Why and Where Do Homeowners Associations Form?

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Abstract

Homeowners associations (HOAs) have proliferated in recent decades as an important provider of local public services, particularly in fast-growing states such as Florida. What explains their popularity and, specifically, their formation? We argue that the location and timing of an HOA's formation are driven by demand-side, supply-side, and institutional factors. Our data come from the most comprehensive statewide database of HOAs constructed to date. We use a duration analysis framework to explore which factors predict when an HOA first enters a census tract. We find that predominantly White, higher income census tracts obtain HOAs sooner, as do tracts farther from the city center and with higher vacancy rates. When we incorporate local public finance variables into our analysis, we find that tracts in cities where residents spend more on public services are less likely to have HOAs, which suggests that public expenditures and HOA services may be regarded as substitutable.

Introduction

Homeowners associations (HOAs) have proliferated during the past two decades; they are emblematic of a broader trend in the privatization of services that are typically thought to be the purview of the public sector. HOAs are appealing to homebuyers for their supplemental services and amenities and also for exclusivity. Residents tend to opt into these associations because they value, and are willing to pay for, more targeted service provisions and, in certain cases, greater control over their local communities. Private developers and local governments view HOAs as a cost-effective way

to provide local services, evade local regulations, and produce large-scale communities. HOAs are popular among residents because they provide valued public services; in addition, houses in HOAs tend to sell at a premium relative to houses not in HOAs (Groves, 2008; Meltzer and Cheung, 2014).

An emerging literature, however, suggests that the existence of HOAs can also affect the social and financial prospects for non-HOA members and their larger host municipalities. Although HOA members do not withdraw in terms of broader civic engagement (Gordon, 2003), HOAs do tend to exacerbate citywide racial/ethnic segregation (Meltzer, 2013). HOAs drive down local government spending (Cheung, 2008b) and decrease the level of local revenues (Cheung, 2010). On the other hand, HOAs are also associated with greater stringency in land use regulation, which demonstrates members' desire for greater control over their neighborhoods (Cheung and Meltzer, 2013; Rogers, 2006).

Despite HOAs' popularity and the growing importance of their effects, little empirical research has focused on the nature and extent of their proliferation. How are they distributed across space? What are the characteristics of the cities and neighborhoods where they tend to form? Have these patterns changed over time? We know for certain that HOAs do not emerge randomly. To answer these questions, we look at the spatial and temporal variation in HOA formation across Florida, one of the states with the most HOAs. Furthermore, we test the relative importance of demand, supply, and institutional factors in explaining their formation. To do this test we rely on a unique proprietary dataset on the universe of HOAs in Florida. We have information on the location, formation date, and size of every HOA in the state, and we supplement these data with information on neighborhood demographics, geographic descriptors, and jurisdiction fiscal positions. Our econometric strategy is based on a survival analysis framework: What demographic, economic, and institutional factors encourage the location of an HOA within a neighborhood? To our knowledge, this article is the first to use a duration model to analyze this question.

Results suggest that race/ethnicity and income are important predictors of where HOAs form. Census tracts with higher Black population shares take longer to receive an HOA; conversely, higher average income speeds up HOA formation. We also find that HOAs are more likely to form in tracts that are farther away from city centers, that have higher vacancy and homeownership rates, and that have newer housing. Local public expenditures matter as well: tracts located in cities that spend relatively less on public services are likely to form HOAs, which is suggestive of the substitutability between HOAs and local public services observed in previous studies.

The article proceeds as follows. The next section, What Do We Know About HOAs?, summarizes the state of the literature on HOAs and addresses the factors driving HOA formation. The subsequent section describes the survival analysis model, the next section discusses the data, and the next presents the regression results. The final section concludes with a summary of the findings and policy implications.

What Do We Know About HOAs?

In this section we discuss in more detail the history and nature of HOAs. We also summarize the empirical research on HOAs and how they affect local communities and their host municipalities.

What Are HOAs?

HOAs (also known more broadly as Residential Community Associations, or RCAs) govern the operation of housing developments. Members of the HOAs typically pay for exclusive services, organized by the association, which are above and beyond those provided by the local public sector. HOAs are found in planned developments, condominiums, and cooperatives. Although not all HOAs apply to gated communities, all private gated residential communities operate under some kind of HOA. The developer typically establishes the HOA upon erecting the community and then allocates the shares of the HOA as he or she sells the units in the development. HOAs are ultimately incorporated as nonprofit organizations, and homeowners in the community share ownership of the common areas and facilities.[1] The HOA also establishes and enforces covenants and restrictions governing land use (Cheung and Meltzer, 2013). Each member pays an assessment (or fee) to maintain these amenities and to provide other supplemental services to the community. Services range from basic maintenance to infrastructure development, and the size of a community can be as small as 2 units and as large as 20,000 units (Foundation for Community Association Research, 2013). In Florida, for example, HOAs typically encompass single-family homes, whereas condominium and cooperative RCAs tend to apply to multifamily structures.[2]

These HOAs theoretically are formed in response to some underprovision or lack of heterogeneity in public services and regulation (Helsley and Strange, 1998). According to the standard median voter demand model for public goods provision, the local government will allocate its public goods evenly across neighborhoods based on a measure of median demand for services across the municipality (Barr and Davis, 1966; Bergstrom and Goodman, 1973; Bowen, 1943). If heterogeneity exists in service demand, however, certain neighborhoods and properties will be left underserved by the public sector. HOAs are a mechanism for these "overdemanders" to be satisfied with their package of locally provided services. Helsley and Strange (1998) have termed these types of HOAs "private governments," because they are privately run but provide services often thought to be the purview of the public sector.

Membership in HOAs has grown tremendously during the past few decades, which suggests that residents are willing, and able, to pay for additional services, amenities, and, in general, more control over their local neighborhoods. The first recorded HOA was founded in Boston, Massachusetts, in 1844 (Reichman, 1976). During the past few decades, however, they have proliferated across the country as one of the fastest growing housing options and privatization efforts (McCabe and Tao, 2006). In 1962, roughly 500 RCAs overall existed nationally, and that number increased to more than 323,000 by 2012 (Foundation for Community Association Research, 2012; Gordon, 2004).[3]

[1] Incorporation as a nonprofit organization is required in Florida; while other states do not always require such incorporation in the legislation, most HOAs incorporate as nonprofit organizations in practice.

[2] This distinction is based on conversations with professionals working with HOAs in Florida and appears to be the case in other states as well.

[3] We would like to be able to report national numbers for HOAs only, but this information is not collected; instead we report numbers for RCAs broadly, of which HOAs are some share.

By 2012, the number of units in some kind of RCA constituted roughly 24 percent of the national housing stock and more than 60 percent of all new construction was included as part of an RCA.[4] Estimates of residents living in an HOA climbed from 2.1 million in 1970 to 63 million in 2012 (Foundation for Community Association Research, 2012).

Although HOAs have grown in popularity, they are not free from controversy. Proponents of HOAs claim that they aid cash-strapped cities by providing more locally targeted services to households that value such supplements and are willing to pay for them. Some have also suggested that HOAs may reduce the cost of housing because many municipalities permit (or even encourage) developers to build HOA projects and in turn bypass certain regulations that usually increase the cost of development (ACIR, 1989; McKenzie, 2003). These concessions could mean greater HOA access to lower and middle income households (Manzi and Smith-Bowers, 2005). Others absolve local government of any responsibility regarding HOAs, however, because they are believed to be market-driven mechanisms that merely respond to local demand for housing location and amenities (McKenzie, 2003; Strahilevitz, 2005). Indeed, the Florida legislation governing HOAs explicitly exempts these associations from layers of oversight that are believed to interfere with the efficiency of the private government operations.

Opponents, however, worry that HOAs are simply a private mechanism for residential exclusion and segregation, and that members are paying not only for extra services, but also for protection and isolation from neighbors of racially or economically different backgrounds (Blakely and Snyder, 1997; Low, 2003; McKenzie, 1994). Now residents have a mechanism to sort not only across jurisdictions, but also within them; this mechanism could lead to significant service disparities. HOAs typically provide exclusive services and amenities to their members. The concern that HOA members will withdraw from their broader municipal civic duties, such as voting or more informal political involvement, also arises.

Most, if not all, of these concerns are empirical questions at this point; the research on HOAs is thin because of severe data limitations. Because of the private nature of HOAs, few, if any, reporting requirements exist. Therefore, little is known about the mere number of HOAs, let alone their size, yearly budgets, and assessments. In this article we discuss the modest, but compelling, collection of research to date and motivate the research question for this analysis.

Fiscal and Regulatory Effects of HOAs

Here, we summarize the empirical findings on how HOAs interact with local fiscal and regulatory regimes.

Property Values

The largest body of literature pertaining to HOAs (or RCAs more broadly) addresses their fiscal and regulatory implications. Because membership in an HOA comes with a binding fee (on top of any monthly mortgage payments), one of the first and most persistent questions relates to their effect on home values. The most recent documentation of this topic also boasts the most comprehensive

[4] This statistic is based on industry data from the Community Association Institute (available at http://www.caionline.org/info/research/Pages/default.aspx), data from the American Community Survey, and authors' calculations.

mapping of HOAs to date. Meltzer and Cheung (2014) constructed a dataset with the HOA boundaries and parcel-level tax rolls (including property sales information) for cities in 49 of the 67 counties in Florida, which is second to California for the number of RCAs. They employed hedonic regression analysis to estimate the effect of HOA membership on property values. They found a consistently positive premium, hovering around 7 percent; in addition, they found this premium is strongest immediately following HOA formation and declines over time, which suggests quick capitalization of HOA benefits. Properties in larger HOAs sell for less, and this disparity is particularly true for properties in the biggest HOAs. Finally, properties located immediately outside an HOA sell at a premium relative to other non-HOA properties, and this premium marginally decreases (increases) in the size (frequency) of neighboring HOAs.

Other studies with more limited samples found positive premiums as well. Groves (2008) uses a dataset of 124,878 property sales in the St. Louis area to also conduct a hedonic analysis. He found that, although homes that belong to an HOA sell for more than homes that do not belong to an HOA, this premium disappears when finer characteristics of the HOA and non-HOA homes are controlled for. Groves argues that this premium is evidence that the homogeneity of homes within HOAs hides any positive gain from living in an HOA. Focusing on one type of HOA in particular, LaCour-Little and Malpezzi (2009) and Bible and Hsieh (2001) both look at the effect of a gated community on its property values. The results from both studies show that homes located inside gated communities have significantly higher values than comparable homes outside the gated communities. Neither of these studies, however, uses longitudinal data that can control for price differentials before the establishment of the HOA or gated community.

Housing Distress

More recently, HOAs have come into focus as a mediating factor in the foreclosure crisis: smaller, more localized governments, like HOAs, may have more success at addressing potential negative externalities. To date, two studies empirically tested the role of HOAs in either mitigating or exacerbating the negative spillovers from neighboring distressed properties—the role of HOAs is ambiguous. They can potentially use their collective efforts to mitigate the effect of physically and financially distressed neighbors; on the other hand, their cooperative nature can exacerbate the localized externalities from neighboring distress. Cheung, Cunningham, and Meltzer (2014) examined how property prices respond to homeowner distress and foreclosure within HOA communities in Florida (one of the hardest hit states during the foreclosure crisis). They created a rich dataset of HOAs, sales, and aggregate loan delinquencies and foreclosures from 2000 through 2008. Cheung, Cunningham, and Meltzer (2014) found that properties in HOAs are relatively less affected by more distressed neighbor homes compared with non-HOA properties, but only when considering less severe delinquency rates. They also found that negative price effects from higher delinquency exposure rates are ameliorated for properties in larger and newer HOAs.

A second, closely related study by Fisher, Lambie-Hanson, and Willen (2013) examined price effects of foreclosures within condominium developments in Boston (versus the predominantly single-family HOA developments included in the previous study). They used a very detailed dataset of condominium sales transactions for the years 1987 through 2011 to test whether nearby foreclosures depress sales prices via the "supply effect" or an investment externality. They not only compared

prices for properties in distinct condominium associations, but they also compared prices within associations (but at different locations). This empirical strategy enabled them to identify different mechanisms behind any negative foreclosure price effects. They found that condo units sell at a 2.4-percent average discount when a foreclosure shares the same address (and this effect is much stronger in smaller, often single-address, associations); no price differential exists when a foreclosure is in the same condo association, but at a different address, or in a different association entirely. Together, they argue that these findings support investment externalities as the driving force behind foreclosure-related price effects.

Strategic Interaction

Apart from the capitalization (and subsequent revenue) effect, HOAs can also influence the local public fisc through a mechanism known as *strategic interaction*. A growing body of literature examines the strategic interaction of overlapping or neighboring governments in their fiscal behavior and provision of public goods (for example, Brueckner 2003, 1998; Cheung 2008b; Helsley and Strange 1998, 2000a, 2000b). According to this framework, decisions about the service levels and investments of private government entities, such as HOAs, are made on strategically based decisions about the levels of publicly provided services. For example, the local public sector may decide to withdraw from particular services (such as street cleaning) if it knows that the HOA will provide it within its boundaries—they do so to avoid redundancies.

Cheung (2008b) has examined the effect of private government service provision on public service expenditures in the context of planned unit developments (PUDs). He used a panel of cities in California and estimated the effect of PUDs on public service expenditures across three decades. He found evidence of service downloading, such that for a 10-percent increase in per capita PUD units in a city, local expenditures fall by 1.5 percent. The extent of service downloading depends on the substitutability of the service and the size of the city (smaller cities have less opportunity to download, or "strategically substitute"). He also found that strategic substitution is less likely to occur in smaller cities, where targeting service provision, as opposed to exploiting economies of scale, is not necessarily efficiency enhancing.

In another paper, Cheung (2008a) argued that property tax limitations, which restrict the ability of cities to obtain sufficient property tax revenue, may have prompted some jurisdictions to encourage the expansion of HOAs. He looked at the period surrounding the imposition of Proposition (Prop) 13 in California in 1978 and found that more HOAs are likely to form in cities that are more constrained by the limitation. Constraint is measured in revenue terms (through the decline in revenue likely to result from an implementation of the revenue-sharing provisions of Prop 13) and in expenditure terms (through the pre-Prop 13 level of police spending). Cheung's paper demonstrates the importance of public institutions' role in the formation and spread of HOAs.

As HOAs and local governments preside over land use regulations, Cheung and Meltzer (2013) extended the previous notions of strategic interaction to apply in this context as well. By combining two novel datasets on Florida HOAs and municipal regulations, they examined how HOAs affect public land use regimes for 232 cities. They found that the prevalence of HOAs is positively associated with a propensity for regulation, as are newer and bigger HOAs. Also, HOAs are positively associated with land use techniques that direct development through incentives, rather than

mandates. These findings suggest that decisions and actions on the part of private entities, like HOAs, can generate meaningful outcomes for their host municipalities at large. Opportunities for coordination between these private and public service providers could result in citywide gain.

Social Effects of HOAs

Much of the controversy over HOAs relates to issues of exclusion or fragmentation (socially, racially, and economically). These topics have received much less attention than the fiscal ones. Meltzer (2013) offers the most comprehensive analysis of how HOAs can affect racial/ethnic and income segregation. Unlike previous studies, she observed jurisdictions over multiple decades in an attempt to better identify whether the growth in HOAs is driving changes in segregation. Results from ordinary least squares and instrumental variable regressions indicate that an increase in HOA presence exacerbates Black-White and Hispanic-White residential segregation. Any segregation, however, is tempered by the concentration of HOA units in larger communities. On the other hand, no significant effect of HOAs affecting income segregation exists, which suggests that HOAs do not intensify existing tendencies toward income sorting.

Gordon (2004) made one of the first empirical contributions by examining the residential composition of PUDs in California in 1990 and their association with overall metropolitan segregation. Gordon used the entropy index of segregation to measure diversity among several races and income groups at the block group and metropolitan level. She found that PUD block groups are less racially diverse than other block groups in central city and suburban areas. She also found that PUD block groups are more diverse with respect to income, but this heterogeneity is largely because PUDs include more households in relatively higher income brackets. At the metropolitan level, the difference between PUDs and other block groups explains a very small share of total segregation. Gordon suggests that the lack of an effect at the metropolitan level is not surprising, given the small proportion of the population that lived in PUDs as of 1990, but she cautions that residential segregation will become more pronounced as HOA membership increases over time (which it certainly has).

Also studying California, Le Goix (2005) executed a neighborhood-level analysis of gated communities and segregation in Los Angeles. He measured segregation by comparing the level of socioeconomic differentiation between gated communities and their neighboring areas and the differentiation between any other two adjacent neighborhoods; if the former differentiation is higher, then he concludes that gated communities are associated with increased segregation. Similar to Gordon, Le Goix did not find evidence to support an association between gated communities and segregation at the level of the municipality. He also observed that gated communities tend to exist in ethnically homogeneous neighborhoods (which are observed at the census block group) and are themselves homogeneous in terms of age and socioeconomic status.

Vesselinov (2008) was the first to test segregation and gated communities for multiple cities in the United States. Using data from AHS on membership in gated communities, as of 2001, Vesselinov found that segregation and the number of gated communities are associated with higher proportions of recent immigrants. She also found that although gated communities are prevalent in the southern and western regions of the country, segregation is less prevalent in these regions. Because the analysis is contemporaneous (she uses 2000 Census data), the implications of her findings

are ambiguous—it is not clear whether gated communities are simply tempering segregation or whether they have simply emerged within less segregated metro areas. Vesselinov also noted that a number of characteristics often associated with segregation, such as proportion of the population that is Black or college-educated, are not associated with gated communities.

Because of their exclusivity, RCAs can fragment communities not only demographically, but also civically (or politically). Gordon (2003) empirically tested the validity of such claims by operationalizing social capital by residents' voting behavior. She specifically analyzed the effects of PUDs in California on voting behavior in statewide general elections during the 1990s. Results indicate that areas with PUDs do not exhibit significantly different voter turnout, registration, and party affiliation after potential selection bias is taken into account. These findings call into question the popular view that private governments crowd out participation in traditional public government.

In sum, HOAs do create value for their owners, as evinced by their properties' sales price premiums relative to non-HOA properties. HOAs can also affect the quality of life, however, for nonmembers in a municipality. The nature and degree of public services are influenced by HOA presence, as are segregated living conditions.

Predicting HOA Formation

Developers are intentional and strategic in building HOA-governed housing; in other words, the emergence of HOAs is not a random phenomenon. The nonrandom nature of their growth has both policy and methodological implications. If it turns out that HOAs and other private governments are beneficial for their members, then any disparities in access to these associations (and the services they provide) raise questions of equity. Is it appropriate for the public sector to support and facilitate the formation of these private institutions? On the other hand, the efficiency gains from their localized service provision could bestow benefits for members and nonmembers alike, and this outcome may be more politically (and socially) appealing. As demonstrated previously, sophisticated empirical efforts have started to answer many of these questions. Ignorance of the nonrandom nature of HOA formation could bias the estimates of their financial and social effects, however. For example, if we do not account for the fact that HOAs tend to locate in the outskirts of municipalities, where not only is more land available, but also more money is required to build because of new infrastructure requirements, we could be observing inflated price premiums. This error falsely informs not only policy decisions but also consumer decisions.

In this analysis, we propose a three-pronged framework for considering HOA formation, which we will implement in the estimation strategy that follows. The likelihood of HOA formation should depend on (1) demand-side factors, (2) supply-side factors, and (3) institutional factors. We focus on within-municipality formation and consider the likelihood of any neighborhood receiving an HOA. This scale of analysis is compelling, because HOAs are in fact experienced at the community level, and the prevalence of HOAs among submunicipal neighborhoods has implications for the residential and service composition of the host municipality overall.

Demand-Side Factors

The likelihood of HOA formation will depend on the preferences of existing (and potential) residents. The preferences of potential HOA homeowners matter because they are the ones purchasing

the housing; the preferences of existing residents matter in so much as they can influence the successful completion of any particular HOA development. A long line of research on housing segregation also suggests that households typically choose to (or are encouraged to) locate near other households of similar socioeconomic positions (Bayer, McMillan, and Ruben, 2004; Ellen, 2006; Yinger, 1995). Therefore, we would expect to see the socioeconomic characteristics of existing residents positively correlate with those of new HOA homeowners simply because residents prefer familiar neighbors. On the other hand, if the HOA serves as a mechanism to retain homogeneity within an otherwise diverse community, the two may be negatively correlated. We rely on this correlation (whatever direction it may be) to model HOA formation.

We specifically hypothesize that the preferences of potential HOA owners should be correlated with the economic and demographic characteristics of current residents. Most obviously, we would expect to see an increase in the likelihood of HOA formation among more affluent residents, because they have the means to pay for the housing and the additional association fees. In addition, preferences for HOA membership (and more specifically, the services they provide) could be correlated with demographics, such as race/ethnicity and age.[5] For example, communities with golf courses are more likely to attract more affluent households comprising older, White individuals, who are statistically more likely to play golf (Strahilevitz, 2005). HOAs also presumably offer a more controlled or exclusive residential community, and preferences for this type of living environment may also fall along demographic lines.

Supply-Side Factors

Because HOAs typically accompany new housing developments, the likelihood of their formation should be correlated with factors that facilitate the physical production of the homes they govern. The availability of land is paramount, and, specifically, enough consolidated land to build often large or sprawling developments. All else being equal, HOAs should be more likely to form where it is easier to build new, sizable housing developments. Thus, distance to the central city should be negatively correlated with the location of HOAs. In addition, the vacancy rates, homeownership rates, and age of the local housing stock capture the composition and tightness of the existing housing market.

Institutional Factors

Finally, we consider broader, what we term *institutional*, factors that can affect the likelihood of HOAs at the neighborhood level, across municipalities. Existing empirical evidence suggests that HOAs do interact with the public sector in their service provision (Cheung, 2008b; Cheung and Meltzer, 2013). Therefore, the likelihood of HOA formation could also be a function of municipalitywide fiscal and regulatory conditions. For example, HOAs could be more likely to form in municipalities with lower per capita spending on services (especially services that tend to overlap with HOAs' responsibilities); in this case, the HOA is forming in response to some underprovision by the public sector.

[5] This correlation is in addition to any correlation between income and race, ethnicity, and age.

Model

Because we are interested in the conditions that correspond with HOA formation in a particular census tract over time, we take a duration analysis approach. This analytical approach enables us to include a set of temporally changing covariates, and we can eliminate from the "eligible" tracts the ones that already have an HOA. Therefore, we are really getting, at any point in time, the likelihood of the first HOA adoption. We follow Florida census tracts from 1970 to 2008 and relate the time that passes before an event ("failure") to time-varying demand-side, supply-side, and public finance (institutional) covariates. A tract experiences failure when the first HOA incorporates within its boundaries. This observation represents an uncensored observation. If a tract never has an HOA form, it is a censored observation.

We fit a Cox proportional hazards model with time-varying covariates. The hazard function, which describes the instantaneous risk of an HOA forming at a point in time, is assumed to take on the following form—

$$\lambda(t|X) = \lambda_0(t) \exp(\beta_1 X_1 + \ldots + \beta_n X_n), \quad (1)$$

where $\lambda_0(t)$ is the baseline hazard function and X is the covariate vector. By assuming proportional hazards (that is, that the covariates are multiplicatively related to the hazard), it is possible to estimate the β (the coefficients on the covariates) with the baseline hazard unspecified. The exponentiated coefficients can be interpreted as multiplicative effects on the hazard.

It is also possible to stratify the baseline hazard functions across a particular set of categories. We stratify the hazards by counties, because counties in Florida can differ substantially in demographics, economic makeup, and government (all of which could be correlated with the likelihood of HOA formation at the neighborhood level). The stratified Cox model thus fits the following model—

$$\lambda(t|X, Z = j) = \lambda_0{}^j(t) \exp(\beta_1 X_1 + \ldots + \beta_n X_n), \; j = \text{counties}. \quad (2)$$

Although the coefficients β are the same for each county, the baseline hazard functions are allowed to be different for each county. We first present unstratified and then stratified estimation results in the exhibits that follow.

Data

In this section we describe the data sources for our analysis and present an overview of the data in our sample.

HOA Data

Our duration variable is identified off of the time until a particular census tract obtains its first HOA. Therefore, we need to know the precise location of each HOA in the state. Florida has obvious advantages for such an analysis: it has one of the highest numbers of HOAs in the United States (more than 16,000 as of 2010), and its municipalities are relatively diverse in terms of density and demographic and economic composition. Information on Florida HOAs was obtained

from Sunshine List, a private, Florida-based corporation that has compiled the most comprehensive and up-to-date list of HOAs in the state. This dataset includes information on the location and creation date of every active HOA in Florida as of 2008 (the first HOA was incorporated in 1959).[6] This company compiles a list of all the HOA officers in the state for the purposes of marketing to service providers (lawyers, accountants, landscapers, and so on). Each entry includes information about an officer who sits on the board of the HOA, a unique HOA identification number, the officer's address, and the incorporation date of the HOA.

Using Geographic Information System (GIS) software, we geocode the reported addresses of the officers onto an electronic parcel map of the state obtained from the Florida Department of Revenue. Because HOA officers generally live in the HOA they serve, we overlay a census tract map on the parcels, and we assign to each census tract the *year of incorporation* for the first HOA in that tract. If a census tract does not have an HOA throughout the entire sample period (1970 to 2008), this observation is equivalent to a "censored observation" (never observed to have failed) in the duration analysis terminology.[7]

We note a caveat to our approach. The address of an officer in our dataset is self-reported, and two potential reasons may point to why the address may not be the actual residence of the officer. First, the officer may have put the HOA's management office as his or her address. Second, the officer uses the HOA unit as a second or vacation home or rents it out. We have devised an algorithm to identify these suspect HOAs, and we are forced to drop them from our sample.[8] We are confident that our assumptions are reasonable and, if anything, err on being conservative in terms of determining the scope of HOAs in the state.[9]

Census Data

For the time-varying covariates, we supplement our HOA map with data on census tract economic and demographic characteristics from the Geolytics Neighborhood Change Database. This database contains census data and normalizes the census tract boundaries to 2000 geographic definitions so that the tracts can be analyzed as a panel across 1970, 1980, 1990, and 2000 census years. Tracts enter the analysis with census covariate values from 1970, and, as long as they remain without an HOA, their census covariates change with the decennial census. In other words, if a tract receives an HOA in 1993, then we assume that it had 10 years of influence from covariates from the 1970 census, 10 years of influence from covariates from the 1980 census, and 3 years of influence from covariates from the 1990 census before failure. Using the most recent past census in this way protects us against bias from reverse causality.

[6] HOAs are rarely, if ever, dissolved.

[7] Few census tracts exist in which the first HOA was formed before 1970, the start of our sample period. For this analysis, we assume these tracts to have had the first tract formed in 1971 (that is, "failure" almost immediately).

[8] We will not elaborate on the algorithm here, but a nonexhaustive list follows of reasons that would cause us to reject an address as being the actual location of an HOA: (1) the address reported is zoned commercial, (2) identical addresses are reported for more than one HOA (which is likely an office building), and (3) the address belongs to a different city from the other officers in the same HOA.

[9] We test and verify the robustness of the HOA boundary assignment in a separate paper (Meltzer and Cheung, 2014).

On the demand side, we include in our main specification the following tract-level variables as covariates: percent Black; percent Hispanic; percent under 5 years old; percent 65 years old and older; percent with a bachelor's degree or higher; average family income[10]; percent foreign born; percent taking public transit to work; and percent living in the same house 5 years ago. On the supply side, we include as covariates in our main specification the following tract-level variables: (1) distance to the central business district,[11] (2) vacancy rate, (3) owner-occupancy rate; and (4) percentage of houses that are 30 years old or older.[12]

Finally, to explore the importance of the institutional context, we include public finance variables on government revenues and expenditures from the U.S. Census of Governments. We rely on data from 1972, 1982, 1992, and 2002, the years closest to the decennial years for which a census of governments for all municipalities is conducted. Each tract is assigned the revenue or expenditures of its host municipality. Because some census tracts are not located in incorporated cities, the sample size is significantly smaller for the models with public finance variables. All variables are real, per capita values. On the revenue side, we include total own-source revenue.[13] On the expenditure side, we include total general expenditures, as well as spending on four major categories that are presumed substitutable with HOA expenditures: (1) roads, (2) police, (3) solid waste collection, and (4) parks and recreation.

Description of the Sample

Our data cover census tracts in 26 of the 67 counties in Florida. We dropped counties from the analysis because of incomplete data. First, areas designated as census tracts in 2000 and 2008 were not necessarily designated as tracts in 1970 and 1980, and we need to be able to follow the census tracts through the entire study period to estimate the hazard ratio. Note that areas that were not designated as tracts in 1970 tend to be rural and nonmetropolitan; these areas, even today, do not tend to have HOAs. We also drop counties if they were missing subdivision and GIS parcel files or because of lack of variation in HOA membership. Exhibit 1a shows that our data ultimately cover most urban areas in the state. By retaining the most populous counties that together account for 85 percent of the population of the state, our sampling method does not cause us much concern for the validity of our results.

[10] All dollar values throughout this article have been expressed in 2000 dollars, based on the Consumer Price Index.

[11] We used GIS to measure the straight-line distance between the centroid of a census tract and its central business district (CBD). The CBD is the point in the city designated by the Census Bureau as the center of the metropolitan statistical area.

[12] In other specifications, we explore more covariates, such as percentage with a high school diploma or higher, unemployment rate, and poverty rate. Because these covariates do not add much to the main results, they are not included in the reported specifications.

[13] We also run models with revenue from three major categories (property taxes, sales taxes, and charges/fees), but the results do not add anything substantively to the model with aggregate revenues. Therefore, it is omitted from the presented analysis.

Our entire working dataset consists of 2,176 census tracts, with a mean population of 3,127, in the demand- and supply-side models, and 1,270 census tracts, with a mean population of 3,493, in the public finance models. A list of all the variables in the analysis, along with their summary statistics pooling all four censuses together, is presented in exhibit 1b.

Exhibit 1a

Counties Used in Analysis

County	Population (2000)	Percent of Florida Population (2000)
Alachua	217,955	1.4
Bay	148,217	0.9
Brevard	476,230	3.0
Broward	1,623,018	10.2
Clay	140,814	0.9
Duval	778,879	4.9
Escambia	294,410	1.8
Hillsborough	998,948	6.3
Lee	440,888	2.8
Leon	239,452	1.5
Manatee	264,002	1.7
Marion	258,916	1.6
Miami-Dade	2,253,362	14.1
Nassau	57,663	0.4
Okaloosa	170,498	1.1
Orange	896,344	5.6
Osceola	172,493	1.1
Palm Beach	1,131,184	7.1
Pasco	344,765	2.2
Pinellas	921,482	5.8
Polk	483,924	3.0
St. Johns	123,135	0.8
Santa Rosa	117,743	0.7
Sarasota	325,957	2.0
Seminole	365,196	2.3
Volusia	443,343	2.8
TOTAL	**13,688,818**	**85.6**
Florida	*15,982,378*	

Exhibit 1b

Summary Statistics of Key Variables

Variable	Tracts	Mean	Std. Dev.	Min.	Max.
Demand-side variables					
Black share	2,176	0.16	0.27	0.00	1.00
Hispanic share	2,176	0.09	0.18	0.00	0.96
Children under 5 share	2,176	0.07	0.03	0.00	0.23
Adults over 65 share	2,176	0.16	0.12	0.00	0.94
College degree or higher share	2,176	0.13	0.10	0.00	0.79
Average annual family income*	2,176	26.375	10.130	2.706	188.646
Foreign-born share	2,176	0.10	0.15	0.00	0.87
Travels by transit to work share	2,176	0.03	0.06	0.00	0.49
Lived in same house 5 years ago share	2,176	0.44	0.14	0.00	0.88
Supply-side variables					
Vacancy rate	2,176	0.10	0.08	0.00	0.84
Owner-occupancy rate	2,176	0.62	0.21	0.00	1.00
Distance to central city	2,176	10.73	7.87	0.02	46.97
Percent houses over 30 years old	2,176	0.20	0.23	0.00	0.96
Public-finance variables per capita					
Own-source revenue	1,270	0.46	0.24	0.03	2.57
General expenditures	1,270	0.55	0.32	0.00	2.53
Roads expenditures	1,270	0.04	0.03	0.00	0.42
Parks and recreation expenditures	1,270	0.05	0.05	0.00	0.44
Police expenditures	1,270	0.09	0.05	0.00	0.45
Solid waste expenditures	1,270	0.04	0.03	0.00	0.39

Max. = maximum. Min. = minimum. Std. Dev. = standard deviation.
** In thousands of 2000 dollars.*

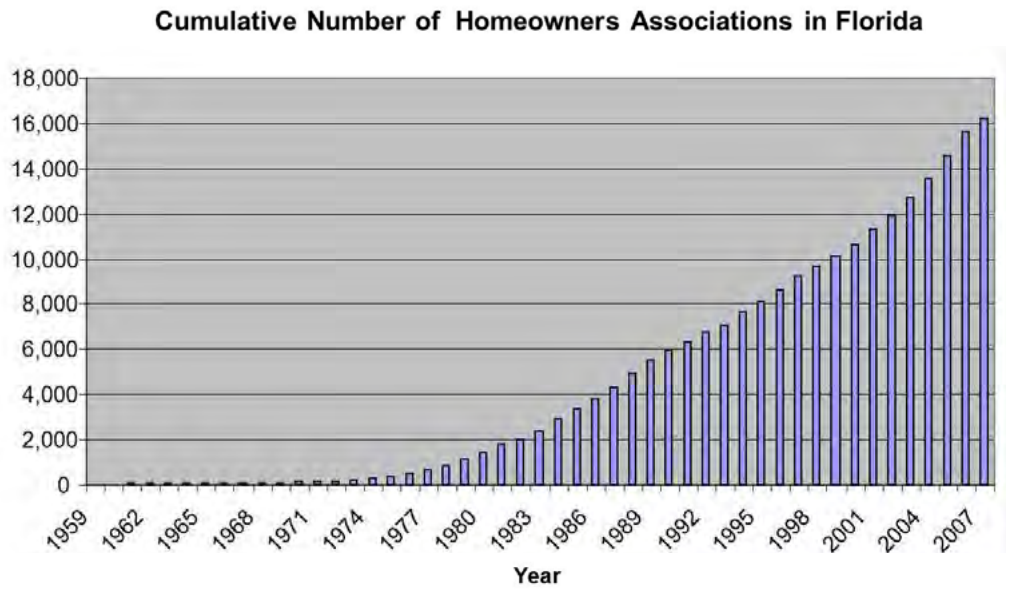
HOAs in Florida

Like trends in the rest of the United States, HOAs in Florida have proliferated during the past 30 years and during the past decade in particular. Exhibit 2 provides evidence of this proliferation. The first recorded HOA was established in 1959 and, since 1990, the number of HOAs in Florida has increased by nearly 140 percent. To put this growth in context, the number of new housing units in Florida has increased by 14 percent during the same period, and the number of units in HOAs nationwide has increased by about 50 percent (Community Associations Institute, 2008).

The maps in exhibit 3 also illustrate that the growth of HOAs has been unevenly distributed throughout the state. They have primarily emerged along the coasts and increasingly in the central peninsula and pockets of the northern panhandle. As expected, they are most prevalent in the central and suburban parts of the state, where developable land is abundant. The number of jurisdictions with HOAs has grown dramatically as well. In 1970, only 39 cities (out of 397) in our sample had an HOA. This number grew to 113 by 1980, 158 by 1990, and 178 by 2008. Within a jurisdiction, the number of HOAs varies considerably; as of 2008, some places had only one HOA while others had 300 or more.

Exhibit 2

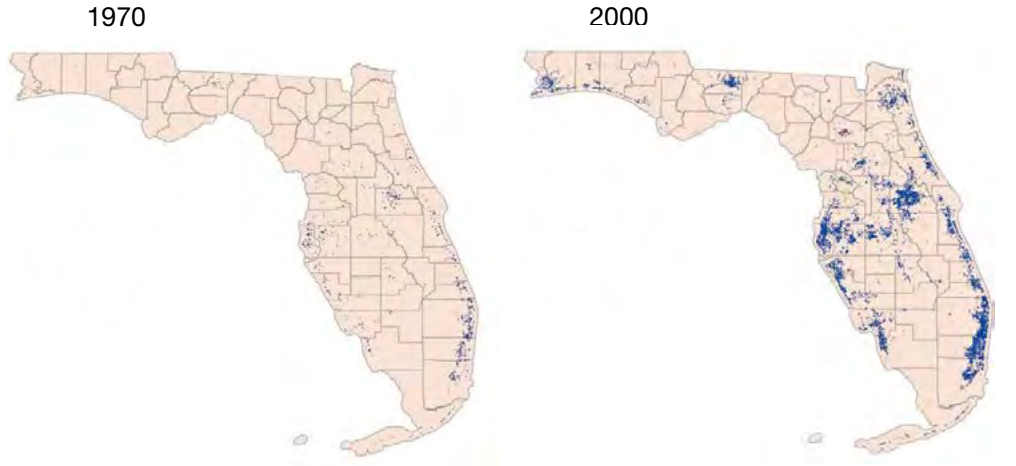
Number of Homeowners Associations in Florida Over Time



Source: Meltzer, Rachel. 2013. "Do Homeowners Associations Affect Citywide Segregation? Evidence From Florida Municipalities," Housing Policy Debate *23 (4): 688–714*

Exhibit 3

Spread of Homeowners Associations Across Florida



Regression Results

We fit a Cox proportional hazards model with time-varying covariates to predict the likelihood of HOA formation in a census tract. All standard errors are clustered by census tract.

Demand-Side Predictors

We first describe the results for the models including demand-side predictors only (see exhibit 4). Column (a) reports the coefficient estimates, while column (b) reports the hazard ratios (exponentiated coefficients). We see that race/ethnicity and income are more significant predictors than age or education.[14] Neighborhoods with higher shares of Black and foreign-born residents are less likely to form HOAs. The likelihoods of forming HOAs specifically are reduced by 37 and 59 percent, respectively, when the share of Black or foreign-born residents in a tract goes up by 1 unit (that is, the share rises from 0 to 100 percent).[15] Although the coefficient on the share Hispanic is not significant, it is also negative. Tracts with higher average family incomes are more likely to form HOAs—14 percent more likely for a $10,000 increase. Because we know that HOA properties tend to sell at

Exhibit 4

Demand-Side Covariates

Variable	(a) Coefficients	(b) Hazard Ratios
Black	– 0.458***	0.63
	(0.158)	
Hispanic	– 0.309	0.73
	(0.410)	
Children under 5	1.148	3.15
	(1.177)	
Adults over 65	0.230	1.26
	(0.286)	
College degree or higher	0.457	1.58
	(0.322)	
Average family income	0.149***	1.16
	(0.003)	
Foreign born	– 0.889*	0.41
	(0.507)	
Travels by transit to work	– 3.736***	0.02
	(0.858)	
Lived in same house 5 years ago	– 1.242***	0.29
	(0.181)	
Number of tracts (observations)	2,176	

** significant at the 10-percent level. *** significant at the 1-percent level.*

Note: Robust standard errors (in parentheses) clustered at the census tract.

[14] Note that more parsimonious models without education produce essentially the same coefficient for income (it is slightly larger); therefore, multicollinearity is not a concern.

[15] Hazard ratios are obtained by taking *e* to the power of the coefficient.

higher prices than other comparable houses (in addition to the required membership fee), new HOA residents are likely similar (in terms of affluence) to those already living in the area. That is, this finding is not consistent with the prediction that the HOA is creating an enclave for relatively affluent households in the context of less affluent neighborhoods. Along similar lines, the findings suggest that HOAs are more likely to emerge in predominantly nonminority neighborhoods—this coefficient could be picking up some income-related mechanism, but it may also reflect a different proclivity for exclusionary communities. We also find the neighborhoods with higher shares of newcomers and commuters using public transportation are *less* likely to form HOAs. These results suggest that HOAs tend to form in younger (or more transient) communities that are not transit oriented (that latter finding could, again, be picking up some differences in income as well).

Supply-Side Predictors

Next we run models with only supply-side predictors; these results are displayed in exhibit 5. All the variables are significant. HOAs are more likely to form in neighborhoods that have higher vacancy and homeownership rates and, on average, newer housing. Therefore, HOAs are formed in the context of new housing developments (as predicted), they tend to govern homeowners (versus renters), and they tend to emerge in less constrained markets (as indicated by the reverse relationship with vacancy rates). Neighborhoods located farther from the central business district (CBD) (that is, closer to the municipal outskirts) are also more likely to form HOAs. A 1-mile increase in distance to the CBD increases the hazard ratio by 0.7 percent. This finding is consistent with the expectation that HOAs need larger swaths of land, which tend to be situated toward the city's fringe.

We proceed by combining demand- and supply-side variables into a single model. These results are displayed in exhibit 6, columns (a) and (b). The general pattern of the coefficients is consistent; however, the coefficients do tend to decrease in magnitude (this pattern is consistent with the fact that the demand- and supply-side variables inevitably pick up overlapping mechanisms). We note two important changes in the coefficients: (1) education is now significant (still positive) and (2) distance to the CBD assumes a slightly larger coefficient (it is still positive and significant).

Exhibit 5

Supply-Side Covariates

Variable	(a) Coefficients	(b) Hazard Ratios
Vacancy rate	1.941***	6.96
	(0.294)	
Owner-occupancy rate	0.956***	2.60
	(0.137)	
Distance to central city	0.00746***	1.01
	(0.00286)	
Percent houses over 30 years old	– 1.344***	0.26
	(0.133)	
Number of tracts (observations)	2,176	

*** *significant at the 1-percent level.*

Note: Robust standard errors (in parentheses) clustered at the census tract.

Exhibit 6

Full Model and County Strata

	(a)	(b)	(c)	(d)
	Full Model, Not Stratified by County		Full Model, Baseline Strata by County	
Variable	Coefficients	Hazard Ratios	Coefficients	Hazard Ratios
Black	– 0.304*	0.74	– 0.721***	0.49
	(0.159)		(0.172)	
Hispanic	– 0.0919	0.91	0.0815	1.08
	(0.413)		(0.453)	
Children under 5	0.670	1.95	1.217	3.38
	(1.170)		(1.244)	
Adults over 65	– 0.0624	0.94	– 0.216	0.81
	(0.304)		(0.329)	
College degree or higher	1.046***	2.85	0.971**	2.64
	(0.325)		(0.380)	
Average family income	0.010***	1.01	0.009***	1.01
	(0.003)		(0.003)	
Foreign born	– 0.884*	0.41	– 1.462**	0.23
	(0.515)		(0.637)	
Travels by transit to work	– 1.366	0.26	0.267	1.31
	(0.841)		(0.825)	
Lived in same house 5 years ago	– 1.197***	0.30	– 0.983***	0.37
	(0.200)		(0.230)	
Vacancy rate	1.024***	2.78	1.278***	3.59
	(0.342)		(0.348)	
Owner-occupancy rate	0.728***	2.07	0.933***	2.54
	(0.163)		(0.171)	
Distance to central city	0.0103***	1.01	0.00272	1.003
	(0.00291)		(0.00344)	
Percent houses over 30 years old	– 0.698***	0.50	– 0.757***	0.47
	(0.133)		(0.147)	
Number of tracts (observations)	2,176		2,176	

** significant at the 10-percent level. ** significant at the 5-percent level. *** significant at the 1-percent level.*

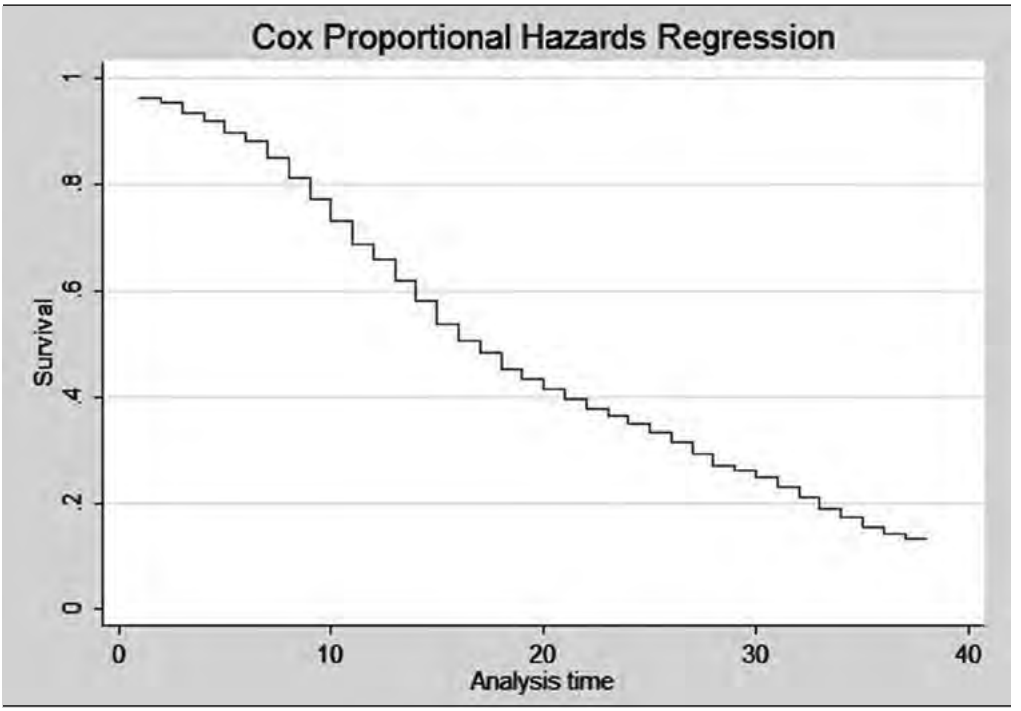
Note: Robust standard errors (in parentheses) clustered at the census tract.

Exhibit 7 presents a plot of the survival curve calculated at the mean values. The horizontal axis begins at 1970 (year 0). The survival falls steeply for roughly the first 15 years, representing the rapid adoption of HOAs in the 1970s and 1980s. It hits 0.5 around 1976. The survival curve flattens in the 1990s and 2000s. This slower rate of adoption suggests that HOAs have become more clustered, because fewer tracts are receiving their first HOA in later years.[16]

[16] We also stratify the data by running separate hazards for different sizes of the first HOA to see if it explains their proliferation across different neighborhoods; we see no evidence to suggest that the overall formation patterns of HOAs are differentiated by the actual size of the HOA.

Exhibit 7

Survival Curve From Full Model



Note: The estimated survival curve (at mean values) is plotted with 1970 as the beginning of the analysis time.

Finally, we also augment the model by stratifying by county. In this specification, we allow for the hazard baseline to vary by county to control for any unobserved heterogeneity in the broader geography that could be correlated with the likelihood of HOA formation. As the coefficients in the second vertical panel of exhibit 6 indicate, the results are substantively the same, except now distance to the CBD is insignificant (but still positive).

Municipal Institutional Predictors

We add to the combined demand- and supply-side covariates measures of citywide fiscal conditions in exhibit 8. In all specifications, we stratify by county.[17] Because of space constraints, we report only the coefficient estimates rather than the hazard ratios. Column (a) adds the total per capita general expenditures of the city, and the coefficient is significantly negative and large: a one-unit change in city expenditures (an increase of $1,000 per capita) will decrease the hazard ratio by 20 percent. This finding suggests that census tracts located in cities that have high public spending are less likely to form an HOA, all else being equal. This result provides additional evidence to Cheung (2008a, 2008b) that homeowners may regard public and private government spending

[17] The public finance results tend to be less stable with respect to the mix of covariates and whether we stratify by county. Therefore, we view this section's findings as being more illustrative than definitive.

Exhibit 8

Public Finance Covariates

Variable	(a) Expenditures	(b) Revenues	(c) Roads Only	(d) Parks Only	(e) Police Only	(f) Trash Only
Black	– 0.949***	– 0.954***	– 0.961***	– 0.968***	– 0.957***	– 0.961***
	(0.216)	(0.216)	(0.216)	(0.217)	(0.216)	(0.216)
Hispanic	– 1.509***	– 1.530***	– 1.552***	– 1.614***	– 1.566***	– 1.558***
	(0.574)	(0.573)	(0.571)	(0.573)	(0.571)	(0.569)
Children under 5	– 0.228	– 0.228	– 0.0623	– 0.289	– 0.141	– 0.0896
	(1.622)	(1.621)	(1.630)	(1.628)	(1.627)	(1.624)
Adults over 65	– 0.705	– 0.695	– 0.664	– 0.658	– 0.622	– 0.622
	(0.434)	(0.433)	(0.431)	(0.431)	(0.433)	(0.431)
College degree or higher	0.474	0.476	0.436	0.514	0.429	0.421
	(0.482)	(0.481)	(0.482)	(0.486)	(0.482)	(0.483)
Average family income	0.011***	0.011***	0.011***	0.011***	0.010***	0.010***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Travels by transit to work	0.0356	0.0479	0.0599	0.202	0.0693	0.0877
	(0.985)	(0.985)	(0.983)	(0.985)	(0.984)	(0.984)
Foreign born	0.361	0.384	0.420	0.525	0.460	0.452
	(0.794)	(0.794)	(0.792)	(0.795)	(0.794)	(0.791)
Lived in same house 5 years ago	– 1.038***	– 1.027***	– 1.003***	– 0.989***	– 1.033***	– 1.046***
	(0.325)	(0.325)	(0.327)	(0.327)	(0.326)	(0.329)
Vacancy rate	0.830*	0.826*	0.687	0.624	0.628	0.647
	(0.454)	(0.462)	(0.446)	(0.448)	(0.464)	(0.445)
Owner-occupancy rate	0.470**	0.479**	0.479**	0.480**	0.529**	0.544**
	(0.228)	(0.228)	(0.228)	(0.230)	(0.229)	(0.229)
Distance to central city	0.00639	0.00678	0.00700	0.00699	0.00781	0.00770
	(0.00516)	(0.00516)	(0.00509)	(0.00510)	(0.00520)	(0.00511)
Percent houses over 30 years old	– 0.647***	– 0.649***	– 0.663***	– 0.641***	– 0.670***	– 0.677***
	(0.185)	(0.184)	(0.184)	(0.185)	(0.184)	(0.185)
General expenditures per capita	– 0.218*					
	(0.116)					
Own-source revenue per capita		– 0.231				
		(0.145)				
Roads expenditures per capita			– 2.641*			
			(1.478)			
Parks and recreation expenditures per capita				– 1.484		
				(1.165)		
Police expenditures per capita					0.0589	
					(0.925)	
Solid waste expenditures per capita						0.682
						(1.722)
Number of tracts (observations)	1,270	1,270	1,270	1,270	1,270	1,270

** significant at the 10-percent level. ** significant at the 5-percent level. *** significant at the 1-percent level.*

Notes: All models are stratified by county. Only the coefficients, not the hazard ratios, are reported. Robust standard errors (in parentheses) are clustered at the census tract.

as substitutes. Column (b), however, shows that no such interaction exists between local revenues and HOA formation. Perhaps with expenditures, a more obvious and visible substitutability exists between local governments and HOAs that is not present with revenues.

We then explore finer categories of local expenditures to see if any particular type of service provision affects the likelihood of HOA formation. We choose categories of public spending that can be viewed as most redundant with HOA services: roads, parks and recreation, police, and trash collection. Columns (c) through (f) report these results. We put each category separately into a specification to avoid problems of collinearity between categories. The results show that only road spending affects the likelihood of HOA formation, and its effect is negative. We posit that this result indicates that HOAs (or specifically the developers that build them) often pick up the tab for the road infrastructure (and even road maintenance), and so it makes sense that they would form in places that tend to spend less on these investments.

Conclusion

The proliferation of homeowners associations can bring promising and challenging circumstances for municipalities. Empirical evidence shows that the presence of HOAs can provide fiscal relief for municipalities in the form of services and infrastructure and potentially localized oversight in times of housing distress. HOAs can also threaten a city's prospects for integration, however. In this article, we take a step back and investigate the determinants of HOA formation in an attempt to better understand the uneven nature of their emergence. We think that this investigation has implications for analyzing HOA effects and implementing HOA-related policies.

Our findings suggest that race/ethnicity and income are important predictors of where HOAs form. HOAs are more likely to form in predominantly White and relatively more affluent tracts. If HOAs tend to be homogeneous (racially/ethnically and economically) *and* they tend to locate in already homogeneous neighborhoods, the outcome is less likely to be more integrated residential communities.[18]

We also find that HOAs are more likely to form in tracts that are farther away from city centers and with lower shares of residents who use public transit. These findings suggest that HOAs are not conducive to smart growth or transit-oriented development. This proposition is also supported by higher probabilities of HOA formation being associated with lower public road infrastructure spending. Indeed, the local government often requires the developer to fill in road networks to access the new housing. We ask: Are local governments intentionally withdrawing from certain services to encourage the formation of HOAs? We also find that tracts located in cities that spend relatively less on public services overall are more likely to form HOAs, which is also suggestive of the substitutability between HOAs and local public services.

Although HOAs have largely been unencumbered by public oversight, their proliferation can affect the quality of life for members and nonmembers alike. They can also prove to be a useful partner for local municipalities in neighborhood maintenance and development. Perhaps in this postrecession adjustment of slower housing growth, we can take time to consider more fully the implications of HOAs and other similar private governments.

[18] This outcome is consistent with Meltzer (2013), who found that HOAs exacerbate racial/ethnic segregation.

Authors

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