical analysis that must be accounted for.

To control for spatial dependence in my analysis and evaluate my hypotheses, I use spatial regression models–specifically, spatial error regression models–to evaluate changes in the percent of the Latinx population between 2010 and 2020 at the tract level as a function of various combinations of independent variables. The spatial error regression models used in this study can be described as follows:

$$y = \alpha + \sum_{k} \beta_k X_k + \lambda W e + u$$

where y equals the tract-level change in the Latinx population, α equals the intercept (constant), β represents the coefficient for the k number of X independent variables, λ equals the spatial autoregressive coefficient, W equals the spatial weights matrix, e equals the random error term (difference between the observed and predicted values of y) in the regression model, and u represents the spatially independent error term (Anselin 2009, Liévanos, Greenberg and Wishart 2018).

Controlling for spatial dependence involves the analysis of the residuals from the OLS regression model. Following the procedure described by Chakraborty (2009), I use the Moran's *I* statistic to identify spatial dependence and develop an additional measure

that can be used to control for spatial autocorrelation. To accomplish this, I used GeoDa (Anselin, Syabri and Kho 2006) to run my initial OLS regression models. Next, I created a spatial weight matrix with queen and first-order contiguity to evaluate spatial dependence. The resulting large and significant Moran's *I* value indicated that there were "patterns in the dependent variable that are not predicted by independent variables, but [were] instead related to values in neighboring locations" (Chakraborty 2009:682). To account for this, I then ran a spatial error regression model in GeoDa that incorporated the spatial weight matrix. Incorporating the spatial weights matrix successfully reduced the spatial dependence in the model. Analysis of the regression residuals for all models produced Moran's *I* values that were small and were not significant.

RESULTS

Descriptive Statistics

The descriptive statistics can be found in Table 3. It shows the mean, standard deviation, minimum, and maximum of each variable.

Looking first at the dependent variable, mean Latinx change, there was a small mean decrease (1.25 percent) across the study area between 2010 and 2020. The distribution of Latinx change is presented in Figure 2.

There are several other notable results in the descriptive statistics. First, the small mean percent of urban village overlap (3.64 percent), highlights the overall small footprint of urban village zones across the study area. This is consistent with the distribution reflected in Map B in Figure 1.

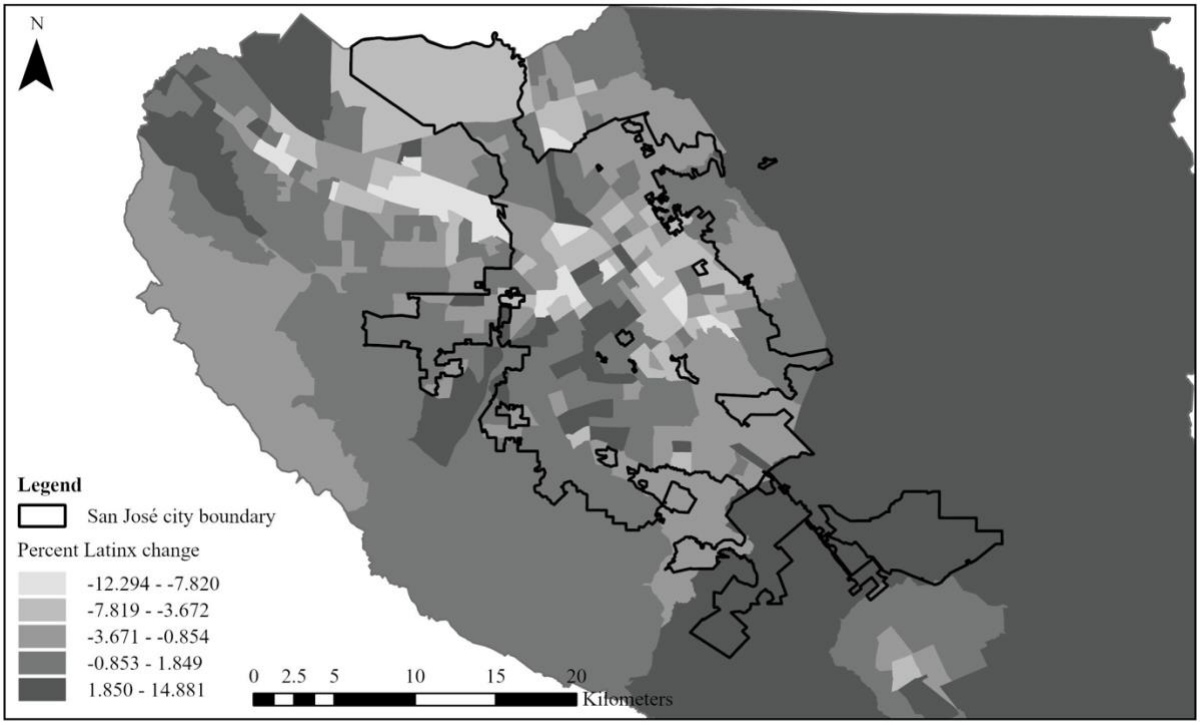
Table 3. Descriptive statistics for the variables used in the regression analysis (n = 372)

Variables	Mean	S.D.	Min.	Max.
Dependent Measure				
Percent Latinx change, 2010 to 2020	-1.25	3.34	-12.29	14.88
Independent Measures				
Urban Village				
Percent urban village zone overlap	3.64	8.49	0.00	61.19
Homevoter				
Percent homeowners, 2010	59.24	22.26	0.14	94.26
Percent homeowner change, 2010 to 2020	-2.68	4.33	-27.43	17.49
Growth Machine				
Distance to the nearest light rail stop (km)	4.55	5.77	0.07	35.47
Bus stop density (sq. km)	4.94	3.92	0.00	36.00
Percent tract within city limits	50.59	47.53	0.00	100.00
Sociospatial				
Percent 1970s redlining overlap	4.89	20.74	0.00	100.00
Percent high-cost loans, 2004 to 2006	11.03	7.98	0.00	49.73
Percent foreclosures, 2007 and 2008	2.94	3.34	0.00	24.65
Percent Latinx composition, 2010	26.76	20.27	1.78	86.09
Racialized uneven dev. factor	0.00	1.00	-1.16	3.85
Control				
Percent housing built before 1970	45.81	25.21	0.00	96.18
Percent pop. change, 2010 to 2020	8.71	18.86	-16.08	204.64

km = kilometers sq. km = square kilometers

Focusing on the homevoter measures, the mean homeownership rate across the study area is 59.24 percent, which is consistent with San José's history of development. Looking to the percent of homeowner change, we can see the mean change across the study area reflects a 2.68 percent *decrease* between 2010 and 2020. This is a relatively small decrease and the mean homeownership rate in 2010 still reflects a homeowner majority in most tracts, but the decrease could have some implications for homevoter theory as it may reflect declining homeowner control in some areas.

Figure 2. Percent Latinx change between 2010 and 2020 across the study area.

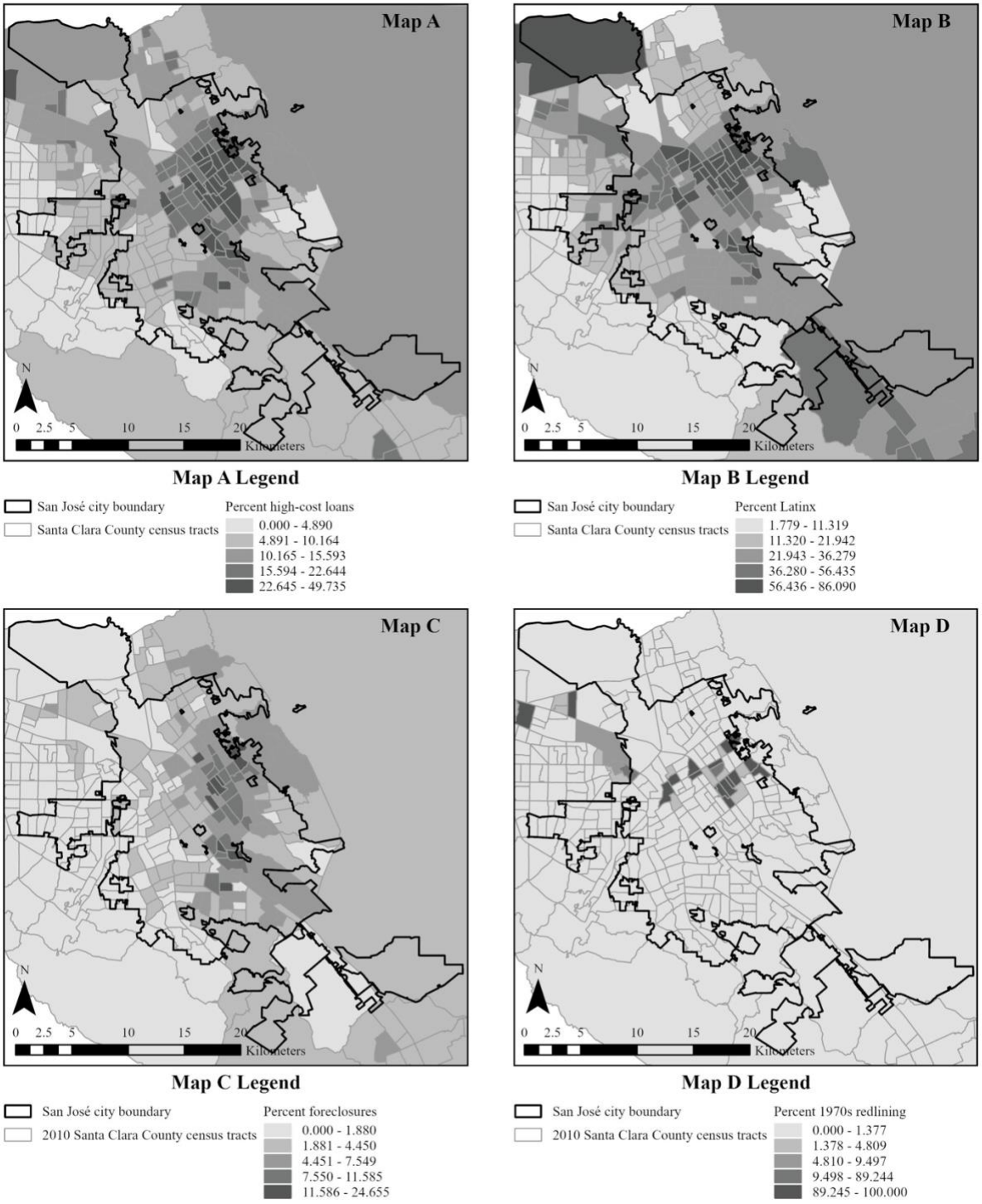


The distribution of the sociospatial measures reveals their uneven distribution across the study area and the clustering that led to the creation of the racialized uneven development factor. These are displayed in Maps A through D in Figure 3. There is clustering evident on the east side of San José in each distribution, reflective of the historical patterns of discrimination affecting the city's Latinx population.

Correlations

The correlation coefficients for the variables used in this study are found in Table 4. With respect to hypothesis one, which suggests a greater percent of urban village zone overlap will be associated with decreases in the Latinx composition of a tract, the correlation is very weak (r = -0.046) and is not significant.

Figure 3. Santa Clara County census tracts and (A) the percent of high-cost loans in 2010; (B) the percent Latinx in 2010; (C) the percent of foreclosures in 2007 and 2008; and (D) the percent of tract redlined in the 1970s.



Focusing next on the homevoter variables, percent homeowners and percent homeowner change, only the former is significantly associated with Latinx change and that association is positive and very weak (r = 0.161). This contradicts the homevoter hypothesis, which suggests that there will be no relationship between the variables or that increased rates of homeownership in tracts will be negatively associated with Latinx change. There is also a weak, yet significant, negative correlation (r = -0.257) between the percentage of homeowners and the percent of urban village overlap. This provides marginal support for the homevoter hypothesis, which suggests that redevelopment plans, like those associated with urban village zoning, will be located outside of homeowner-dominated neighborhoods. There is a moderate and significant moderate negative correlation (r = -0.417) between the percent of homeowners and bus stop density. This is consistent with the homevoter theory and the suburban nature of homeownership in the U.S. Homeowner-dominated communities are much more likely to consist of single-family homes, be organized around automobile use, and be resistant to public transportation (Weitz 2008). The other notable correlation associated with the homevoter variables is the significant negative correlation between each and percent of overall population change between 2010 and 2020. The correlation associated with the percent of homeowners in 2010 is weak (r = -0.148) and significant at the 0.001 level. The correlation associated with the percent of homeowner change is moderate (r = -0.470) and significant at the 0.001 level. Given that the mean percent of population change across all tracts in that period was 8.71 percent, these results suggest that most population growth happened outside of homeowner-dominated neighborhoods. This, again, is consistent with the idea that homeowners are resistant to changes in their communities.

Looking next to the variables associated with growth machine theory, we can see that many of them are significantly associated with the other variables included in this study, but most of those correlations are weak (less than 0.20). Looking at the correlation between the growth machine variables and the percent of Latinx change, only two are significant. Both correlations are also weak, with a correlation coefficient of 0.153 for the distance to the nearest light rail stop and -0.198 for bus stop density. While the associations are weak, these relationships are consistent with growth machine theory. There are also weak to moderate correlations between the growth machine variables themselves. There is a significant negative correlation between the distance to the nearest light rail stop and the percent of the tract within the city limits. This is the result of the limited scale of light rail service in Santa Clara County and the fact that it is centrally located within the City of San José. As the percent of a tract that falls within the city limits decreases (describing the tracts on the periphery of the city), the distance to the nearest light rail stop will increase. Likewise, there is also a significant weak correlation (r = -0.300) between the distance to the nearest light rail stop and bus stop density. This is also a reflection of the spatial organization of the city and county. Finally, looking at the relationship between the percent of a tract within the city limits and the racialized uneven development factor, there is a moderate and significant positive correlation (r = 0.434). I'll explore this relationship more in the context of the sociospatial hypothesis, below.

Finally, there are two noteworthy significant correlations associated with the racialized uneven development factor. First, as I mentioned in the preceding paragraph, is the significant positive correlation (r = 0.434) with the percent of a tract within the San

José city limits. The racialized uneven development factor is meant to reflect the historical development of racialized inequalities, and this moderate correlation is likely the result of the fact that the development of Silicon Valley started in San José and expanded outward. Much of the area within the San José city limits is much older than the rest of Santa Clara County and as such, has been exposed to patterns of uneven development much longer. In addition, the factor variable loads high on the Latinx composition of neighborhoods, and much of the Latinx population of the county is located within the city. The other significant relationship is the moderate negative correlation (r = -0.456) associated with the percent of Latinx change. This relationship seemingly contradicts the sociospatial hypothesis, as it suggests that the factors associated with the history of racialized uneven development should continue, concentrating the Latinx population of the area in the same areas. As a result, we would expect the Latinx population to have *increased* in census tracts that scored high based on the racialized uneven development factor. There may be another way to explain this relationship, however, which I will explore after reviewing the regression results.

Table 4. Correlation coefficients for the variables used in the regression analysis (n = 372)

	Percent Latinx change, 2010 to 2020	Percent of urban village zone overlap	Percent homeowners, 2010	Percent homeowner change, 2010 to 2020	Distance to the nearest light rail stop (km)	Bus stop density (sq. km)	Percent tract within city limits	Racialized uneven dev. factor	Percent housing built before 1970	Percent pop. change, 2010 to 2020
Percent Latinx change, 2010 to 2020	1	-0.046	0.161**	-0.005	0.153**	-0.198***	-0.104*	-0.456***	-0.046	-0.038
Percent of urban village zone overlap	-0.046	1	-0.257***	-0.024	-0.179***	0.190***	0.380***	0.123*	-0.070	-0.004
Percent homeowners, 2010	0.161**	-0.257***	1	-0.048	0.132*	-0.417***	-0.017	-0.208***	0.060	-0.148**
Percent homeowner change, 2010 to 2020	-0.005	-0.024	-0.048	1	0.202***	-0.074	0.000	0.075	0.071	-0.470***
Distance to the nearest light rail stop (km)	0.153**	-0.179***	0.132*	0.202***	1	-0.300***	-0.397***	-0.006	-0.121*	0.055
Bus stop density (sq. km)	-0.198***	0.190***	-0.417***	-0.074	-0.300***	1	0.199***	0.145**	0.115*	0.061
Percent tract within city limits	-0.104	0.380***	-0.017	0.000	-0.397***	0.199***	1	0.434***	-0.130*	-0.112*
Racialized uneven dev. factor	-0.456***	0.123*	-0.208***	0.075	-0.006	0.145**	0.434***	1	-0.047	-0.141**
Percent housing built before 1970	-0.046	-0.070	0.060	0.071	-0.121*	0.115	-0.130*	-0.047	1	-0.212***
Percent pop. change, 2010 to 2020	-0.038	-0.004	-0.148**	-0.470***	0.055	0.061	-0.112*	-0.141**	-0.212***	1

*p<0.05, **p<0.01, ***p<0.001

Table 5. Regression results for models 1 through 5 (n = 372)

	Model 1 Urban villages		Model 2 Homevoter		Model 3 Growth machine		Model 4 Sociospatial		Model 5 Combined	
Variable	**Coefficient (SE)**	***p***	**Coefficient (SE)**	***p***	**Coefficient (SE)**	***p***	**Coefficient (SE)**	***p***	**Coefficient (SE)**	***p***
Percent urban village zone overlap	-0.020	0.337	-0.004	0.854	0.007	0.748	0.002	0.893	-0.023	0.240
	(0.021)		(0.021)		(0.022)		(0.018)		(0.020)	
Homevoter										
Percent homeowners, 2010			0.024**	0.004					-0.009	0.309
			(0.008)						(0.009)	
Percent homeowner change, 2010 to 2020			-0.006	0.892					-0.117**	0.002
			(0.046)						(0.037)	
Growth Machine										
Distance to the nearest light rail stop (km)					0.049	0.143			0.128*	0.013
					(0.034)				(0.051)	
Bus stop density (sq. km)					-0.135**	0.004			-0.068	0.099
					(0.047)				(0.041)	
Percent tract within city limits					-0.004	0.374			0.013*	0.019
					(0.004)				(0.005)	
Sociospatial										
Racialized uneven dev. factor							-1.600***	0.000	-2.118***	0.000
							(0.157)		(0.233)	
Control										
Percent housing built before 1970	-0.008	0.263	-0.008	0.243	-0.004	0.551	-0.012*	0.047	-0.011	0.122
	(0.007)		(0.007)		(0.007)		(0.006)		(0.007)	
Percent pop. change, 2010 to 2020	-0.009	0.343	-0.006	0.607	-0.008	0.393	-0.022**	0.009	-0.030***	0.001
	(0.009)		(0.011)		(0.009)		(0.008)		(0.009)	
Constant	-0.733	0.069	-2.223***	0.001	-0.368	0.524	-0.491	0.170	-1.047	0.185
	(0.403)		(0.646)		(0.576)		(0.357)		(0.790)	
Lamda									0.562***	0.000
									(0.061)	
R^2	0.007		0.030		0.053		0.227		0.421	
Multicollinearity condition index	4.666		8.764		7.912		4.681		12.501	
Log likelihood	-974.989		-970.650		-966.246		-928.390		-885.751	
Degrees of freedom	368		366		365		367		362	
Akaike information criterion	1957.98		1953.30		1946.49		1866.78		1791.50	
Moran's I[1]	0.329***	0.000	0.315***	0.000	0.288***	0.000	0.269***	0.000	0.003	0.411

*p<0.05, **p<0.01, ***p<0.001 [1]Moran's I test of residuals conducted with 9999 permutations.

Regression Analysis

The results for regression Models 1 through 5 are displayed in Table 5. This analysis explores the effect of zoning on the changes in the Latinx composition of census tracts in the context of the factors associated with the three theoretical perspectives introduced previously. Model 1 examines the percent of urban village overlap independently, while Models 2 through 4 each include one of the theoretical perspectives. Model 5 integrates all the factors to examine combined influence.

Model 1: Urban village influence. Model 1 examines the relationship between Latinx change and the primary variable of interest in this study, the percent of urban village zone overlap. The variables in this initial model account for only a minimal amount of the variance (R^2 = 0.007), indicating a poor fit, and none of them are significant. Likewise, the Moran's *I* value of 0.329 is significant at the 0.001 level, indicating the effect of spatial autocorrelation on the results. Spatial autocorrelation will be addressed in Model 5. The results of Model 1 are consistent with the relationship between the percent of urban village overlap and Latinx change I described in the correlational analysis. The effect of the percent of urban village overlap is very small and the results are not significant. In addition, neither of the control variables, which address the age of the housing stock and population change between 2010 and 2020, are significant.

Model 2: Homevoter influence Model 2 adds two additional variables to the initial model, the percent of homeowners in 2010 and the percent of homeownership change between 2010 and 2020. Incorporating these additional variables increases the amount of variance explained by the model marginally (R^2 = 0.030), but the model is still a poor fit.

The Moran's *I* value ($I = 0.315$) decreased slightly but is still significant at the 0.001 level. Consistent with Model 1 and the correlation analysis, this model indicates that there is no relationship between the percent of urban village overlap and change and change in the Latinx composition of tracts. The percent of homeowners in 2010 is the only significant variable in the model. It is significant at the 0.01 level and the effect is very small, indicating that a one percent increase of homeowners in a tract in 2010 is associated with a 0.02 percent increase in the Latinx composition of the tract between 2010 and 2020. While this effect is very small, it contradicts the homevoter hypothesis. If homeownership is racialized, as the homevoter theory suggests, increasing rates of homeownership of tracts should be associated with decreases in the Latinx population over time. I will explore this further in my review of Model 5 and the discussion section.

Model 3: Growth machine influence In Model 3, three growth machine variables replace the homevoter measures from Model 2. These include the distance to the nearest light rail stop, bus stop density, and the percent of the tract within the San José city limits. Incorporating these new variables increased the explanatory power of the model ($R^2 = 0.053$) but it is still a poor fit. In addition, the Moran's *I* value ($I = 0.288$) is significant at the 0.001 level and indicative of a moderate degree of spatial autocorrelation. Consistent with the previous models, this model suggests there is no relationship between the percent of urban village overlap and change and change in the Latinx composition of tracts. Bus stop density is the only significant variable in this model. That relationship suggests that 1-point increase in the density of bus stops in a tract is associated with a 0.14 percent decrease in the Latinx composition of that tract between 2010 and 2020. This is consistent with the growth machine hypothesis, which suggests that

redevelopment efforts and the changes associated with them will be more likely to occur in proximity to urban amenities like bus stops. While this provides support for the hypothesis, the weak relationships that are not significant established by the other variables also call it into question.

Model 4: Sociospatial influence Model 4 explores the effect of the racialized uneven development factor associated with sociospatial theory. Including this measure significantly increases the explanatory power of the model ($R^2 = 0.227$), indicating a much better fit. The moderate Moran's *I* value (0.269) that is significant at the 0.001 level is still indicative of spatial autocorrelation, however. Looking first at the effect of the percent urban village zone overlap, the results are consistent with the previous models and suggest there is no relationship between urban village overlap and Latinx change. The better fit of this model does not affect that relationship. The three other variables included in this module are significant, however. First, a 1-point increase in the racialized uneven development factor score is associated with a 1.6 percent decrease in the Latinx composition of a tract between 2010 and 2020. This is the strongest observed effect of any of the variables included in the models. As I noted in the correlational analysis, however, this result contradicts the sociospatial hypothesis. I will explore this more in the discussion section. In a shift from the previous models, the control variables are each statistically significant in this model. The percent of housing built before 1970 variable is significant at the 0.05 level. Its effect is minimal, and a 1 percent increase in older housing stock is associated 0.012 percent decrease in the Latinx population. This is inconsistent with previous studies, where larger percentages of older housing stock were associated with a greater percentage of people of color (Hanlon 2008, Markley 2018a).

The population change measure is significant at the 0.01 level. Its effect is also small, and a 1 percent increase in the population of a tract is associated with a 0.022 percent decrease in the Latinx population. This result is consistent with previous studies, suggesting that increasing population sizes in neighborhoods can create competition and drive housing prices up, displacing more vulnerable populations (Galster et al. 2003).

Model 5: Combined influence Model 5 incorporates all the measures included in the study, evaluating their combined influence. This model provides the best fit and accounts for about 42 percent (R^2 = 0.421) of the variance. This model also incorporates a spatial error term to account for spatial autocorrelation. Its effect is evidenced by the near-zero Moran's *I* value (*I* = 0.003) and its lack of significance. Consistent with previous models, the effect of the percent of urban village overlap variable is minimal (-0.023) and is not significant. Several of the other variables included in this model are significant, however. The percent of homeowner change variable is significant for the first time in this model, and a 1 percent increase in homeownership in a tract is associated with a 0.117 percent decrease in the Latinx population. This is consistent with the homevoter hypothesis. Two of the three growth machine measures are also statistically significant at the 0.05 level. First, a 1-kilometer increase in the distance to the nearest light rail station is associated with a 0.128 percent increase in the Latinx population. This effect is small but, as I described previously, this result is consistent with the growth machine hypothesis. Second, the other significant growth machine measure indicates that a 1 percent increase in the percent of a tract that is located within the San José city limits is associated with a 0.013 percent increase in the Latinx population. This effect is also minimal but contradicts the growth machine hypothesis. The urban amenities that growth

machine theory argues are important features that urban elites will try to leverage are centrally located in San José. This suggests redevelopment and the resulting displacement are most likely to be centered in areas that are more fully included in the city boundary. The racialized uneven development variable is also significant, at the 0.001 level, in this model. Its effect indicates that 1-point increase in the racialized uneven development factor score is associated with a 2.118 percent decrease in the Latinx population. This is consistent with the previous models but also contradicts the sociospatial hypothesis. Finally, the control variable, the percent of population change, is also statistically significant at the 0.001 level in this model. It indicates that a 1 percent increase in the population of a census tract is associated with a 0.03 percent decrease in the Latinx population. This is consistent with the previous models and the effect is small, but it is also consistent with previous research.

DISCUSSION

The results of this analysis offer some important insights into the study of zoning and racial change. First, the models do not identify any significant relationship between the percent of census tracts overlapped by urban village zoning and changes in the Latinx composition of those tracts. There are several possible explanations for this. First, the City of San José may have deliberately selected sites for urban village zoning that would not negatively impact Latinx communities. The City's general plan explicitly establishes equity and diversity as one of its housing goals and describes developing "tools, policies, or programs to prevent or to mitigate the displacement of existing low-income residents" as an action item (City of San José 2023:209). While I am unable to determine the extent

to which actions were taken based on this, it at least reveals the City acknowledges it as a potential problem.

Another reason this study did not reveal a relationship between urban village zone overlap and Latinx displacement may be that an area being zoned for urban villages does not necessarily mean that it will be developed. Changes will be more likely to occur in areas where urban villages are developed and this study, as it is presented above, does not incorporate the development status of the areas zoned for urban villages. I approached this study with an understanding that zoning decisions serve as a signal to developers that often lead to speculative developments in the surrounding areas (Dehring, Depken and Ward 2007, Gatzlaff and Smith 1993, Immergluck 2009b, Jud and Winkler 2006, Knaap, Ding and Hopkins 2001), suggesting that speculative developments and other changes are likely to occur in surrounding areas before any urban village development occurs. However, San José's urban villages have not been popular with developers (Gabbe, Kevane and Sundstrom 2021, Wang 2019) so it may be that the larger problem is that there is a general lack of interest in developing urban villages. After 14 years, the City Council has only approved plans for 18 urban village sites (City of San José 2020). This is indicative of stalled progress and suggests that developments in the areas around urban villages have not been prioritized.

The lack of a relationship between zoning and changes in the Latinx population led me to question whether the adoption of more concrete development plans would be more likely to spur changes. To evaluate the effect that urban village development may have, I also performed an additional analysis that evaluated the effect of the percent of a tract overlapped by urban village zoning where the San José city council had officially

adopted development plans. I identified the 18 sites where plans had been approved and incorporated those into the analysis. The results were consistent the other urban village overlap measure and were not significant across any of the models.

The results of the models focusing on the evaluation of theoretical models that explain racial change provide stronger evidence to draw from. While this study does not reveal any support for the relationship between zoning and racial change, it does provide support for the theoretical models that provide context for both zoning decision-making and racial change. Across all the models, the racialized uneven development factor associated with the sociospatial hypothesis displayed the strongest effect on Latinx change. Sociospatial theory suggests that urban development and the changes associated with it are most likely to occur in areas that have historically been marginalized through processes like redlining that embed racial and economic inequalities in physical space. However, I posited that sociospatial theory would suggest that the Latinx composition of census tracts would *increase* in tracts that score higher based on the racialized uneven development factor. That factor loaded high on the percent of the Latinx population of census tracts in 2010 and that, combined with the other measures of racialized inequality included in that variable, suggests that the Latinx population would continue to concentrate in those areas. However, the relationships revealed in the regression analysis indicated that increases in the factor variable score were associated with *decreases* in the Latinx population. While this result contradicts my hypothesis, it may also be consistent with sociospatial theory. It suggests that urban change is driven by the process of uneven development which is likened to a "locational seesaw" reflecting the way capitalist investment shifts across urban landscapes in pursuit of the largest returns (Smith 2010).

In the context of this study, the changes that occurred as a result of the Great Recession may reflect a "tipping point" where capital investment shifted to previously marginalized communities. The percent of high-cost loans and foreclosures in census tracts was strongly associated with the Latinx composition of neighborhoods, which would have disrupted the housing market in Latinx neighborhoods, displacing residents and affecting property values, leading to potential opportunities for investment.

The analysis provides mixed support for the homevoter hypothesis. It suggests that the Latinx composition of tracts with a greater percent of homeowners should remain consistent or even decrease over time. In Model 2, the primary homevoter variable, the percent of homeowners in 2010, displays significance. The effect is very small, which is consistent with the hypothesis, but the positive relationship contradicts it. In addition, this measure is not significant in the combined influence model that included all the theoretical variables and addressed issues of spatial autocorrelation. However, the combined influence model does provide some support for the hypothesis. The percent of homeowner change variable is significant and indicates that increases in the percent of homeowners in a tract are associated with a small decrease in the Latinx population. Homevoter theory suggests homeownership is racialized and that homeowners have historically responded to change by 1) trying to actively prevent it and/or 2) establishing changes (like zoning policy) that will drive out residents they believe will negatively impact property values (Fischel 2001, Fischel 2004). As I established previously, homeownership in San José *is* racialized and Latinxs are the racial/ethnic group with the lowest rates of homeownership. The Latinx population of San José also decreased during

the study period. Therefore, the small and significant decrease in Latinx population associated with an increase in homeownership is consistent with homevoter theory.

Among the three theoretical perspectives I included, this study provides the weakest support for growth machine theory. Across the two models that include growth machine measures, only three variables are significant. In Model 3, which explores growth machine theory independent of the other theoretical perspective, an increase in bus stop density is associated with a small decrease in the Latinx population. This is consistent with growth machine theory, which suggests that neighborhoods with greater densities of urban amenities like bus stops will be more likely to experience redevelopment, displacing Latinx residents. However, that variable is not significant in the combined influence model. The other growth machine measures *are* significant in that model but still provide mixed results. First, distance to the nearest light rail station is associated with a small increase in the Latinx population. This is consistent with growth machine theory, which suggests that *decreases* in the Latinx population are more likely to happen in neighborhoods that are *closer* to light rail stops. The percent tract within city limits variable is also significant, indicating that increases in the percent of a tract within the city limits are associated with an increase in the Latinx population. This contradicts the homevoter hypothesis, however. It suggests that neighborhoods that are more fully contained within the city limits will be in closer proximity to the urban amenities available in Downtown San José, making them more likely to experience redevelopment and Latinx displacement.

The inclusion of the city limits variable introduces an important complication to this analysis. I included it for two primary reasons. First, it reflects an important

constraint that is most relevant to growth machine theory. Urban villages cannot be located outside of the San José city limits. This is most relevant to growth machine theory and its emphasis on urban elites and local growth coalitions as it reflects a constraint on their decision-making. I also included it because it reflects a measure of San José's urban form. Downtown San José is centrally located both within the city and Santa Clara County. As such, tracts that are fully contained within the city limits are closer in proximity to Downtown San José, where many of the region's most desirable urban amenities (museums, theaters, restaurants, and the like) are located. Its inclusion is complicated, however, by the fact that Santa Clara County is a multicentered metropolitan region (Gottdiener, Hohle and King 2019) and San José is bordered by many other municipalities that also provide amenities that could influence development patterns. Based on this, the contradictory results associated with the measure are not surprising.

There are several limitations to this study that could be addressed in future research. First, the results may be influenced by the units of analysis I used. While census tracts were chosen for analysis based on the availability of reliable data, the influence of zoning changes associated with urban villages may be more easily detected if evaluated at a smaller scale. The mean percent of urban village overlap was only 3.64 percent, demonstrating that the areas zoned for urban villages cover a relatively small amount of each tract. It may be worthwhile to explore this relationship using smaller units of analysis, like census block groups, as changes may be easier to detect at a smaller scale.

Another limitation that could be addressed with future research is the lack of measures included to control for school effects. Prior research has revealed that schools

are strongly associated with neighborhood racial change. School choice policy (which has been adopted in San José) plays a significant role. Candipan (2020) found that people moving into gentrifying neighborhoods, who tended to be white and more affluent, were more likely to utilize school choice options to bypass neighborhood schools. Research has also established that the number of school choice options (Candipan 2019, Candipan 2020) as well as the types (like public, private, charter, or magnet) (Bischoff and Tach 2020, Schachner 2022) also creates racial imbalances in neighborhoods. This issue can be exacerbated by school quality measures and school rating websites like GreatSchools.org (Barnum and LeMee 2019). Given the important role that schools play in neighborhood choice, the partial decoupling of school attendance from residence established by school choice policies makes it more likely that White and/or more affluent families will move into gentrifying communities, increasing population and housing pressures that may displace Latinx residents. Expanding this study by incorporating measures that control for the role of school quality and availability would likely improve the models.

Finally, another way to improve the explanatory power of the models used in this study could be to incorporate additional measures that correspond to growth machine theory. While bus stops and light rail stations are both important amenities that the City of San José argues are important to the location of urban villages, the analysis could be expanded by including other transportation measures. First, the Environmental Protection Agency's (2024) National Walkability Index could be a useful measure for two reasons. First, walkability is a major goal of urban villages and new urbanist planning more generally and may help to explain urban village zone siting. Secondly, in the contemporary planning context, walkable communities are very desirable and may reflect

a resource that growth coalitions would attempt to leverage. Relatedly, bikeways are another similar amenity that could also be incorporated into the analysis. Freeway access may reflect another important resource. While the point of urban villages is to reduce automobile travel, in a car-centric city like San José, residents are still likely to prioritize automobile use, even if they live in more walkable communities. This may reflect another important amenity that growth coalitions would attempt to leverage. Finally, measures of vehicle miles traveled can be used as indicators of job locations (Wang 2019), which may reflect another aspect of the urban form that growth coalitions would attempt to take advantage of.

CONCLUSION

This study attempted to answer two questions about racial change in San José. For the first question, which asked how the presence of urban village zones affects changes in the Latinx population of neighborhoods, I did not find any evidence of a relationship. There was no significant relationship suggested by the analysis I performed. For the second question, which asked how theories in urban sociology can provide context for understanding changes in the Latinx composition of neighborhoods, my study results were mixed. The strongest support, in terms of the strengths of effects associated with measures in the analysis, comes from the variable associated with sociospatial theory. However, those results contradicted my hypothesis, indicating that racialized uneven development is associated with *decreases* in the Latinx composition of neighborhoods rather than the increases that I suggested would occur. I also found mixed support for homevoter theory and the analysis revealed that increasing rates of homeownership were weakly associated with decreases in the Latinx population. The analysis provided the

weakest, yet still mixed, support for growth machine theory. I found weak support for the relationships between light rail stations and decreases in the Latinx population but that was the only significant measure included in the models.

This study could have important policy implications as it suggests that implementation of San José's urban villages may not lead to the displacement of the city's Latinx population, which has historically been a target of discrimination. However, I suggest treating this analysis as an initial framework for analysis and further studies, which incorporate more robust measures that could provide more insight into the effects of zoning.

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CHAPTER IV: URBAN VILLAGES AND PER CAPITA HOUSEHOLD INCOME CHANGE IN SAN JOSÉ, CA

ABSTRACT

While prior research has established that zoning plays an important role in structuring urban inequalities, it is understudied in sociology. Zoning is a form of policy that dictates what land is used for and how it is developed. It is the basis for the suburban form that dominates U.S. cities and, since its inception, has been used to reinforce economic segregation and exclude low-income people from suburban communities. Suburbanization is also associated with other economic, social, and environmental problems, which has led many U.S. cities to adopt updated zoning policies to address them. In 2011, the City of San José, CA adopted its urban village zoning strategy to establish a new pattern of development for the city. Urban villages are an example of new urbanist planning, which reflects a paradigm committed to redeveloping urban space under the model of "traditional," pre-modern cities. Proponents argue that the compact, walkable, and sustainable developments will solve many of the problems cities face today. However, critics charge that they reproduce the exclusionary nature of the suburbs and reflect an extension of the policies of the past. This raises important questions about the effect that urban village zoning has had on the neighborhoods where the zones were located. To address this question, I examine the change in the per capita household income of San José neighborhoods between 2010 and 2020 using spatial regression. I also examine the change in the context of the three theoretical perspectives: homevoter theory, growth machine theory, and sociospatial theory may also help to explain how racial change occurs in cities. The results of the study suggest that urban village zoning is not associated with changes in the household income of neighborhoods. The results

provide the strongest support for sociospatial theory, which suggests that that decreases in household income are linked to historical patterns of racial and economic exclusion that are embedded in space.

INTRODUCTION

While zoning and land use policies are ubiquitous and reflect one of the primary ways that urban inequalities are reproduced, they have largely been ignored within sociology (Gans 2002, Lens 2022). It is well understood that zoning laws are a form of social control that have been "weaponized" to reinforce spatial segregation (Rothstein 2017). Zoning laws allow for the control of land as property and are wound up in matters of inequality, wealth, and power (Herbert and Orne 2021). They have well-established racist and classist origins and have been linked to the ongoing propagation of racial and class inequalities. While sociologists frequently focus their attention on both the causes and consequences of zoning, they pay little attention to the institution itself (Lens 2022). This is a crucial omission. As a form of policy, zoning is well within the purview of urban sociologists, and the failure to include it in urban analyses limits our understanding of the structuring of urban inequalities. It also deprives scholars and professionals in other fields, like urban planning, of a sociological perspective on zoning.

This study seeks to address that omission by exploring the connection between zoning policy and changes in household income. In the context of San José, CA, I explore how the adoption of urban village zoning, which is based on new urbanist planning principles, is associated with changes in the per capita household income of neighborhoods. Urban villages are an example of upzoning, which is a zoning strategy

that allows for higher development intensity in select sites (Gabbe 2018).[13] They are also examples of infill redevelopment, which is intended to take advantage of "underutilized" land in previously developed areas. Infill development is thought to be a panacea for urban development because it avoids sprawling development that takes place on the margins of urban areas and can be used to revitalize distressed neighborhoods (Kim 2016). However, it is often a source of conflict because it locates developments within existing communities (Kim 2016) and can become a "formula for gentrification" (Landis et al. 2006). In addition, new urbanism reflects an approach to development that has been linked to economic exclusion (Day 2003, Grant 2007, Zimmerman 2001). This raises questions about the potential economic impacts that urban village zoning may have on communities where it is located.

In this study, I aim to answer two primary questions. First, how does the presence of urban village zones affect changes in the per capita income of neighborhoods? Second, what urban sociological theories best provide context for understanding changes in the per capita income of neighborhoods? To answer these questions, I conduct a series of spatial regressions to explore the relationship between urban village zoning and changes in per capita household income. I also evaluate three different urban sociological theories that may help to explain the factors associated with urban change.

LITERATURE REVIEW

Zoning

[13] The City of San José's urban villages are not technically upzonings because the approved plans did not automatically change the existing zoning. They can be described as upzoning, however, because they make a space eligible for upzoning with subsequent approval from the San José City Council.

Zoning is a type of regulation and social control that contributes to urban inequalities. It is a way to control land as property that is tightly wound up in matters of inequality, wealth, and power (Herbert and Orne 2021). For instance, while some of the earliest zoning laws in the United States were used to separate space for housing from noxious land uses, they were also used to separate multi-family housing from single-family, reinforcing the exclusionary nature of suburban development (Lens 2022). Fischel (2004) argues that post-civil rights in the U.S., zoning became one of the primary ways that homeowners in suburban communities, who are singularly focused on property values, exercised control over their neighborhoods. In the decades prior, homeowners primarily focused on excluding people of color from their communities, based on both formal and informal means of racial discrimination. With the changes that occurred because of the civil rights movement, these discriminatory practices shifted, focusing solely on economic exclusion that could be established via zoning. Single-family zoning laws have changed little since that time and they are one of the key factors that structure both racial and class inequality today (Lens 2022).

Zoning and Residential Segregation by Income

Though residential segregation by income is well-documented and has increased over time (Kendra and Sean 2014), few empirical studies explore how it has been shaped by land use regulations like zoning. However, the available research establishes a clear relationship: zoning affects the economic composition and distribution of neighborhoods.

Most of the available studies focus on the effects of density zoning. Low-density (or "exclusionary") zoning is thought to be the policy that is most likely to affect residential segregation as it is associated with suburban development and single-family

housing. This assumes that if a policy increases housing costs by restricting what can be built, there will be fewer options for lower-income residents. This creates a sorting process and if higher-priced homes are in different neighborhoods than lower-priced units, class segregation will occur. Studies performed by Neiman (1980) and Shlay and Rossi (1981) in the early 1980s establish this relationship and demonstrate that communities with larger lot sizes are associated with higher home values as well as higher incomes. In a more contemporary study, Rothwell and Massey (2010) examine the relationship between exclusionary zoning policies and class segregation across 50 metropolitan areas in the U.S. and found that density zoning policies had a strong and significant effect in determining the level of class segregation in cities as well as were linked to increases in class segregation over time. In an even more recent study of the 95 largest metropolitan areas in the U.S. in 2010, Lens and Monkkonen (2016) also found that density zoning policies are positively associated with economic segregation and the concentration of affluence.

While prior studies have established that zoning policies affect residential segregation by income, they are limited in important ways. First, as I mentioned previously, there are very few studies of this nature. In addition, most of the studies have used very simple measures of zoning, considering only density zoning, or lot size, restrictions. Only Lens and Monkkonen (2016) examine other types of zoning policies. Zoning regulations are much more complicated than density regulations alone, which leaves a significant gap in our understanding of how zoning may affect residential segregation by income.

New Urbanism as Suburbanization

San José's urban villages are the product of an urban design and urban planning movement called new urbanism. New urbanism reflects a rejection of the modernist planning approaches of the past that developed out of common assumptions like:

> *…Cities are too dense and urban decentralization is desirable; cities are messy and must be ordered by separating land uses and traffic modes; new urban forms are superior to old ones; there are universal planning principles much as there are universal (international) architectural styles; and the scale of cities must be adjusted to modern technologies by standardizing construction methods and building highways, ample parking, and superblocks in lieu of traditional streets*. (Hirt 2009:251)

To address the shortcomings of the modernist planning approaches of the past, new urbanist principles are based on "pre-modern" or "traditional" cities that are believed to reflect the ideal for urban living (Trudeau and Malloy 2011). The approach is characterized by its emphasis on "human-scaled" urban design, emphasizing things like compact, mixed-use development, walkability, and access to public transportation (Congress for the New Urbanism 2024). While new urbanism's focus is primarily on physical design, the movement also includes social goals, like building community and encouraging social diversity and equity (Talen 2002). It frames diversity in factors like age, race, and income as fundamental to creating "healthy" communities (Cabrera and Najarian 2013).

While new urbanism has been presented as a correction to the past policies that created many of the problems that cities face today, critics argue that the paradigm reflects a continuation of the same processes (Harvey 1997, Hirt 2009). New urbanism, they argue, rather than reflecting a shift away from suburbanization, reflects the extension of the principles of suburban development into the urban core (Butler 2007, Grant 2007, Zimmerman 2001). It has been associated with the same types of racial and economic exclusion that are characteristic of suburban, single-family developments (Day 2003, Grant 2007, Harvey 1997, Hirt 2009, Markley 2018). Based on his examination of a new

urbanist development in Prairie Crossing, IL, Zimmerman (2001:16) argues that new urbanist developments like it "will only serve to maintain—and in some instances accelerate and harden—the social and economic patterning of the American city produced and sustained under the suburban ethos." Butler (2007:19), in a similar study of new urbanist developments in London's Docklands, characterizes the new urbanist developments there "as a new kind of suburb." His interviews with residents demonstrated that they had much in common with suburbanites. They were searching for a type of urban experience that allowed them "to be near but not in or of the city" (Butler 2007:19). This is echoed by Grant (2007), whose analysis of new urbanist developments in Canada leads her to liken them to gated communities or a type of "sanitized urbanity" for the affluent.

Theoretical Perspectives

Many competing theories explain how urban development unfolds and what sorts of factors are associated with economic changes in neighborhoods. This study examines three competing explanations that seek to explain which neighborhoods are most likely to experience change. These provide context for understanding how economic change occurs in urban communities.

Homevoter theory. Fishchel's (2001) homevoter theory suggests that homeowners, or "homevoters" play a significant role in local government decisions. Fischel likens homeowners to shareholders in municipal corporations since homeowners have a significant financial stake in their homes. As a result, they tend to be deeply invested in the success of their communities and are more active in local governance to minimize risk and ensure the greatest return on their investment. Fischel (1985) argues that the

economic interests of residential voters are the best predictors of zoning and that homeowners use zoning to control land use in their communities.

Homevoter theory suggests that homeowner control over urban decision-making is primarily an income- or class-based process but is also fueled by racial anxieties (Fischel 2004) Fischel (2004) argues that this is one of the primary factors that led to the embrace of zoning laws in the 1960s. Legal changes in the preceding decades made racial discrimination in housing difficult and ineffective. Therefore, homeowners embraced policies like density-based zoning to maintain their racial- and class-segregated communities. The zoning policies they embraced were effective because they were not overtly racial. They had the effect of excluding lower-income people from suburban communities, which was also an effective strategy for excluding people of color.

Fischel (2004) also argues that homeowner embrace of density-zoning ramped up as the processes of suburbanization and decentralization of cities unfolded over time. While suburbanization initially provided an escape for more affluent families, it facilitated further decentralization as transportation networks developed and jobs also became more suburban. This had the effect of bringing low-income workers into the suburbs, raising property value concerns among homeowners. As a result, homeowners increasingly relied on zoning to maintain the exclusive nature of their communities. Fischel (2004:330) notes that things like "the three-acre minimum lot sizes and farmland categories that had formerly been regarded as 'holding' zones solidified into a permanent cast that kept the poor and higher-density development at bay."

The exclusionary nature of homeowner-dominated communities and their resistance to change suggest that homeowners are likely to oppose new developments,

especially those like new urbanist developments with higher housing densities. City officials with control of the zoning process are likely to try and appease homeowners, avoiding zoning changes in or near majority homeowner communities (Been, Madar and McDonnell 2014) and pushing redevelopment into less affluent areas of the city and communities composed of greater proportions of people of color.

Growth machine theory. Growth machine theory suggests that urban development is controlled by powerful coalitions of urban elites like developers, landowners, and politicians (Molotch 1976). Logan and Molotch (2007) refer to the members of these coalitions as "place entrepreneurs" because their primary goal is to maximize the value of land and buildings in urban areas rather than generate profit from production. As a result, they promote an agenda that focuses on driving urban growth and development. They accomplish this by exerting control over the zoning process via political influence (Been, Madar and McDonnell 2014, Lens 2022).

Growth machine coalitions view urban environments primarily in terms of their exchange value; to collect rents (Logan and Molotch 2007). As a result, their primary interest is maximizing profit by leveraging existing urban infrastructure. This can make low-income communities vulnerable to redevelopment and transformation. However, according to growth machine theory, more affluent communities, like single-family neighborhoods, may also be vulnerable to change. This is because growth machine coalitions may view them as "showpiece" neighborhoods that reflect "urban vitality" (Logan and Molotch 2007). Developments in and near these neighborhoods may produce greater rents. While affluent communities have greater political power and will be better able to resist changes, growth machine theory suggests change may still occur there.

As growth machine coalitions view urban environments in terms of their exchange value, their interest is always in maximizing their profits by intensifying land use near existing urban infrastructure. In this view, transportation networks, parks, cultural amenities, and even neighborhoods, are assets to be leveraged (Been, Madar and McDonnell 2014). It suggests that zoning changes are more likely to be located near existing urban amenities.

Sociospatial theory. Compared to the homevoter and growth machine theories, sociospatial theory takes a more integrated view and incorporates economic, political, and cultural dimensions into the analysis of the development of urban space (Gottdiener, Hohle and King 2019). It includes the emphasis on real estate and property values shared by the other theories but rather than focus on the autonomy of urban elites or homeowner control, it focuses more on the political economy of cities and the role that investment patterns, both public and private, play in establishing "differential trajectories" for communities over time (Liévanos 2020). Spending is not equally distributed across space and capital investment constantly shifts in pursuit of the highest returns. This produces a "seesaw" effect, referred to as "uneven development" that unfolds over time (Smith 2010). The theory of uneven development describes unequal patterns of urban growth that reproduce class-based inequalities as well as development patterns like segregation, inner-city disinvestment, and suburban sprawl (Gotham and Greenberg 2014).

While the theory of uneven development describes a general urban process, scholars have also documented the way in which it is explicitly racialized; how "it is given meaning and produced with symbolic categories and a variety of institutional mechanisms that differentiate people and places by 'race'" (Liévanos 2020:3). Scholars

have established how historical forms of discrimination are inscribed in space and linked to contemporary patterns of racial inequality (Gotham 2002, Hernandez 2009, Liévanos 2020, Liévanos 2019a). Hernandez (2009), for example, documents how racial inequities take on a "generational quality" by demonstrating how different forms of racial discrimination, including restrictive covenants, urban renewal programs, redlining, and subprime lending that develop over time are spatially linked. This race-based exclusion is not the central focus of this study, but these patterns of racialized uneven development are important to consider in examining class- and income-based inequalities in San José. This analysis will demonstrate that historical patterns of racial/ethnic discrimination are one of the primary causes of income-based inequalities today.

San José as a Case Study

I use San José as a site to examine the effects of zoning and to explore neighborhood-level per capita household income change for two primary reasons. First, its development aligns well with the theoretical perspectives introduced in this article. I will highlight the relevance of each theory in explaining San José's development below. In addition, San José's adoption of the urban village zoning designation in 2011 reflected a significant change in the city's approach to development. This serves as an excellent opportunity to explore how a policy change may be linked to economic changes in urban communities

In the context of the homevoter perspective, San José's suburban form, which is comprised of a majority of single-family homes, makes it an excellent example to study. San José, like many other Sunbelt cities, expanded rapidly after WWII and took on a mostly sprawling, suburban form (Trounstine and Christensen 1982). About 94 percent of

the residential land in San José is designated for single-family homes (City of San José 2024b) and in 2010 the homeownership rate was about 59 percent (Manson et al. 2023). As a result of this, homeowners play a powerful role in the city. This is evidenced by the fact that part of the City's development strategy is to avoid disturbing its suburban character (Wang 2019).

San José also serves as a useful case for analysis based on the growth machine perspective. Trounstine and Christensen (1982) link San José's post-WWII development to growth machine politics. They document a growth coalition of urban elites, headed by the city manager, whose primary goals were urban development and expansion. The region was much less developed at the time so growth in that period was accomplished primarily through outward expansion to grow the city spatially as well as through promoting industrial and residential development to expand the city's tax base. To accomplish these aims, the growth machine launched a very aggressive program of urban annexation that involved providing lucrative deals to landowners and developers. The growth machine also developed an advertising campaign to attract industrial development and "catered to industry's every whim when it located in the city" (Trounstine and Christensen 1982:92). They also established lax zoning policies to facilitate rapid suburban and industrial development.

San José's development also aligns well with sociospatial theory and its emphasis on racialized uneven development. San José's Latinx population has long faced discrimination and did not benefit from the city's growth as other racial/ethnic groups did. By 1970, Latinxs accounted for 21.9 percent of San José's population and a 1973 Rand report indicated that while their economic position had improved alongside that of

the city's white population, the city "exhibited no tendency to narrow the wide gap between its ethnic minority and the majority" (Alesch and Levine 1973:21). In addition, 70 percent of Latinx households had incomes below the white median in 1970 and increasing ethnic and economic segregation suggested the gap would continue to grow (Alesch and Levine 1973). These inequalities can be linked, in part, to the ongoing practice of redlining even into the 1970s in California. In 1977, the California Department of Savings and Loan (CDSL) released the *Fair Lending Report* which documented redlining by mortgage lenders in major California cities. The report concludes that the problem was created by several factors, including suburban expansion, neglect of the urban core, and lending standards which continued to discourage lending to residents of devalued communities (State of California 1977). While the report suggests that redlining was largely associated with older, devalued areas of the city, it also reveals that the discriminatory lending practices extended beyond the downtown core into East San José, home to a large proportion of the city's Latinx community. The Latinx community in East San José was also disproportionately affected by the subprime mortgage crisis and the resulting Great Recession (Carey 2007). As this history reveals, the urban processes and discriminatory practices that shape inequalities in the city today are simultaneously income- and race-based.

The other reason that San José also serves as a useful site for analyzing the effects of zoning is due to its adoption of the urban village zoning designation with its 2011 general plan, *Envision San José 2040* (City of San José 2023). San José's urban villages are technically an implementation of *upzoning*, which is a zoning strategy that allows for

higher development intensity in select sites (Gabbe 2018).[14] Where urban villages are located within the city is very important, and they are intended to be infill developments that are located: 1) in areas that are easily accessible by foot and bike, and 2) on vacant or underused parcels in previously developed areas (Wang 2019).[15] Even though they are intended to take advantage of vacant or underused spaces (which may include open lots or spaces like large parking lots), urban villages are still a form of redevelopment that is located within previously developed communities. As such, it may serve as a form of gentrification, displacing existing residents (Butler 2007).

San José and its urban village zoning designation is also useful for analysis because urban villages are a type of new urbanist development. As I described previously, new urbanism is a movement and urban planning paradigm aimed at revitalizing urban areas that has been criticized for reproducing urban inequalities. It has been linked to gentrification (Butler 2007) and associated with economic exclusion (Day 2003, Grant 2007, Harvey 1997, Hirt 2009, Zimmerman 2001). It is therefore important to consider how these types of developments could produce income-based inequalities.

With the adoption of its 2011 general plan, the City of San José designated 67 sites for urban village development (City of San José 2023). Urban villages are one of the key strategies included in the plan and, in a shift from the previous general plan, became

[14] The City of San José's urban villages are not technically upzonings because the approved plans did not automatically change the existing zoning. They can be described as upzoning, however, because they make a space eligible for upzoning with subsequent approval from the San José City Council.

[15] I previously examined the three theoretical models used in this article to determine if they help to predict the siting of urban villages (DeHaan 2024). The results of that study revealed mixed support for growth machine theory but none of the models were strong predictors. In this study, I use the factors associated with these theoretical models to examine their connection to racial change in the context of urban village zoning.

one of the few locations where the city will allow residential development (Wang 2019). However, over 10 years later, the San José city council has only approved plans for 18 urban village developments (City of San José 2020). Urban villages have not been popular with developers (Wang 2019) and research indicates that they have had little economic impact on the city (Gabbe, Kevane and Sundstrom 2021). This raises questions about the potential effects of urban village zoning but a more thorough analysis that examines the impact on the surrounding neighborhoods may be more fruitful.

HYPOTHESES

Hypothesis One: Urban Village Influence

San José's urban villages developed from the new urbanist planning paradigm. Prior research has linked new urbanist developments to gentrification and demonstrated that they reproduce income-based exclusion. As such, we should expect new developments in these neighborhoods to attract higher-income residents and for lower-income residents to be displaced. Based on this, my urban villages hypothesis suggests that neighborhoods where a greater proportion of the area is zoned for urban villages are more likely to experience increases in per capita household income.

Hypothesis Two: Homevoter Influence

Homevoter theory suggests that homeowners, by way of their voting power, dominate local politics and ensure their interests dominate the decision-making process. Homeowners tend to be most concerned about property values and, as a result, are opposed to any changes or other influences in their neighborhoods that may cause property values to decline, including an influx of lower-income families. Based on this opposition to change, we might expect neighborhoods with greater percentages of

homeowners not to experience income-based change. However, because the mean per capita household income in San José increased by $58,000[16] dollars between 2010 and 2020 and that homeowner-dominated communities are among the more affluent in the city, we should expect incomes in homeowner-dominated communities to increase. As such, my homevoter hypothesis suggests that an increase in the percentage of homeowners in a neighborhood will be associated with a corresponding increase in per capita household income.

Hypothesis Three: Growth Machine Influence

Growth machine theory suggests that urban elites, the urban growth coalition, exert influence over local politics and decision-making. Many of these "place entrepreneurs" are heavily invested in urban property and businesses and stand to profit from urban growth. While the relative affluence or poverty may make some neighborhoods more or less attractive and provide their residents more or less power to resist change, growth machine theory suggests that development priority will primarily focus on existing urban amenities that can be leveraged. Areas that experience redevelopment are more likely to experience gentrification, resulting in an influx of higher-income families and the displacement of lower-income families. Based on this, my growth machine hypothesis suggests that neighborhoods closer to urban amenities like bus stops, light rail stops, and Downtown San José are likely to experience increases in per capita household income.

[16] Inflated-adjusted to 2022 dollars.

Hypothesis Four: Sociospatial Influence

Sociospatial theory suggests that historical patterns of uneven development embed inequalities, including patterns of racial discrimination, in the urban form. In this view, neighborhoods that have historically been sites of economic- and race-based discrimination based on things like redlining, subprime lending, and foreclosures, become sites of ongoing concentrated disadvantage. As a result, I expect neighborhoods that are more strongly associated with historical patterns of uneven development are more likely to be associated with decreases in per capita household income.

DATA AND METHODS

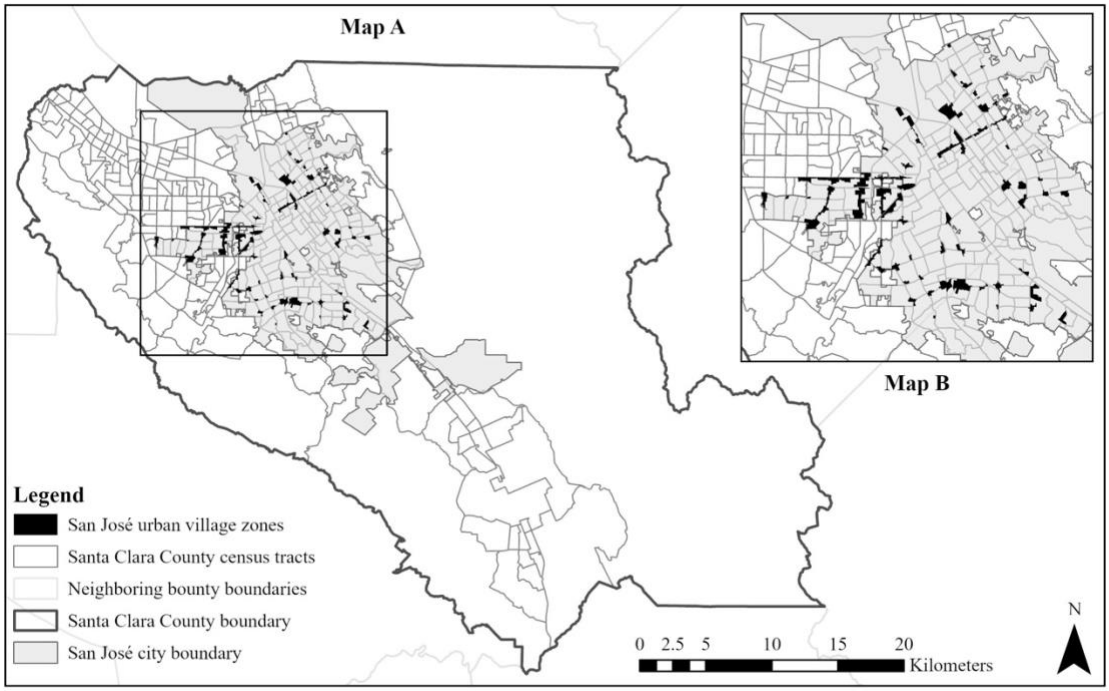
Units of Analysis

This study uses 2010 census tracts as its units of analysis and representation of neighborhoods. These are displayed in Map A in Figure 1. Though the census tract boundaries do not perfectly align with local definitions of neighborhoods, they are created with input from local participants (U.S. Census Bureau 2012) and are the smallest geographic units that reliable data is available for in this study.

While this study primarily focuses on processes that occur within the City of San José, I use census tracts for the entirety of Santa Clara County (n =372) as the study area. Santa Clara County contains the City of San José in its entirety and the city boundary intersects with 204 of the 372 (65 percent) census tracts contained in the county. The study area is a highly developed multicentered metropolitan region characterized by having multiple centers of economic, social, and cultural activity (Gottdiener, Hohle and King 2019) that are broadly distributed across the county. I include all Santa Clara

County census tracts in the analysis because the characteristics of census tracts outside of the city's boundary should be expected to have at least some effect on those within it.

Figure 1. (A) 2010 census tract boundaries for Santa Clara County. (B) San José city boundary and urban village zones.



Dependent Measure

The dependent measure for this study reflects the change in the per capita household income of census tracts between 2010 and 2020. Data for this measure came from the 2008 to 2012 American Community Survey (ACS) five-year estimates (representing the year 2010) and the 2018 to 2022 ACS estimates (representing the year 2020) (Manson et al. 2023). I use per capita household income in this analysis due to challenges in measuring change between census tracts over time as well as the way that household income is reported. The first challenge is the result of the fact that census tract boundaries shift with each census, making direct comparisons between years difficult. Geographic "crosswalks" and apportionment strategies have made matching boundaries

more feasible (see IPUMS 2024, Logan, Xu and Stults 2024). However, those tools work best with count data and other measures that can be appropriately apportioned based on the proportion of overlap between census tracts. The second challenge is that household income is typically reported as a median value, which cannot be easily apportioned using geographic crosswalks. As a solution to these challenges, I started with data representing the aggregate income and the total number of households for each tract. I then apportioned the 2020 data to 2010 tract boundaries using IPUMS (2024) crosswalk files, and divided the new aggregate household income measure by the total number of households, creating a per capita measure.[17] I also adjusted this measure for inflation based on 2022 dollars.

Analysis of the dependent measures revealed that it is approximately normally distributed with a skewness value (0.819) between 0 and 1. This meant that no additional transformation was necessary to prepare it for use in the regression analysis.

Independent Measures

Urban villages. The measure of urban village presence in this study, the percent of urban village overlap, reflects the percent of each tract overlapped by area zoned for urban villages. I created this variable by intersecting spatial urban village zoning data from the City of San José (City of San José 2024a) with 2010 census tract boundaries in ArcGIS Pro.

Homevoter measures. This study includes two measures associated with the homevoter hypothesis. First, I have included the percentage of homeowner-occupied units within each tract, which I derived from the 2010 Census (Manson et al. 2023). The

[17] I followed the IPUMS (2024) recommendation to so start with block group level measures for the 2018 to 2022 ACS data and apportion those to 2010 census tract boundaries.

second, homeowner change, reflects the change in the homeownership rate for each census tract between 2010 and 2020. I derived that measure from the Longitudinal Tract Database (LTDB) (Logan, Xu and Stults 2024).

Growth machine measures. I include three measures associated with the urban growth machine. Two of these are based on public transportation stops. Each of those measures comes from data provided by the Valley Transportation Authority (VTA), which manages public transportation in Santa Clara County. For the first measure, bus stop density, a VTA representative provided a dataset documenting the location of all bus stops in Santa Clara County in 2010 (VTA 2023b). Due to the large number of stops (n = 3128) the variable is based on the density of stops per tract (number of stops divided by tract area, in square kilometers). Data for the second public transportation stop variable, distance to the nearest light rail stop, came from the VTA Open Data Portal (VTA 2023a). I verified that each station in the data file was in operation in 2010 and that no stations had been closed in the intervening period. For the final list of stations (n = 61), I calculated the distance, in kilometers, to the nearest light rail station from the center of each tract. I created the final growth machine measure, the percentage of the tract within the city boundary, by intersecting the census tract boundaries with the San José city boundary. The San José city boundary data came from the City of San José's Open Data Portal (City of San José 2024a).

Sociospatial measures. This study also includes four measures associated with sociospatial theory. Following Hernandez (2009) and Liévanos (2020), I derived the first, 1970s redlining, from the California Department of Savings and Loan's 1977 Fair Lending Report (State of California 1977). That report contains maps that document loan

volumes, by census tract, for the years 1972 to 1976. While the report provides information about varying classifications of loan volumes, I am primarily interested in the areas most severely impacted by redlining during that time, so I extracted data for the areas where the loan volume was less than 10 percent of the county average.[18] I intersected those areas with the 2010 census tract boundaries and calculated the percentage of overlap for each tract.

I derived the measure of high-cost loans from data provided by the Department of Housing and Urban Development's (HUD 2011) Neighborhood Stabilization Program. It provides tract-level data about high-cost mortgages issued between 2004 and 2006, taken from the Federal Reserve's Home Mortgage Disclosure Act data. High-cost mortgages are defined as any "where the rate spread is 3 percentage points above the Treasury security of comparable maturity" (HUD 2011). These loans are high-risk or "subprime" and contributed to the Great Recession of 2007 to 2009 as well as the resulting foreclosure crisis. The spatial distribution of these loans is an indicator of socioeconomic inequalities (Liévanos 2020). I created the measure by calculating the percentage of high-cost loans per census tract. I divided the number of high-cost loans issued by the total estimated number of loans issued during the same period.[19]

I derived the third sociospatial measure (Liévanos 2020), foreclosure rate, from data from the website PropertyRadar.com (2023). I created a list of coordinates for every property that entered preforeclosure in Santa Clara County in 2007 and 2008. After

[18] To create a single measure from data spread across five years, I counted the number of years that each tract was classified as having a loan volume of less than 10 percent and then calculated the average for each tract over the five years. Twenty-nine tracts were ever classified as having a loan volume less than 10 percent and, among those, the average time across the five years was 38 percent. I identified 12 census tracts above that average.

[19] The HUD data was calculated based on 2000 census tract boundaries and I used the aerial apportionment method as described by Logan, Xu, and Stults (2014) to apportion the data to 2010 tract boundaries.

removing duplicate entries for properties that appeared in both years and for entries with missing values, 15,161 properties remained. To calculate the foreclosure rate for each tract, I divided the preforeclosure count for each by the total number of housing units in that tract in 2010 (Manson et al. 2023).

The fourth sociospatial measure is the percentage of Latinx composition of census tracts in 2010. I derived that measure from the 2010 Census (Manson et al. 2023).

As I document in my description of my analytic strategy below, I combine these four sociospatial measures to create a single factor variable I call the racialized uneven development factor. I describe the four initial variables in the descriptive results but use the factor variable in the correlation and regression analysis.

Control. To account for other factors that may influence change in per capita household income outside of the key independent measure described above, I also include two other measures. Among these is a single demographic variable, the overall population change between 2010 and 2020. I include this measure because overall population growth has been linked to economic changes in urban neighborhoods (Galster et al. 2003). I derived this measure from the LTDB (Logan, Xu and Stults 2014). I also include a measure of the built environment, the age of the housing stock, which has been linked to changes in household income (Hanlon 2008).

Analytic Strategy

For the first step of this analysis, I use principal component analysis (PCA) to create a composite measure of spatial disadvantage that is used in place of the four sociospatial measures. Then, I use descriptive statistics to explore distributions of the explanatory variables and examine how the dependent variable, change in per capita

household income, differs based on the key independent variables. Those include the three conditions associated with the primary independent variable, the measure of urban village presence. For the next step, I perform multiple regression analyses to explore the effect of the urban village measure, as well as the theoretical perspective measures, on changes in per capita household income. Finally, in step four, I use a spatial weights matrix to check for spatial dependence and develop an additional term that I incorporate into the regression model to account for spatial error.

Principal component analysis

To address issues of collinearity among the sociospatial measures used in this study, I used PCA to develop a measure of "concentrated disadvantage" (Liévanos 2019b). I call this single component factor "racialized uneven development" because analysis revealed that it reflects different dimensions of racial disadvantage the Latinx population in San José has faced since the 1970s. A summary of the component factor loadings for the measure can be found in Table 1. Consistent with previous research, I extracted unrotated factor solutions using a maximum of 25 iterations and eigenvalues greater than 1.00 (Liévanos 2019b). A varimax rotation was used to produce high factor loadings for a smaller number of variables, increasing the variation between the factors (Cutter, Boruff and Shirley 2003, Liévanos 2019b). I assessed the validity of each factor by evaluating the percentage of the total variance it explained and the reliability using Chronbach's alpha scores.

Table 1. Principal component analysis for racialized uneven development factor.

Variables	Racialized Uneven Development Component Factor Loadings
Percent 1970s redlining overlap	0.523
Percent high-cost loans, 2004 to 2006	0.924
Percent foreclosures, 2007 and 2008	0.870
Percent Latinx composition, 2010	0.910

Regression Analysis

The typical ordinary least squares (OLS) linear regression model assumes that the observations are independent of each other. This becomes a problem when an analysis includes values that may display spatial dependence, like those included in this one. Spatial dependence, also referred to as spatial autocorrelation, suggests that values at any given location in space may be dependent on others that are located nearby (Chakraborty 2009). This creates bias in traditional statistical analysis that must be accounted for.

To control for spatial dependence and evaluate my hypotheses, I use spatial regression models—specifically, spatial error regression models—to assess changes in per capita household income between 2010 and 2020 at the tract level as a function of various combinations of independent variables. The spatial error regression models used in this study can be described as follows:

$$y = \alpha + \sum_{k} \beta_k X_k + \lambda We + u$$

where y equals the tract-level change in mean household income, α equals the intercept (constant), β represents the coefficient for the k number of X independent variables, λ equals the spatial autoregressive coefficient, W equals the spatial weights matrix, e

equals the random error term (difference between the observed and predicted values of y) in the regression model, and u represents the spatially independent error term (Anselin 2009, Liévanos, Greenberg and Wishart 2018).

Controlling for spatial dependence involves the analysis of the residuals from the OLS regression model. Following the procedure described by Chakraborty (2009), I use the Moran's *I* statistic to identify spatial dependence and develop an additional measure that can be used to control for spatial autocorrelation. To accomplish this, I used GeoDa (Anselin, Syabri and Kho 2006) to run my initial OLS regression models. Next, I created a spatial weight matrix with queen and first-order contiguity to evaluate spatial dependence. The resulting large and significant Moran's *I* value indicated that there were "patterns in the dependent variable that are not predicted by independent variables, but [were] instead related to values in neighboring locations" (Chakraborty 2009:682). To account for this, I then ran a spatial error regression model in GeoDa that incorporated the spatial weight matrix. Incorporating the spatial weights matrix successfully reduced the spatial dependence in the model. Analysis of the regression residuals for all models produced Moran's *I* values that were small and were not significant.

RESULTS

Descriptive Statistics

The descriptive statistics are presented in Table 2. It shows the mean, standard deviation, minimum, and maximum of each variable.

Starting with the dependent variable, per capita household income change between 2010 and 2020, there was a mean increase of $58,700 with a standard deviation

of $37,590. This is strongly indicative of the affluence of the region. The distribution of per capita household income change across the study area is depicted in Figure 2.

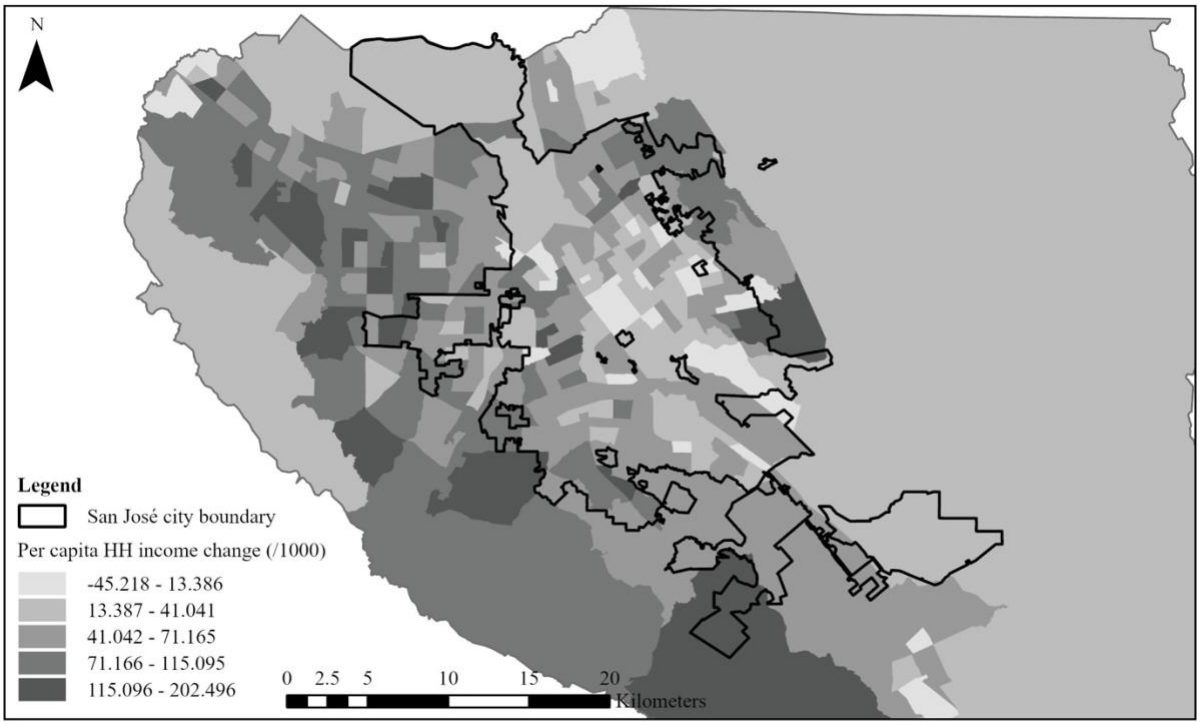
Table 2. Descriptive statistics for the variable used in the regression analysis (n = 372)

Variables	Mean	S.D.	Min.	Max.
Dependent Measure				
Per capita HH income change, 2010 and 2020 (/1000)[1]	58.70	37.59	-45.22	202.50
Independent Measures				
Urban Village				
Percent urban village zone overlap	3.64	8.49	0.00	61.19
Homevoter				
Percent homeowners, 2010	59.24	22.26	0.14	94.26
Percent homeowner change, 2010 to 2020	-2.68	4.33	-27.43	17.49
Growth Machine				
Distance to the nearest light rail stop (km)	4.55	5.77	0.07	35.47
Bus stop density (sq. km)	4.94	3.92	0.00	36.00
Percent tract within city limits	50.59	47.53	0.00	100.00
Sociospatial				
Percent 1970s redlining overlap	4.89	20.74	0.00	100.00
Percent high-cost loans, 2004 and 2006	11.03	7.98	0.00	49.73
Percent foreclosures, 2007 and 2008	2.94	3.34	0.00	24.65
Percent Latinx composition, 2010	26.76	20.27	1.78	86.09
Racialized uneven dev. factor	0.00	1.00	-1.16	3.85
Control				
Percent housing built before 1970	45.81	25.21	0.00	96.18
Percent pop. change, 2010 to 2020	8.71	18.86	-16.08	204.64

[1]Inflation adjusted to 2022 dollars. km = kilometers sq. km = square kilometers

There are several other notable results in the descriptive statistics. First, the small mean percent of urban village overlap (3.64 percent), highlights the overall small footprint of urban village zones across the study area. This is consistent with the distribution reflected in Map B in Figure 1. The large mean homeownership rate (59.24 percent) provides some initial support for the homevoter hypothesis as it indicates that, on average, communities in the area are majority homeowner. The percent of homeowner change, however, reveals a 2.68 decrease between 2010 and 2020 and may reflect declining homeowner influence in some areas of the city.

Figure 2. Per capita household income change between 2010 and 2020 across the study area.



The distribution of the sociospatial measures reveals their uneven distribution across the study area and the clustering that led to the creation of the racialized uneven development factor. These are displayed in Maps A through D in Figure 3. There is clustering evident on the east side of San José in each distribution, reflective of the historical patterns of discrimination affecting the city's Latinx population.

Figure 3. Santa Clara County census tracts and (A) the percent of high-cost loans in 2010; (B) the percent Latinx in 2010; (C) the percent of foreclosures in 2007 and 2008; and (D) the percent of tract redlined in the 1970s.

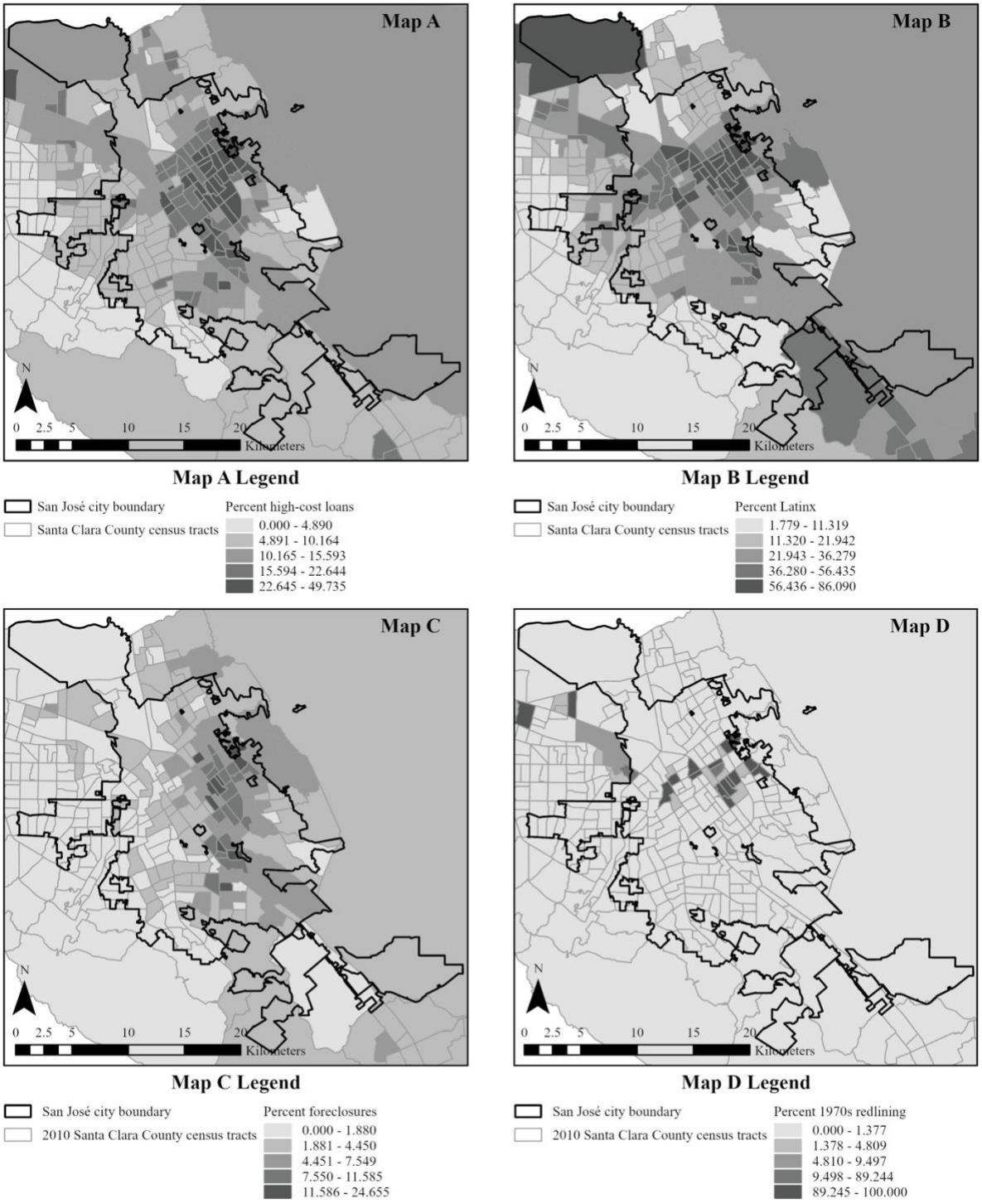


Table 3. Correlation coefficients (n = 372)

	Per capita HH income change, 2010 to 2020[1]	Percent of urban village zone overlap	Percent homeowners, 2010	Percent homeowner change, 2010 to 2020	Distance to the nearest light rail stop (km)	Bus stop density (sq. km)	Percent tract within city limits	Racialized uneven dev. factor	Percent housing built before 1970	Percent pop. change, 2010 to 2020
Per capita HH income change, 2010 to 2020[1]	1	-0.121*	0.234***	-0.035	-0.043	-0.061	-0.315***	-0.414***	0.336***	0.016
Percent urban village zone overlap	-0.121*	1	-0.257***	-0.024	-0.179**	0.190***	0.380***	0.123*	-0.070	-0.004
Percent homeowners, 2010	0.234***	-0.257***	1	-0.048	0.132*	-0.417***	-0.017	-0.208***	0.060	-0.148**
Percent homeowner change, 2010 to 2020	-0.035	-0.024	-0.048	1	0.202***	-0.074	0.000	0.075	0.071	-0.470***
Distance to the nearest light rail stop (km)	-0.043	-0.179**	0.132*	0.202***	1	-0.300***	-0.397***	-0.006	-0.121*	0.055
Bus stop density (sq. km)	-0.061	0.190***	-0.417***	-0.074	-0.300***	1	0.199***	0.145**	0.115*	0.061
Percent tract within city limits	-0.315***	0.380***	-0.017	0.000	-0.397***	0.199***	1	0.434***	-0.130*	-0.112*
Racialized uneven dev. factor	-0.414***	0.123*	-0.208***	0.075	-0.006	0.145**	0.434***	1	-0.047	-0.141**
Percent housing built before 1970	0.336***	-0.070	0.060	0.071	-0.121*	0.115*	-0.130*	-0.047	1	-0.212***
Percent pop. change, 2010 to 2020	0.016	-0.004	-0.148**	-0.470***	0.055	0.061	-0.112*	-0.141**	-0.212***	1

[1]/1000 and inflation-adjusted to 2022 dollars. *p<0.05, **p<0.01, ***p<0.001

Correlations

The correlation coefficients for the variables used in this study are found in Table 3. Concerning hypothesis one, which suggests a greater percentage of urban village zone overlap will be associated with a decrease in per capita household income, the correlation supports the hypothesis. The results reveal a negative yet weak relationship (r = -0.121) that is significant at the 0.05 level.

Looking next to the correlations between the homevoter variables and per capita household change, only the relationship with the percent of homeowners is significant. There is a positive weak correlation (r = 0.234) with the percent homeowners that is significant at the 0.001 level. This supports the homevoter hypothesis, which suggests that the exclusionary nature of homeowner-dominated communities will be associated with increases in per capita household income. There is also a weak, yet significant, negative correlation (r = -0.257) between the percent of homeowners and the percent of urban village overlap. This provides some support for the homevoter hypothesis, which suggests that redevelopment plans, like those associated with urban village zoning, will be located outside of homeowner-dominated neighborhoods. There is a stronger and significant moderate negative correlation (r = -0.417) between the percent of homeowners and bus stop density. This is consistent with the homevoter theory and the suburban nature of homeownership in the U.S. Homeowner-dominated communities are much more likely to consist of single-family homes, be organized around automobile use, and be resistant to public transportation (Weitz 2008). The other notable correlation associated with the homevoter variables is the significant negative correlation between each of them and the percent of overall population change between 2010 and 2020. The

correlation associated with the percent of homeowners in 2010 is weak (r = -0.148), while the correlation associated with the percent of homeowner change is moderate (r = -0.470). Given that the mean percent of population change across all tracts in that period was 8.71 percent, these results would suggest most of the population growth happened outside of homeowner-dominated neighborhoods. This, again, is consistent with homevoter theory, which suggests that homeowners are resistant to changes in their communities.

Focusing next on the growth machine variables, distance to the nearest light rail station, bus stop density, and the percent of the tract with the city limits, none have significant relationships with per capita household income change. There are weak to moderate correlations between the growth machine variables themselves though. There is a moderate significant negative correlation (r = -0.397) between the distance to the nearest light rail stop and the percent of the tract within the city limits. This is the result of the limited scale of light rail service in Santa Clara County and the fact that it is centrally located within the City of San José. As the percent of a tract that falls within the city limits decreases (describing the tracts on the periphery of the city), the distance to the nearest light rail stop will increase. Likewise, there is also significant weak correlation (r = -0.300) between the distance to the nearest light rail stop and bus stop density. This is also a reflection of the spatial organization of the city and county. Finally, looking at the relationship between the percent of a tract within the city limits and the racialized uneven development factor, there is a moderate and significant positive correlation (r = 0.434). I'll explore this relationship more in the context of the sociospatial hypothesis, below.

Finally, there are two noteworthy significant correlations associated with the racialized uneven development factor. First, there is a moderate negative correlation (r = -0.414) between the racialized uneven development factors and per capita household income change that is significant at the 0.001 level. This is consistent with the sociospatial hypothesis, which suggests that areas with larger factor scores, which reflect a greater degree of concentrated disadvantage, will be associated with a decrease in per capita household income. Next, as I mentioned in the preceding paragraph, is the significant positive correlation (r = 0.434) with the percent of a tract within the San José city limits. The racialized uneven development factor is meant to reflect the historical development of racialized inequalities, and this moderate correlation is likely the result of the fact that the development of Silicon Valley started in San José and expanded outward. Much of the area within the San José city limits is much older than the rest of Santa Clara County and as such, has been exposed to patterns of uneven development much longer. In addition, the factor variable loads high on the Latinx composition of neighborhoods, and much of the Latinx population of the county is located within the city.

Regression Analysis

The results of the regression analysis can be found in Table 4. The analysis explores the effect of zoning on changes in per capita household income between 2010 and 2020 in the context of the factors associated with the three theoretical perspectives introduced previously. Model 1 examines the percent of urban village overlap independently, while Models 2 through 4 each include one of the theoretical perspectives. Model 5 integrates all the factors to examine the combined influence. I describe each in more detail below.

Table 4. Regression results for Models 1 through 5 (n = 372)

Variable	Model 1 Urban villages Coefficient (SE)	*p* Value	Model 2 Homevoter Coefficient (SE)	*p* Value	Model 3 Growth machine Coefficient (SE)	*p* Value	Model 4 Sociospatial Coefficient (SE)	*p* Value	Model 5 Combined Coefficient (SE)	*p* Value
Percent urban village zone overlap	-0.428*	0.048	-0.174	0.427	0.040	0.859	-0.226	0.257	0.182	0.417
	(0.216)		(0.219)		(0.224)		(0.199)		(0.224)	
Homevoter										
Percent homeowners, 2010			0.376***	0.000					0.368***	0.000
			(0.085)						(0.094)	
Percent homeowner change, 2010 to 2020			0.080	0.866					0.425	0.338
			(0.472)						(0.443)	
Growth Machine										
Distance to the nearest light rail stop (km)					-1.050**	0.002			-0.884*	0.039
					(0.345)				(0.429)	
Bus stop density (sq. km)					-0.820	0.087			0.218	0.483
					(0.478)				(0.652)	
Percent tract within city limits					-0.253***	0.000			-0.168**	0.002
					(0.044)				(0.054)	
Sociospatial										
Racialized uneven dev. factor							-14.609***	0.000	-8.851***	0.000
							(1.704)		(2.259)	
Control										
Percent housing units built before 1970	0.520***	0.000	0.516***	0.000	0.444***	0.000	0.478***	0.000	0.390***	0.000
	(0.074)		(0.073)		(0.074)		(0.068)		(0.075)	
Percent pop. change, 2010 to 2020	0.179	0.072	0.252*	0.025	0.115	0.235	0.058	0.526	0.156	0.137
	(0.099)		(0.112)		(0.096)		(0.092)		(0.105)	
Constant	34.905***	0.000	11.463	0.088	58.884***	0.000	37.122***	0.000	29.523***	0.000
	(4.239)		(6.700)		(5.906)		(3.883)		(8.226)	
Lamda									0.283***	0.000
									(0.080)	
R^2	0.130		0.175		0.213		0.275		0.349	
Multicollinearity condition index	4.666		8.764		7.912		4.681		12.501	
Log likelihood	-1850.500		-1840.700		-1831.930		-1816.560		-1799.201	
Degrees of freedom	368		366		365		367		362	
Akaike information criterion	3709.01		3693.40		3677.85		3643.13		3618.40	
Moran's I	0.260***	0.000	0.250***	0.000	0.172***	0.000	0.116***	0.000	-0.009	0.424

*p<0.05, **p<0.01, ***p<0.001 [1]Moran's I test of residuals conducted with 9999 permutations

Model 1: Urban village influence In Model 1, I examine the relationship between the key independent variable, percent of urban village zone overlap, and change in per capita household income. This model also includes two control variables, the percent of housing units built before 1970 and the percent of population change between 2010 and 2020. These variables account for only a small amount of the variance in the model (R^2 = 0.130), indicating that this model poorly explains changes in per capita income. In addition, the Moran's *I* for the model residuals (I = 0.260) is significant at the 0.001 level and indicates a moderate effect of spatial autocorrelation on the model results. As such, we should interpret these results with caution.

There are two significant variables in this model. First, the percent of urban village zone overlap measure is significant at the 0.05 level. It indicates that a 1 percent increase in the percent of urban village zone overlap in a tract is associated with a $428 decrease in per capita income. This is relatively small change, considering the approximate $58,000 mean increase in per capita income across all census tracts. However, it still reflects a *decrease* in per capita income relative to the large mean increase across the study area. This result contradicts the urban village hypothesis. It suggests that urban village developments themselves, as well as speculative developments that may occur nearby, are likely to result in an influx of higher income residents, increasing per capita household income. However, given the poor model fit, we will want to consider the effect of the theoretical variables included in the subsequent models to more thoroughly examine this relationship before drawing conclusions.

The other significant variable in this model, the control measure reflecting the percent of housing units built before 1970, indicates that a 1 percent increase in the

percent of older housing units is associated with a $520 increase in per capita household income. This modest increase is consistent with previous research indicating that older housing is associated with lower incomes (Hanlon 2008, Hanlon 2009). This suggests that incomes in areas with larger percentages of older housing stock did not increase as much as they did in other areas of the county.

Model 2: Homevoter influence In Model 2, I expand on the analysis from Model 1 by adding two additional measures, each associated with the homevoter hypothesis. Adding these variables improves the model fit slightly (R^2 = 0.175) and indicates the variables explain 17.5 percent of the variance in the model. The Moran's *I* value (*I* = 0.250) decreased slightly in this model but is still significant at the 0.001 level and indicates that spatial autocorrelation has some effect on the results. We should also interpret the results of this model with caution.

Adding the homevoter variables results in the percent of urban village overlap variable losing significance. Three other variables are significant, however. First, the percent of homeowners in 2010 is significant at the 0.001 level and indicates that a 1 percent increase in the percent of homeowners is associated with a $376 increase in per capita household income. While the increase in income is consistent with the expectations of the homevoter hypothesis, the effect is small, especially in the context of the other significant variables included in the model. I will address this further below.

The first of the other significant variables is the percent of housing built before 1970. That variable is significant at the 0.001 level as it was in Model 1, but the effect decreased slightly to $516. The other significant variable is the additional control variable which reflects the percent of population change between 2010 and 2020. It is significant

at the 0.05 level and indicates that a 1 percent increase in the population of a tract is associated with a $252 increase in per capita household income. That result is consistent with previous research, which suggests that increasing population size leads to competition over housing, which increases housing prices, favoring higher-income families (Galster et al. 2003).

Returning to the effect of the percent homeownership variable, the fact that the $376 increase associated with the percent of homeowners in 2010 is smaller than the $516 increase associated with the housing stock variable and is only slightly larger $252 increase associated with the population change variable, suggests that the percent of homeowners in a tract does not exert strong influence on per capita income. I will explore this relationship further in my description of Model 5.

Model 3: Growth machine influence In Model 3, I replace the homevoter measures with three growth machine variables. Introducing these variable increases the explanatory power of the model slightly (R^2 = 0.213) and decreases the Moran's *I* value (*I* = 0.172). The Moran's *I* value is still significant at the 0.001 level. These results do not reflect any significant change from the previous models.

As with Model 2, the urban village overlap variable is not significant in this model. However, two of the three growth machines variables are. First, the distance to the nearest light rail stop variable is significant at the 0.01 level and a 1-kilometer increase in the distance to the nearest stop is associated with a $1,050 decrease in per capita household income. This is consistent with growth machine theory, which suggests that urban elites will focus redevelopment efforts in areas with existing urban amenities that can be leveraged. As such, tracts that are nearer to resources like transit stops will be

more likely to experience an influx of higher-income residents. The percent of a tract within the city limits variable is also significant at the 0.001 level and a 1 percent increase in the amount of a tract within the city limits is associated with a $253 *decrease* in per capita household income. This result contradicts the growth machine hypothesis as the City of San José is spatially organized such that many of the urban amenities to be leveraged by urban elites (like public transit and cultural centers like museums) are located downtown. I will explore this more in the Discussion section, below.

The final significant variable in this model is the percentage of older housing stock. Consistent with the previous models, it is significant at the 0.001 level. The strength of its effect decreased slightly from Model 2, and a 1 percent increase in older housing stock is associated with a $444 dollar in increase in per capita income.

Model 4: Sociospatial influence Model 4 incorporates the racialized uneven development factor used to represent sociospatial theory. The inclusion of this variable produces a better fit ($R^2 = 0.275$) than either of the variables associated with the previous theoretical perspectives, explaining 27.5 percent of the variance. The Moran's *I* for the model residuals ($I = 0.116$) is significant at the 0.001 level and indicates minimal effect of spatial autocorrelation.

Consistent with the previous models that incorporate measures reflecting the theoretical perspectives, the percent of urban village overlap variable is not significant in this model. Two other variables are though. First, the racialized uneven development factor is significant at the 0.001 level and indicates that a 1-point increase in the factor score is associated with a $14,609 decrease in per capita household income. This is consistent with sociospatial theory, which suggests that areas that have been historically

disadvantaged by the process of uneven development will experience continued disadvantage, concentrating lower-income families in those neighborhoods.

Consistent with the previous models, the measure of older housing stock is significant at the 0.001 level and is associated with a $478 increase in per capita household income.

Model 5: Combined influence Model 5 incorporates all the measures included in the study, evaluating their combined influence. This model provides the best fit and accounts for about 35 percent (R^2 = 0.349) of the variance. This model also incorporates a spatial error term to account for spatial autocorrelation. Its effect is evidenced by the near-zero Moran's *I* value (*I* = -0.009) and its lack of significance. Consistent with previous models, the effect of the percent of urban village overlap variable is small ($182) and is not significant. Several of the other variables included in this model are significant, however. Consistent with Model 2, the percent of homeowners in 2010 is significant at the 0.001 level and indicates that a 1 percent increase in the percent of homeowners is associated with a $368 increase in per capita household income. This effect was mostly unchanged by the inclusion of the additional theoretical model variables. Though the effect is small, this result is consistent with homevoter theory and provides support for the homevoter hypothesis.

The results for the growth machine variables are also consistent with the previous model they were included in, Model 3. The distance to the nearest light rail stop variable is significant again, however only at the 0.05 level. That relationship indicates that a 1-kilometer increase in the distance to the nearest stop is associated with a $884 decrease in per capita household income. While the effect decreased, it still provides support for the

growth machine hypothesis. The percent of a tract within the city limits variable is also significant again, but only at the 0.01 level in this model. That relationship indicates that a 1 percent increase in the amount of a tract within the city limits is associated with a $253 *decrease* in per capita household income. This result, again, contradicts the growth machine hypothesis but I explore this relationship more in the Discussion section.

As with the variables associated with the other theoretical models, the racialized uneven development factor variable maintained its significance in this model. Consistent with Model 4, it is significant at the 0.001 level. Its effect decreased in this model, indicating that a 1-point increase in the factor score is associated with an $8,851 decrease in per capita household income. This is a significant decrease in the effect ($5,758, or roughly 40 percent) but it is still the largest effect among any of the variables included in the study.

Finally, of the control variables, only the older housing stock variable is significant. Consistent with each of the previous models, it is significant at the 0.001 level and indicates that a 1 percent increase in the older housing stock of tract is associated with a $390 increase in per capita household income.

DISCUSSION

The results of this analysis offer some important insights into the study of zoning and changes in per capita household income. First, only one of the five regression models identifies a significant relationship between the percent of a tract overlapped by urban village zoning and changes in the per capita household income of the tract. Only in Model 1, which includes the urban village zoning variable and the controls as explanatory measures, is there a significant relationship. However, the explanatory power of that

model is very weak and a Moran's *I* test reveals the effects of spatial dependence, suggesting that we should be cautious in drawing any conclusions based on the results. In addition, incorporating any measures associated with the theoretical models (as I did in Models 2 through 5), eliminated the variable's significance. This suggests that there may be a relationship between urban village zoning and per capita household income, but that it is much weaker than the relationships established by the other variables introduced in this study.

I can think of several factors that may explain this result. First, the City of San José may have deliberately selected sites for urban village zoning that would not displace lower-income residents. While the city does not describe the decision-making process that officials used to site urban village zones, the emphasis on taking advantage of "underutilized" areas of the city (City of San José 2023) (i.e. infill development) suggests they may have attempted to mitigate the negative impacts of redevelopment (Kim 2016). In addition, the City's general plan explicitly establishes equity and diversity as one of its housing goals and describes developing "tools, policies, or programs to prevent or to mitigate the displacement of existing low-income residents" as an action item (City of San José 2023:209). While I am unable to determine the extent to which actions were taken based on this, it at least reveals the City acknowledges it as a potential problem.

Another reason this study did not reveal a relationship between urban village zone overlap and per capita household income change may be that an area being zoned for urban villages does not necessarily mean that it will be developed. Changes will be more likely to occur in areas where urban villages are developed and this this study, as it is presented above, does not incorporate the development status of the areas zoned for urban

villages. I approached this study with an understanding that zoning decisions serve as a signal to developers that often lead to speculative developments in the surrounding areas (Dehring, Depken and Ward 2007, Gatzlaff and Smith 1993, Immergluck 2009, Jud and Winkler 2006, Knaap, Ding and Hopkins 2001), suggesting that speculative developments and other changes are likely to occur in surrounding areas before any urban village development occurs. However, San José's urban villages have not been popular with developers (Gabbe, Kevane and Sundstrom 2021, Wang 2019) so it may be that the larger problem is that there is a general lack of interest in developing urban villages. After 14 years, the City Council has only approved plans for 18 urban village sites (City of San José 2020). This is indicative of stalled progress and suggests that developments in the areas around urban villages have not been prioritized.

The lack of a relationship between zoning and changes in the per capita household income of tracts led me to question whether the adoption of more concrete development plans would be more likely to spur changes. To evaluate the effect that urban village development may have, I also performed an additional analysis that evaluated the effect of the percent of a tract overlapped by urban village zoning where the San José city council had officially adopted development plans. I identified the 18 sites where plans had been approved and incorporated those into the analysis in place of the original urban village overlap measure. The results of the updated analysis were largely consistent with the previous one. However, in the updated analysis, the relation between the urban village overlap and per capita household income was not significant across *any* of the models. This suggests that the lack of a relationship is not the result of a lack of concrete development plans.

The results of the models focusing on the evaluation of theoretical models that explain per capita household income change provide stronger evidence to draw from. While this study does not provide strong support for the relationship between zoning and changes in household income, it does provide more support for the theoretical models that provide context for it. Across all the models, the racialized uneven development factor associated with the sociospatial hypothesis revealed the strongest effect on changes in household income. Sociospatial theory suggests that urban development and the changes associated with it are most likely to occur in areas that have historically been marginalized through processes like redlining that embed racial and economic inequalities in physical space. I suggested that census tracts that scored higher based on the factor variable would be associated with decreases in per capita household income. The results for Models 4 and 5 both provide very strong support for this hypothesis. The effects associated with that measure are significant at the 0.001 level in both models and are significantly larger than the effects of any other measure included in the study. This documents the ongoing effects of uneven development in San José. These results are consistent with other studies of uneven development in California cities like Stockton (Liévanos 2020, Liévanos 2019a) and Sacramento (Hernandez 2009).

The analysis provides mixed support for the homevoter hypothesis. In that hypothesis, I suggested that the per capita household income of census tracts with greater percentages of homeowners should increase over time. Fischel's (2001) homevoter theory argues that suburban homeowners are singularly focused on property values. As a result, they use their power to establish policies that will exclude anything or anyone (like low-income families) that may harm property values from their communities. This resistance

to change generally suggests a sort of stasis in homeowner-dominant communities. However, given that the per capita household income in San José grew by almost $59,000 dollars between 2010 and 2020, and that homeowner neighborhoods are among the more affluent in the city, we should expect to see *increases* in household income associated with the percent of homeowners in a community. The results of this analysis provide some support for this. In Models 2 and 5, increases in the percent of homeowners in a neighborhood are associated with increases in per capita household income. However, the effects in both models are small (about $370), especially relative to the effects associated with other variables used in the models. I also included the percent of homeowner change in the models, which was not significant in either. Homevoter theory provides little utility in explaining changes in per capita household income in San José.

This study provides the weakest support for growth machine theory. Two variables, distance to the nearest light rail stop and the percent tract within city limits, are each significant in Models 3 and 5 but provide mixed support. In both models, distance to the nearest light rail stop is negatively associated with per capita household income, which supports my growth machine hypothesis. Growth machine theory suggests that redevelopment efforts, which will attract higher-income residents, are more likely to be located near urban amenities. As such, decreases in household income associated with greater distances from light rail stops support my hypothesis. The other variable that is significant in both models, the percent tract with the city limits, contradicts my hypothesis. Tracts that are more fully contained within the city limits will be closer in proximity to Downtown San José, which is centrally located within Santa Clara County. Downtown San José is where many of the region's most desirable urban amenities

(museums, theaters, restaurants, and the like) are located. As such, growth machine theory suggests that tracts that are more fully within the city limits will be more likely to experience redevelopment and an influx of higher-income residents, increasing household income.

The inclusion of the city limits variable introduces an important complication to this analysis. I included it because it is an important measure of San José urban form (as I document above) but also because it reflects a boundary that urban villages cannot be located outside of. Urban villages are a city policy and cannot be located anywhere else in Santa Clara County. Besides reflecting the urban form of San José, the measure also reflects an important limitation imposed upon growth machine decision-making. The inclusion of this measure is complicated by the fact that Santa Clara County is a multicentered metropolitan region (Gottdiener, Hohle and King 2019) and San José is bordered by many other municipalities that also provide amenities that could influence development patterns. Based on this, the contradictory results associated with the measure are not surprising.

There are several limitations to this study that could be addressed in future research. First, the results may be influenced by the units of analysis I used. While census tracts were chosen for analysis based on the availability of reliable data, the influence of zoning changes associated with urban villages may be more easily detected if evaluated at a smaller scale. The mean percent of urban village overlap was only 3.64 percent, demonstrating that the areas zoned for urban villages cover a relatively small amount of each tract. It may be worthwhile to explore this relationship using smaller units of analysis, like Census block groups, as changes may be easier to detect at a smaller scale.

Another limitation that could be addressed with future research is the lack of measures included to control for school effects. Prior research on the effects of schools on neighborhood choice reveal that school choice and school quality are valuable factors for home buyers and are associated with increased housing prices in communities (Cheung, Yiu and Zhang 2022, Matthews 2024). School choice policy (which has been adopted in San José), allows moving families to decouple their children's education from the neighborhood they live in, which has led to economic imbalances in gentrifying communities (Bischoff and Tach 2020, Candipan 2019, Candipan 2020). This issue can be exacerbated by school quality measures and school rating websites like GreatSchools.org (Barnum and LeMee 2019). Research has also established that the number of school choice options (Candipan 2019, Candipan 2020) as well as the types (like public, private, charter, or magnet) (Bischoff and Tach 2020, Schachner 2022) are associated with increases in the socioeconomic status of residents. Expanding this study by incorporating measures that control for the role of school quality and availability may improve the models.

Finally, another way to improve the explanatory power of the models used in this study could be to incorporate measures that correspond to growth machine theory. While bus stops and light rail stations are both important amenities that the City of San José argues are important to the location of urban villages, the analysis could be expanded by including other transportation measures. First, the Environmental Protection Agency's (2024) National Walkability Index could be a useful measure for two reasons. First, walkability is a major goal of urban villages and new urbanist planning more generally and may help to explain urban village zone siting. Secondly, in the contemporary

planning context, walkable communities are very desirable and may reflect a resource that growth coalitions would attempt to leverage. Relatedly, bikeways are another similar amenity that could also be incorporated into the analysis. Freeway access may reflect another important resource. While the point of urban villages is to reduce automobile travel, in a car-centric city like San José, residents are still likely to prioritize automobile use, even if they live in more walkable communities. This may reflect another important amenity that growth coalitions would attempt to leverage. Finally, measures of vehicle miles traveled can be used as indicators of job locations (Wang 2019), which may reflect another aspect of the urban form that growth coalitions would attempt to take advantage of.

CONCLUSION

This study attempted to answer two questions about changes in the per capita household income in San José. For the first question, which asked how the presence of urban village zones affects changes in per capita household income, I found very little evidence of any relationship. One model in my analysis provided weak support, but including any additional factors that help to explain changes in household income eliminated the effect.

For the second question, which asked how urban sociological theories can provide context for understanding the factors associated with changes in household income in neighborhoods, this study produced more helpful results. I found the strongest support for sociospatial theory, which emphasizes how patterns of historic racial discrimination are embedded in space and perpetuate racial inequalities over time. I also found mixed support for homevoter theory. The analysis revealed that increasing rates of

homeownership were weakly associated with increases in per capita household income. The analysis provided the weakest, yet still mixed, support for growth machine theory. I found support for the relationship between light rail stations and increases in household income, but the included city limits measure contradicted my hypothesis and none of the models indicated a relationship between bus stop density and household income.

This study could have important policy implications as it suggests that implementation of San José's urban villages may not lead to influxes of higher-income residents into communities where urban villages are built. However, I suggest treating this analysis as an initial framework for analysis and further studies, which incorporate more robust measures that could provide more insight into the effects of zoning.

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CHAPTER V: CONCLUSION

Central Findings

In this dissertation, I used regression analyses to explore the factors associated with the siting of urban village zoning in San José, CA as well as the impacts of those zoning decisions on changes in the Latinx composition and the per capita household income of neighborhoods. I used three theories of urban sociology to frame each analysis: homevoter theory, growth machine theory, and sociospatial theory. The analysis produced mixed results, which I explore in more detail below.

In Chapter 2, I examined the factors associated with the siting of urban village zoning. The analysis produced mixed results, but I found the strongest support for growth machine theory. The percentage of the tract that was located within the city boundary was a significant predictor across all models that included the growth machine measures and the distance to the downtown center was also significant across all models except for the final model, which accounted for spatial dependence. The growth machine theory suggests that urban elites influence zoning decision-making to locate zoning, and ultimately development, in areas with existing infrastructure that can be leveraged. However, contrary to the expectations of growth machine theory, neither bus stop density nor distance to the nearest light rail stop were significant predictors of an urban village being in a census tract. This calls the utility of this theoretical perspective into question, especially considering other research revealing that the urban amenities associated with growth machine theory are not significant predictors of upzoning (which urban villages are an example of) locations (Been, Madar and McDonnell 2014, Gabbe 2018). I will discuss this in more detail below.

In Chapter 3, I examined the relationship between the overlap of urban village zones in census tracts and Latinx change in San José neighborhoods. I also explored that relationship in the context of the three theoretical perspectives used in Chapter 2. The results did not provide any support for the relationship between urban village zone overlap and Latinx change. However, including the measures associated with the theoretical perspectives did help provide some insight into Latinx change in San José. The strongest effect I discovered in the analysis was associated with the sociospatial measure, the racialized uneven development factor. That effect was much stronger than any other in the analysis. However, it also contradicted my hypothesis, which suggested that neighborhoods that scored higher based on the racialized uneven development factor score would be more likely to experience increases in the Latinx population. The Latinx population in San José has historically been disadvantaged and the racialized uneven development variable reflects the fact that historical patterns of discrimination were strongly associated with larger Latinx populations in 2010. I expected the patterns of "concentrated disadvantage" (Liévanos 2019a) reflected in that measure to continue, consistent with other research on other cities in the region (Hernandez 2009, Liévanos 2020, Liévanos 2019b). In this context of San José, I expected this to result in increasing concentrations of the Latinx population in historically disadvantaged neighborhoods. However, the results of the analysis revealed that the racialized uneven development factor, the measure of historic disadvantage, was associated with *decreases* in the Latinx population. This may suggest that sociospatial theory is not useful for explaining racial change in San José but there may also be another way to explain that result. I will explore that more below.

The results of the analysis for Chapter 3 also revealed mixed support for the homevoter hypothesis, which suggested that increases in the percent of homeowners in a tract will be associated with decreases in the Latinx population. The analysis supported that hypothesis, and I discovered small, yet significant, relationship. However, I included two measures associated with homevoter theory in the analysis, and the other, the percent of homeowners in a tract, was not significant in any of the models. Based on homevoter theory, that variable would be expected to be *the* primary predictor of racial change in neighborhoods, which calls the theory's relevance to the conditions in San José into question.

The results of the analysis for Chapter 3 produced the weakest support for the growth machine hypothesis. That hypothesis suggested that proximity to urban amenities will be associated with decreases in the Latinx population as growth coalitions are likely to focus redevelopment efforts in those areas, leading to the displacement of more vulnerable residents. I found a weak, yet significant, relationship between the distance to the nearest light rail station and an increase in the Latinx population, which supported the hypothesis. I also discovered a significant relationship between the percent of a tract within the city limits and Latinx change, but that contradicted the hypothesis, revealing that Latinx populations were larger in areas that were more fully contained within the city. I will discuss the effect of the city limits variable more below.

In Chapter 4, I used the analysis framework I established in Chapter 3 to examine the relationship between the overlap of urban villages zones in census tracts and changes in per capita household income. Overall, the results did not suggest that there is any relationship between urban village zone overlap and changes in household income in San

José neighborhoods. I did discover a weak, yet significant effect in Model 1, which evaluated the urban village zone overlap independently. However, that effect was not significant in any the later models that incorporated the theoretical variables. As with Chapter 3, I also explored that relationship in the context of the three theoretical perspectives. The analysis provided the strongest support for sociospatial theory. However, unlike the Chapter 3 analysis, in Chapter 4 the results supported my hypothesis. Consistent with the idea that historic forms of discrimination concentrate disadvantage in urban neighborhoods, my hypothesis suggested that per capita household income would decrease in neighborhoods associated with higher racialized uneven development factor scores. The effect associated with the relationship was much larger than any other discovered in the analysis, providing very strong support. This result is confusing in the context of the results for Chapter 3 though. Again, I will explore that more below.

Extending the similarities with Chapter 3, the analysis in Chapter 4 also provided mixed support for homevoter theory. My hypothesis for that chapter suggested that the per capita household income of census tracts with greater percentages of homeowners should increase over time. The results provided weak support for the hypothesis. The result was significant, but the effect was smaller than would be expected given the significant increase in per capita household income in the count overall. The percent of homeowner change, which was significant in in the analysis for Chapter 3, was not significant in this model.

Finally, the results of the Chapter 4 analysis also provided mixed support for growth machine theory. Those results were, again, consistent with the Chapter 3 analysis.

The distance to the nearest light rail stop was associated with significant and moderate decrease in per capita household income, which supports my growth machine hypothesis. I also discovered a significant relationship between the percent of a tract within the city limits and household income change, but that contradicted the hypothesis, revealing that per capital household income was larger in areas that on the margins of the city. I will discuss the effect of the city limits variable more below.

Overall, the results from the analyses described above suggest the following conclusions. First, the locations of urban village zones in San José do not seem to be associated with vulnerable groups or connected to changes in the Latinx composition or household income of neighborhoods. This may be because the City's strategy of avoiding intrusion into single-family neighborhoods, leveraging "underutilized" land, and its emphasis on social equity was an effective strategy (City of San José 2023). However, it may also be because urban villages have not been popular development strategies (Wang 2019). A 2021 analysis that tracked development permits, development projects, parcel transactions, and parcel-assessed values associated with areas zoned for urban villages revealed that the strategy had little impact on the city (Gabbe, Kevane and Sundstrom 2021).

Second, the analyses suggest that sociospatial theory and its emphasis on uneven development best explain the structure of urban inequalities in San José. The effects associated with the racialized uneven development factor variables were the largest in the analyses for Chapters 3 and 4. However, the results of those analyses contradicted each other. In Chapter 3, greater concentrated disadvantage, reflective of the process of racialized uneven development, was associated with a decrease in the Latinx population.

My hypothesis suggested it should have *increased* over time as racialized disadvantage continued to develop and concentrate. This calls the relevance of sociospatial theory to the San José context into question. However, the results of the analysis for Chapter 4 provide strong support for it. It demonstrated a significant and large decrease in per capita household income associated with increased amounts of concentrated disadvantage. While these results may seem contradictory, they may reflect the fact that racial disadvantage and uneven development have decoupled in San José. The theory of uneven development, on its own, does not necessarily describe a racialized process (see Gottdiener, Hohle and King 2019). The Latinx population of San José decreased by 1.25 percent percent between 2010 and 2020 and it may be that the foreclosure crisis that occurred in 2007 and 2008, which was strongly associated with Latinx majority neighborhoods in San José, may have led to Latinx displacement while also creating conditions that continued the devaluation of those neighborhoods.

The third conclusion we may draw these analyses is that homevoter theory is not a strong predictor of policy or neighborhood change in San José. This is a surprising finding given the homeownership rates in Santa Clara County and previous research demonstrating a relationship between rates of homeownership and the locations of upzonings in cities (Been, Madar and McDonnell 2014, Gabbe 2018).

The final conclusion we can draw is that growth machine theory is also not a strong predictor of policy or urban change in San José. This is consistent with contemporary research and critiques of growth machine theory (see Been, Madar and McDonnell 2014, Gabbe 2018, Lens 2022). While the analysis in Chapter 2 revealed the strongest support for the growth machine measures reflecting the percent of a

neighborhood located within the city boundary and the distance to the downtown center, neither of the public transportation variables were strong predictors. The analyses for Chapters 3 and 4 revealed significant relationships between proximity to urban amenities, urban villages, and neighborhood change, but they were inconsistent, and no model included in the analysis provided strong support based on all three measures.

The inclusion of the growth machine measure reflecting the percent of each tract included within the city limits may complicate the analysis. While this variable was included to capture the influence of San José's urban form (with tracts with a larger percent of overlap being more centrally located), the fact that Santa Clara County (and the greater South San Francisco Bay Area) is a highly developed multi-centered metropolitan region (MCMR) (Gottdiener, Hohle and King 2019) may limit its utility. The City of San José is bordered by many other municipalities, and it may be the amenity effects of those areas produce a spillover effect and shape development that occurs within the San José city limits. This highlights that accounting for urban amenities in MCMRs may be a very complicated process.

Policy Implications

One important policy implication that stems from this study is that it *may* be possible for cities to structure redevelopment so that it does not lead to gentrification and displacement. San José's urban villages zoning strategy, with its emphasis on leveraging underutilized urban areas, may allow it to achieve its policy goals. However, that conclusion cannot be drawn from this study alone. Given that urban villages have not been popular with developers, it is also possible that the lack of negative impacts of urban village zoning is due to the lack of any sort of impact all.

Final Remarks

Based on the mixed results of this analysis, I feel it prudent to comment on the importance of incorporating the analysis of zoning into urban analyses. Even though this study did not reveal any connection between urban village zoning and vulnerable populations, I maintain that it is important and necessary for sociologists to study zoning. Lens's (2022) comprehensive review of zoning establishes its importance to the discipline and some key studies exploring the exclusionary effects of zoning across the U.S. (see Lens and Monkkonen 2016, Rothwell and Massey 2009, Rothwell and Massey 2010) clearly document its importance to the study of urban inequalities. The zoning strategies used by municipalities have begun to change, however, as is evidenced by San José's adoption of urban village zoning. Urban village zoning and other comparable approaches that are intended to increase housing density (upzoning) are common across the U.S. However, I identified only two other studies that explore upzoning in the U.S. (see Been, Madar and McDonnell 2014, Gabbe 2018). Those studies both focused on explaining how upzoned locations are selected, like Chapter 1 in this analysis. I was unable to identify any studies that examined neighborhood changes associated with zoning changes. While this study did not find any evidence to support the claim that zoning changes are associated with racial and economic changes in neighborhoods, that is most likely the result of San José's implementation or limitations of this study.

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