

Why and Where Do Homeowners Associations Form?

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February 8, 2014

Ron Cheung*

Oberlin College

Rachel Meltzer*

The Milano School of International Affairs,
Management and Urban Policy
The New School

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 the timing of HOA formation are driven by demand-side, supply-side and institutional factors. Our data comes 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 and 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 that spend more on public services are less likely to have HOAs locate within them, suggesting that public expenditures and HOA services may be regarded as substitutable.

*The order of the authors alternates across a series of papers and reflects equal contributions.

Meltzer: 72 Fifth Avenue, Room 616, New York, NY 10011; Phone: 212-229-5400 x2738;
Email: meltzerr@newschool.edu

Cheung: Rice Hall 233, 10 North Professor Street, Oberlin, OH 44074; Phone: 440-775-8971;
Email: rcheung@oberlin.edu

Section 1: Introduction

Homeowners associations (HOAs) have proliferated over 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, amenities, as well as exclusivity and protection. Residents tend to opt into these associations, because they value, and are willing to pay for, more targeted service provision and, in certain cases, greater control over their neighbors. Private developers and local governments view them as a cost effective way to provide local services, evade local regulations and produce large-scale communities. They are popular among residents, as, in addition to providing valued public services, houses in HOAs tend to sell at a premium relative to houses not in HOAs (Meltzer and Cheung 2014; Groves 2008).

However, an emerging literature suggests that the existence of HOAs can also impact the social and financial prospects for non-HOA members and their larger host municipalities. While 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 2008) and decrease the level of local revenues (Cheung, 2010). On the other hand, HOAs are also associated with *greater* stringency in land-use regulation, demonstrating a desire by members for greater control over their neighborhoods (Cheung and Meltzer 2013; Rogers 2006).

Despite HOAs' popularity and the growing interest in their impacts, there has been little empirical research 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 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 this 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 paper 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 found in previous studies.

The paper proceeds as follows. Section 2 summarizes the state of the literature on homeowners' associations and a discussion of the factors driving HOA formation. Section 3 describes the survival analysis model, and Section 4 discusses the data. Section 5 presents the regression results. Section 6 concludes.

Section 2: What Do We Know About HOAs?

What are HOAs?

Homeowners associations (also known more generically as Residential Community Associations, or RCAs) govern the operation of housing developments. Typically, members of the associations pay for exclusive services, organized by the association, that are above and beyond those provided by the local public sector. HOAs are found in planned developments, condominiums and cooperatives. While not all HOAs apply to gated communities, all private gated residential communities operate under some kind of HOA. The developer typically establishes the association upon erecting the community and then allocates the shares of the

association as he or she sells the units in the development. HOAs are ultimately incorporated as non-profits and homeowners in the community share ownership of the common areas and facilities.¹ The association also establishes and enforces covenants and restrictions governing land-use (Cheung and Meltzer 2010). 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 developments tend to apply to multifamily structures.²

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

Membership in HOAs has grown tremendously over the past few decades, suggesting that residents are willing, and able, to pay for additional services, amenities and, in general, more control over their neighbors. The first recorded association was founded in Boston, Massachusetts in 1844 (Reichman 1976). However, during the past few decades they have proliferated across the country as one of the fastest growing housing options and privatization efforts (McCabe and Tao 2006). In 1962 there were roughly 500 RCAs nationally, and that number rose to more than 323,000 by 2012 (Gordon 2004; Foundation for Community

¹ Incorporation as non-profit is required in Florida; while other states do not always require it in the legislation, most HOAs incorporate as non-profits in practice.

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

Association Research 2012). By 2012 the number of units in some kind of RCA constituted roughly 24 percent of the national housing stock and more than 60% of all new construction was included as part of an RCA.³ 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 in providing more locally targeted services to households who value such supplements and are willing to pay for them. Some have also suggested that HOAs may reduce the cost of housing since many municipalities allow (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). This could mean greater HOA access to lower- and middle-income households (Manzi and Smith Bowers 2005). However, others absolve local government of any responsibility regarding HOAs, since 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 homeowners associations 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 not only paying for extra services, but also for protection and isolation from neighbors of racially or economically different backgrounds (McKenzie 1994; Blakely and Snyder 1997; Low 2003). Now residents have a mechanism to not only sort across jurisdictions, but within them as well; this could lead to significant service disparities. HOAs typically provide exclusive services and amenities to their members. There is also the concern that HOA members will withdraw from their broader municipal civic duties, such as voting or more informal political involvement.

Most, if not all, of these concerns are empirical questions at this point; the research on HOAs is thin due to severe data limitations. Because of the private nature of HOAs, there are few, if any,

³ 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 author’s calculations.

reporting requirements. Therefore, little is known about the mere number of HOAs, let alone on their size, yearly budgets and assessments. Here we discuss the modest, but compelling, collection of research to date, and motivate the research question for the current paper.

Fiscal and regulatory impacts of HOAs

Property values

The largest body of literature pertaining to HOAs (or RCAs more broadly) addresses their fiscal and regulatory implications. Since 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 impact on home values. The most recent documentation of this topic also boasts the most comprehensive mapping of HOAs to date. The authors, Meltzer and Cheung (2014), construct 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 employ hedonic regression analysis to estimate the impact of HOA membership on property values. They find a consistently positive premium, hovering around 7 percent; in addition, this premium is strongest immediately following HOA formation and declines over time, suggesting quick capitalization of HOA benefits. Properties in larger HOAs sell for less, and this is particularly true for properties in the biggest HOAs. Finally, properties located immediately outside of 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 find 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 finds that while 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 homes are controlled for. Groves argues that this 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 (2001) and Bible and Hsieh (2001) both look at the impact of being located in a gated community on property values. The results from both studies show that homes located inside gated communities are significantly higher 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 homeowner association 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. Two studies to date empirically test their role 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 both 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) examine 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 create a rich dataset of HOAs, sales and aggregate loan delinquency and foreclosures from 2000 through 2008. They find that properties in HOAs are relatively less impacted by more distressed neighbor homes compared to non-HOA properties, but only when considering less severe delinquency rates. They also find that negative price effects from higher delinquency exposure rates are ameliorated for properties in larger and newer HOAs.

A second, closely related paper is a study by Fisher et al. (2013), which looks at price effects of foreclosures within condominium developments in Boston (versus the predominantly single-family HOA developments included in the previous study). They use a very detailed dataset of condominium sales transactions for the years 1987-2011 to test whether nearby foreclosures depress sales prices via the “supply effect” or an investment externality. They not only compare prices for properties in distinct condominium associations, but they also compare prices within associations (but at different locations). This allows them to identify different mechanisms behind any negative foreclosure price effects. They find that condo units sell at a 2.4 average discount when a foreclosure shares the same address (and this effect is much stronger in smaller, often single-address, associations); there is no price differential when a foreclosure is in the same condo association, but different address, or in a different association entirely. Together, they

argue that this supports 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 1998, 2003; Helsley and Strange 1998, 2000a, 2000b; Cheung 2008). According to this framework, decisions about the service levels and investments of private government entities, such as HOAs, are made strategically based on decisions about the levels of publicly provided services. For example, the local public sector might decide to withdraw from particular services (like street cleaning) if it knows that the HOA will provide it within its boundaries—they do so to avoid redundancies.

Cheung (2008b) has looked at the impact of private government service provision on public service expenditures in the context of planned unit developments (PUDs). He uses a panel of cities in California, and estimates the impact of PUDs on public service expenditures over three decades. He finds evidence of service downloading, such that for a 10% increase in per capita planned unit development units in a city, local expenditures fall by 1.5%. 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 finds 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) also argues 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 looks at the period surrounding the imposition of Proposition 13 in California in 1978 and finds that more HOAs are likely to form in cities that are more “constrained” by the limitation. Constraint is measured by both 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). This paper demonstrates the importance that public institutions play in the formation and spread of HOAs.

As HOAs and local governments preside over land use regulations, Cheung and Meltzer (2013) extend the above notions of ‘strategic interaction’ to apply in this context as well. By combining two novel data sets on Florida HOAs and municipal regulations, they examine how HOAs affect public land use regimes for 232 cities. They find 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 together suggest that decisions and actions on the part of private entities, like HOAs, can generate meaningful outcomes for their host municipalities at large. There also might be opportunities for coordination between these private and public service providers that could result in citywide gain.

Social impacts 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 impact racial/ethnic and income segregation. Unlike previous studies, she observes jurisdictions over multiple decades in an attempt to better identify whether the growth in HOAs is driving changes in segregation. Results from both 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 contrary, there is no significant effect on income segregation; this suggests that HOAs do not intensify existing tendencies toward income sorting.

Gordon (2004) made one of the first empirical contributions by looking at the residential composition of planned unit developments in California in 1990 and their association with overall metropolitan segregation. Gordon uses the entropy index of segregation to measure diversity among several races and income groups at the block group and metropolitan level. She finds that planned unit development block groups are less racially diverse than other block

groups, in central city and suburban areas. She also finds that planned unit development block groups are more diverse with respect to income, but this heterogeneity is largely due to the fact that planned unit developments include more households in relatively higher income brackets. At the metropolitan level, the difference between planned unit developments 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 planned unit developments as of 1990, but she cautions that residential segregation will become more pronounced as HOA membership increases over time (which it certainly has).

Also looking at California, Le Goix (2005) executes a neighborhood-level analysis of gated communities and segregation in Los Angeles. He measures 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 does not find evidence to support an association between gated communities and segregation at the level of the municipality. He also observes 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 socio-economic status.

Vesselinov (2008) is the first to test segregation and gated communities for multiple cities in the U.S. Using data from AHS on membership in gated communities as of 2001, Vesselinov finds that segregation and the number of gated communities are associated with higher proportions of recent immigrants. She also finds that while gated communities are prevalent in the southern and western regions of the country, segregation is less prevalent in these regions. Since 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 notes 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.

Some argue that RCAs not only fragment communities demographically, but civically (or politically) as well. Gordon (2003) empirically tests the validity of such claims by operationalizing ‘social capital’ by resident voting behavior. Specifically, she analyzes the effects of planned unit developments (PUDs) in California on voting behavior in statewide general elections during the 1990s. Results indicate that areas with PDs do not exhibit significantly different voter turnout, registration, and party affiliation once 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’ price premiums relative to non-HOA properties. However, HOAs can also impact the quality of life for non-members 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 non-random nature of their growth has both policy and methodological implications. If it turns out that HOAs, and other private governments, are beneficial to their members, then any disparities in access to these associations (and the services they provide) raises 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 non-members alike, and this is an outcome that might be more politically (and socially) appealing. As demonstrated above, sophisticated empirical efforts have started to answer many of these questions. However, ignorance of the non-random nature of HOA formation could bias the estimates of their financial and social impacts. For example, if we do not account for the fact that HOAs tend to locate in the outskirts of municipalities, where there is not only more available land but where it is also more costly to build due to new infrastructure requirements, we could be observing inflated price premiums. This error not only falsely informs policy decisions, but consumer decisions as well.

Here 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 (i) demand-side factors, (ii) supply-side factors and (iii) 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 sub-municipal 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; and these preferences should be correlated with their economic and demographic characteristics. Most obviously, we would expect to see an increase in the likelihood of HOA formation among more affluent residents, as 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.⁴ 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 might also fall along demographic lines.

Supply-side factors

Since 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 most important determinant would be the availability of land, and enough consolidated land to build often large or sprawling developments. All else 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 the age of the local housing stock capture the composition and tightness of the existing housing market.

⁴ This is in addition to any correlation between income and race, ethnicity and age.

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 municipal-wide 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.

Section 3: Model

Because we are interested in the conditions that correspond with HOA formation in a particular census tract, we take a duration analysis approach. 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 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:

$$\lambda(t|X) = \lambda_0(t) \exp(\beta_1 X_1 + \dots + \beta_n X_n)$$

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, as 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:

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

While 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 tables that follow.

Section 4: Data

HOAs in Florida

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 (over 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).⁵ This company compiles a list of all the HOA officers in the state for the purposes of marketing to service providers (lawyers, accountants, landscapers, etc.). Each entry includes information on 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.

We geocode, using geographic information system (GIS) software, the reported addresses of the officers onto an electronic parcel map of the state obtained from the Florida Department of Revenue. As 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

⁵ HOAs are rarely, if ever, dissolved.

that tract. If a census tract does not have an HOA throughout the entire sample period (1970 to 2008), this is equivalent to a “censored observation” (never observed to have failed) in the duration analysis terminology.⁶

We note a caveat to our approach. The address of an officer in our dataset is self-reported, and there are two potential reasons why the address might 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.⁷ 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.⁸

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 (NCDB). 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 ten years’ worth of influence from covariates from the 1970 census, ten years’ worth of influence from covariates from the 1980 census and three years’ worth of influence from covariates from the 1990 census before failure. Using the most recent past census in this way protects us against bias from endogeneity.

⁶ There are a few census tracts 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 (i.e., “failure” almost immediately). Our qualitative results do not change substantially by dropping these tracts.

⁷ We will not elaborate on the algorithm here, but briefly here is a non-exhaustive list of reasons that would cause us to reject an address as being the actual location of an HOA: (1) address reported is zoned commercial; (2) identical addresses are reported for more than one HOA (this is likely an office building); (3) address belongs to a different city from the other officers in the same HOA.

⁸ 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 and older; percent with a bachelor's degree or higher; average family income⁹; percent foreign-born; percent taking public transit to work; and percent living in the same house five years ago. On the supply side, we include: distance to the central business district¹⁰; vacancy rate; owner-occupancy rate; and percent of houses that are thirty years or older.¹¹

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.¹² On the expenditure side, we include total general expenditures, as well as spending on four major categories that are presumed substitutable with HOA expenditures: roads, police, solid waste collection, and parks and recreation.

Description of the sample

Our data covers census tracts in 26 of 67 counties in Florida. We dropped counties from the analysis due to incomplete data. First, areas tracted in 2000 and 2008 were not necessarily tracted 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. We also drop counties if they were missing subdivision and/or GIS parcel files, or due to lack of variation in HOA membership. Ultimately, our data

⁹ All dollar values throughout this paper have been expressed in 2000 dollars, based on the Consumer Price Index.

¹⁰ We used GIS to measure the straight-line distance between the centroid of a census tract and its CBD. The CBD is the point in the city designated by the Census as the center of the metropolitan statistical area (MSA).

¹¹ In other specifications, we explore more covariates such as percent with a high school diploma or higher; unemployment rate; and poverty rate. These do not add much to the main results and so are not included in the reported specifications.

¹² 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.

covers the vast majority of urban areas in the state; we retain the most populous counties, which does not cause us much concern for the validity of our dataset.

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 is presented in Table 1.

HOAs in Florida

Like trends for the rest of the country, HOAs in Florida have proliferated over the past thirty years and during the past decade in particular. Figure 1 provides evidence of this. 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 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 Figure 2 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 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.

Turning to census tracts, Figure 3 presents a histogram of the year of the first HOA. The first vertical bar counts the number of tracts that have no HOAs as of 2008; this represents about 19 percent of our sample. By 1987, half the census tracts in our sample received an HOA. The most frequent year of incorporation for a tract's first HOA is 1979, while the median year is 1983.

Overall, Figure 3 suggests that HOAs have either become smaller over time or have become more clustered (since fewer tracts are receiving their first HOA in later years).

Section 5: 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 Table 2). Column (1a) reports the coefficient estimates, while column (1b) reports the hazard ratios (exponentiated coefficients). We see that race/ethnicity and income are more significant predictors than age or education.¹³ Neighborhoods with higher shares of black and foreign born residents are less likely to form HOAs. Specifically, the likelihoods are reduced by 37 percent and 59 percent, respectively, when the share of blacks or foreign-born residents in a tract goes up by 1 unit, that is, rises from 0 to 100 percent).¹⁴ While 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. This is consistent with the prediction that more affluent households are more likely to prefer (or be able to afford) HOA membership. The findings also suggest that non-minority households are also more likely to prefer HOAs—this 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 HOA 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).

¹³ Note that more parsimonious models without education produce essentially the same coefficient for income (it is slightly larger); therefore multicollinearity is not a concern.

¹⁴ Hazard ratios are obtained by taking e to the power of the coefficient.

Supply-side predictors

Next we run models with only supply-side predictors; these results are displayed in Table 3. All of the variables are significant. HOAs are more likely to form in neighborhoods with higher vacancy and homeownership rates and, on average, newer housing. Therefore, HOAs are not only formed in the context of new housing developments (as predicted), but they tend to govern homeowners (versus renters) and in less constrained markets (as indicated by the reverse relationship with vacancy rates). Neighborhoods located farther from the central business district (CBD) (i.e. closer to the municipal outskirts) are also more likely to form HOAs. A one mile increase in distance to the CBD increases the hazard ratio by 0.7 percent. This is consistent with the expectation that HOAs need larger swaths of land, which tend to be situated towards the city's fringe.

We proceed by combining both demand- and supply-side variables into a single model. These results are displayed in Table 4, columns 1a and 1b. The general pattern of the coefficients is consistent, however the coefficients do tend to decrease in magnitude (this 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: (i) education is now significant (still positive) and (ii) distance to the CBD assumes a slightly larger coefficient (it is still positive and significant). Finally, we also augment the model by stratifying by county. In this specification, we allow the hazard baseline to vary by county, in order 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 column of Table 4 indicate, the results are substantively the same, except now distance to the CDB is insignificant (but still positive).

Municipal institutional predictors

We add to the combined demand- and supply-side covariates measures of citywide fiscal conditions in Table 5. In all specifications, we stratify by county.¹⁵ Due to space constraints, we only report the coefficient estimates rather than the hazard ratios. Column (1) adds the per capita total general expenditures of the city, and the coefficient is significantly negative and large: a

¹⁵ 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 to be more illustrative than definitive.

one-unit change in city expenditures (an increase of \$1,000 per capita) will decrease the hazard ratio by 20 percent. This suggests that census tracts located in cities that have high public spending are less likely to form an HOA, all other things equal. This provides additional evidence to Cheung (2008a, 2008b) that homeowners may regard public and private government spending as substitutes. Column (2), however, shows that no such interaction exists between local revenues and HOA formation. Perhaps with expenditures, there is a more obvious and visible substitutability 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 (3) to (6) report these results. We put each category separately into a specification in order 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.

Section 6: Conclusion

The proliferation of homeowners associations can bring both promising and challenging circumstances for municipalities. Empirical evidence shows that their presence can provide fiscal relief for municipalities in the form of services and infrastructure, and potentially localized oversight in times of housing distress. However, HOAs can also threaten a city's prospects for integration. In this paper, 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 this has implications for both the analysis of HOA impacts and the implementation of 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 themselves tend to be homogeneous (both racially/ethnically and economically) *and*

they tend to locate in already homogeneous neighborhoods, the outcome is less likely to be more integrated residential communities.¹⁶

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 that use public transit. These findings suggest that HOAs are not conducive to smart growth or transit-oriented development. This proposition is also supported by the fact that higher probabilities of HOA formation are 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. 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.

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

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¹⁶ This is consistent with Meltzer (2013), who finds that HOAs exacerbate racial/ethnic segregation.

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Table 1: Summary Statistics of Key Variables

| Variable | Tracts | Mean | Std. Dev. | Min | Max |
|---|---------------|-------------|------------------|------------|------------|
| <i>Demand-side</i> | | | | | |
| Black | 2,176 | 0.16 | 0.27 | 0.00 | 1.00 |
| Hispanic | 2,176 | 0.09 | 0.18 | 0.00 | 0.96 |
| Children under 5 | 2,176 | 0.07 | 0.03 | 0.00 | 0.23 |
| Adults over 65 | 2,176 | 0.16 | 0.12 | 0.00 | 0.94 |
| College degree or higher | 2,176 | 0.13 | 0.10 | 0.00 | 0.79 |
| Average family income in \$2000 | 2,176 | 26,374.87 | 10,130.15 | 2,706.19 | 188,646.20 |
| Foreign-born | 2,176 | 0.10 | 0.15 | 0.00 | 0.87 |
| Travels by transit to work | 2,176 | 0.03 | 0.06 | 0.00 | 0.49 |
| Lived in same house 5 years ago | 2,176 | 0.44 | 0.14 | 0.00 | 0.88 |
| <i>Supply-side variables</i> | | | | | |
| 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 |
| <i>Public finance variables (p.c. = per capita)*</i> | | | | | |
| Own-source revenue p.c. | 1,270 | 0.46 | 0.24 | 0.03 | 2.57 |
| General expenditures p.c. | 1,270 | 0.55 | 0.32 | 0.00 | 2.53 |
| Roads expenditures p.c. | 1,270 | 0.04 | 0.03 | 0.00 | 0.42 |
| Parks and rec expenditures p.c. | 1,270 | 0.05 | 0.05 | 0.00 | 0.44 |
| Police expenditures p.c. | 1,270 | 0.09 | 0.05 | 0.00 | 0.45 |
| Solid waste expenditures p.c. | 1,270 | 0.04 | 0.03 | 0.00 | 0.39 |

* In thousands of 2000 dollars.

Table 2: Demand-Side Covariates

| VARIABLES | (1a) Coefficients | (1b) Hazard ratios |
|---------------------------------|---------------------------|-----------------------|
| Black | -0.458*** (0.158) | 0.63 |
| Hispanic | -0.309 (0.410) | 0.73 |
| Children under 5 | 1.148 (1.177) | 3.15 |
| Adults over 65 | 0.230 (0.286) | 1.26 |
| College degree or higher | 0.457 (0.322) | 1.58 |
| Average family income | 1.49e-05*** (2.89e-06) | 1.00002 |
| Foreign-born | -0.889* (0.507) | 0.41 |
| Travels by transit to work | -3.736*** (0.858) | 0.02 |
| Lived in same house 5 years ago | -1.242*** (0.181) | 0.29 |
| Number of tracts | 2,176 | |

Notes: Robust standard errors clustered at the census tract. *, ** and *** denote significance at the 10, 5 and 1 percent levels, respectively.

Table 3: Supply-side Covariates

| VARIABLES | (1a) Coefficients | (1b) Hazard ratios |
|----------------------------------|-------------------------|-----------------------|
| Vacancy rate | 1.941*** (0.294) | 6.96 |
| Owner-occupancy rate | 0.956*** (0.137) | 2.60 |
| Distance to central city | 0.00746*** (0.00286) | 1.01 |
| Percent houses over 30 years old | -1.344*** (0.133) | 0.26 |
| Number of tracts | 2,176 | |

Notes: Robust standard errors clustered at the census tract. *, ** and *** denote significance at the 10, 5 and 1 percent levels, respectively.

Table 4: Full Model and County Strata

| VARIABLES | (1a) | (1b) | (2a) | (2b) |
|----------------------------------|--------------------------------------|---------------|---------------------------------------|---------------|
| | Full model, not stratified by county | | Full model, baseline strata by county | |
| | Coefficients | Hazard ratios | Coefficients | Hazard ratios |
| Black | -0.304* (0.159) | 0.74 | -0.721*** (0.172) | 0.49 |
| Hispanic | -0.0919 (0.413) | 0.91 | 0.0815 (0.453) | 1.08 |
| Children under 5 | 0.670 (1.170) | 1.95 | 1.217 (1.244) | 3.38 |
| Adults over 65 | -0.0624 (0.304) | 0.94 | -0.216 (0.329) | 0.81 |
| College degree or higher | 1.046*** (0.325) | 2.85 | 0.971** (0.380) | 2.64 |
| Average family income | 9.81e-06*** (2.80e-06) | 1.0000 1 | 8.62e-06*** (3.12e-06) | 1.0000 1 |
| Foreign-born | -0.884* (0.515) | 0.41 | -1.462** (0.637) | 0.23 |
| Travels by transit to work | -1.366 (0.841) | 0.26 | 0.267 (0.825) | 1.31 |
| Lived in same house 5 years ago | -1.197*** (0.200) | 0.30 | -0.983*** (0.230) | 0.37 |
| Vacancy rate | 1.024*** (0.342) | 2.78 | 1.278*** (0.348) | 3.59 |
| Owner-occupancy rate | 0.728*** (0.163) | 2.07 | 0.933*** (0.171) | 2.54 |
| Distance to central city | 0.0103*** (0.00291) | 1.01 | 0.00272 (0.00344) | 1.003 |
| Percent houses over 30 years old | -0.698*** (0.133) | 0.50 | -0.757*** (0.147) | 0.47 |
| Number of tracts | 2,176 | | 2,176 | |

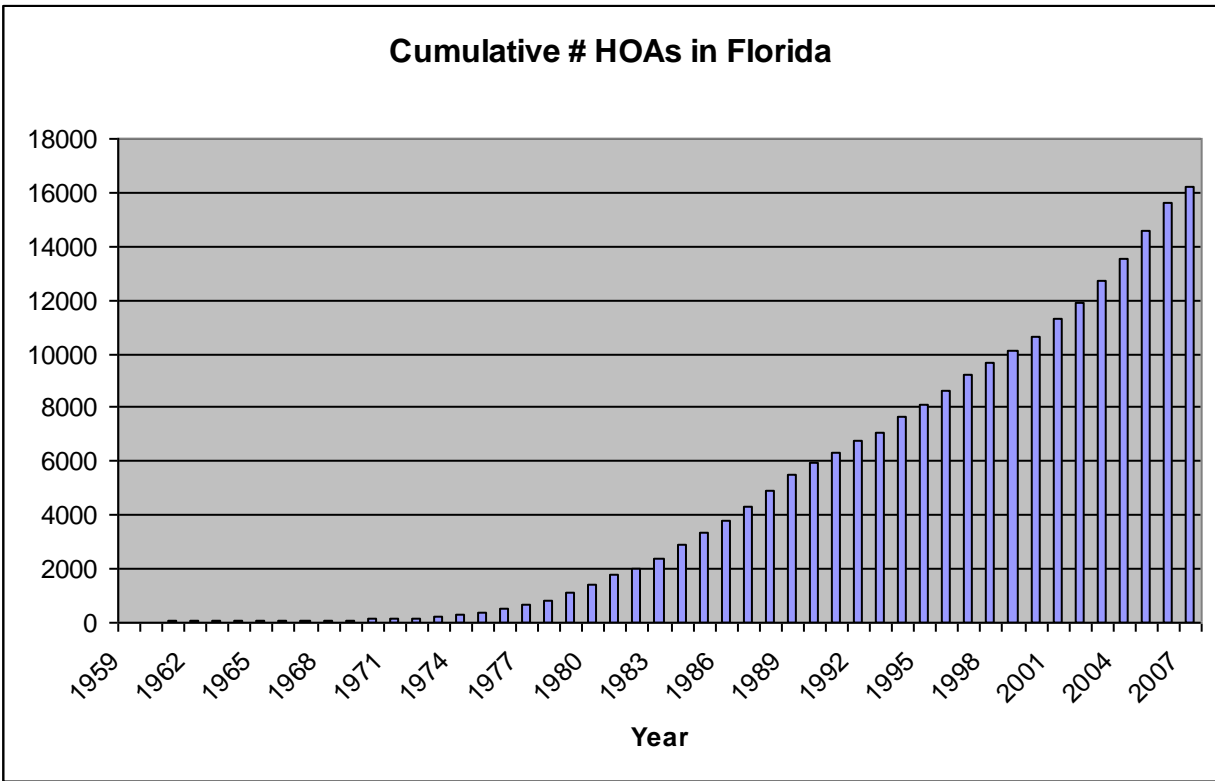
Notes: Robust standard errors clustered at the census tract level. *, ** and *** denote significance at the 10, 5 and 1 percent levels, respectively.

Table 5: Public Finance Covariates

| VARIABLES | (1) Expenditures | (2) Revenues | (3) Roads only | (4) Parks only | (5) Police only | (6) Trash only |
|----------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Black | -0.949*** (0.216) | -0.954*** (0.216) | -0.961*** (0.216) | -0.968*** (0.217) | -0.957*** (0.216) | -0.961*** (0.216) |
| Hispanic | -1.509*** (0.574) | -1.530*** (0.573) | -1.552*** (0.571) | -1.614*** (0.573) | -1.566*** (0.571) | -1.558*** (0.569) |
| Children under 5 | -0.228 (1.622) | -0.228 (1.621) | -0.0623 (1.630) | -0.289 (1.628) | -0.141 (1.627) | -0.0896 (1.624) |
| Adults over 65 | -0.705 (0.434) | -0.695 (0.433) | -0.664 (0.431) | -0.658 (0.431) | -0.622 (0.433) | -0.622 (0.431) |
| College degree or higher | 0.474 (0.482) | 0.476 (0.481) | 0.436 (0.482) | 0.514 (0.486) | 0.429 (0.482) | 0.421 (0.483) |
| Average family income | 1.06e-05*** (3.57e-06) | 1.07e-05*** (3.59e-06) | 1.13e-05*** (3.69e-06) | 1.06e-05*** (3.55e-06) | 1.01e-05*** (3.63e-06) | 9.95e-06*** (3.59e-06) |
| Travels by transit to work | 0.0356 (0.985) | 0.0479 (0.985) | 0.0599 (0.983) | 0.202 (0.985) | 0.0693 (0.984) | 0.0877 (0.984) |
| Foreign-born | 0.361 (0.794) | 0.384 (0.794) | 0.420 (0.792) | 0.525 (0.795) | 0.460 (0.794) | 0.452 (0.791) |
| Lived in same house 5 years ago | -1.038*** (0.325) | -1.027*** (0.325) | -1.003*** (0.327) | -0.989*** (0.327) | -1.033*** (0.326) | -1.046*** (0.329) |
| Vacancy rate | 0.830* (0.454) | 0.826* (0.462) | 0.687 (0.446) | 0.624 (0.448) | 0.628 (0.464) | 0.647 (0.445) |
| Owner-occ. rate | 0.470** (0.228) | 0.479** (0.228) | 0.479** (0.228) | 0.480** (0.230) | 0.529** (0.229) | 0.544** (0.229) |
| Distance to central city | 0.00639 (0.00516) | 0.00678 (0.00516) | 0.00700 (0.00509) | 0.00699 (0.00510) | 0.00781 (0.00520) | 0.00770 (0.00511) |
| Percent houses over 30 years old | -0.647*** (0.185) | -0.649*** (0.184) | -0.663*** (0.184) | -0.641*** (0.185) | -0.670*** (0.184) | -0.677*** (0.185) |
| General expenditures p.c. | -0.218* (0.116) | | | | | |
| Own-source revenue p.c. | | -0.231 (0.145) | | | | |
| Roads exp. p.c. | | | -2.641* (1.478) | | | |
| Parks & rec exp. p.c. | | | | -1.484 (1.165) | | |
| Police exp. p.c. | | | | | 0.0589 (0.925) | |
| Solid waste exp. p.c. | | | | | | 0.682 (1.722) |
| Number of tracts | 1,270 | 1,270 | 1,270 | 1,270 | 1,270 | 1,270 |

Notes: All models are stratified by county. Reported are the coefficients only, not the hazard ratios. Robust standard errors clustered at the census tract. *, ** and *** denote significance at the 10, 5 and 1 percent levels, respectively.

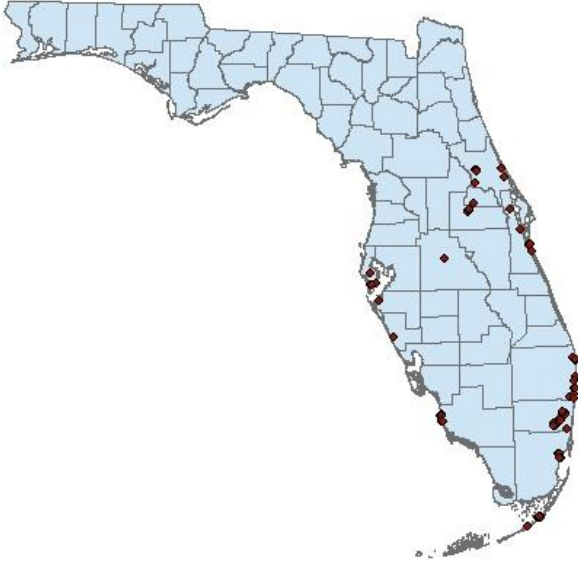
Figure 1: Number of HOAs in Florida Over Time



Source: Meltzer (2009)

Figure 2: Spread of HOAs Across Florida

1970



2000

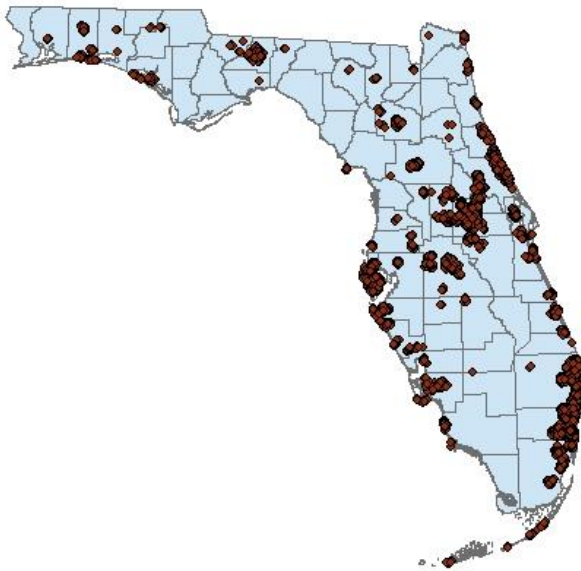
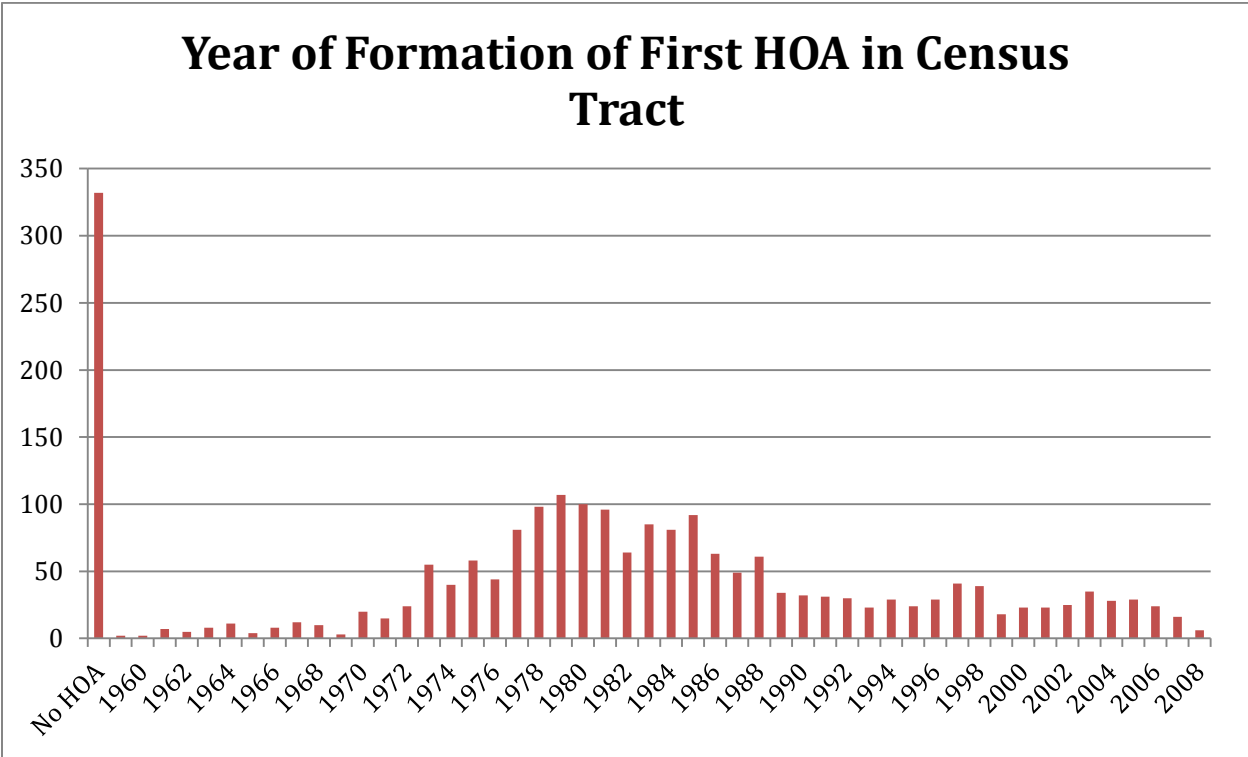


Figure 3: Histogram of First HOA by Census Tract



The histogram shows the year of incorporation of the first HOA in a census tract. Our sample consists of 2,176 census tracts in Florida. The first bar represents the number of census tracts that have never had an HOA form as of 2008.

Source: Authors' calculations.