Changing Social Ecologies of U.S. Suburban Areas, 1960-2000

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Abstract

The traditional social ecology of the stereotypical American metropolis – the sectors and zones of Murdie's famous model (1969) of factorial ecology – has long disappeared. In this article, we explore high-resolution changes to the spatial structure of socioeconomic development in U.S. suburban areas for a long panel of post-war data. We build an evolving social ecological description of modern American suburbanism and systematically evaluate the trajectory and extent of changes that took place in post-Fordist suburbia based on an analysis of decennial census tract data between 1960 and 2000 for every metropolitan region in the United States. Specifically, this article makes a number of contributions to the literature: We identify an intuitive set of six clusters that characterize the principal suburban social ecologies of the post-war metropolitan United States. We describe the changing social ecologies of suburban areas in term of our clusters, paying particular attention to regional differences in the relationship between sitcom suburbs and the process of suburbanization of at the level of metropolitan areas. We identify a number of stylized facts: First, the decline of sitcom suburbs is not simply the symmetrical analog of their rise. Second, the duration of the "sitcom cycle" is characterized by large amounts of local heterogeneity in terms of its intensity and in terms of its duration. Third, there is a close connection between change in the social ecologies of U.S. suburbs and the joint processes of urban growth and suburbanization.

Keywords: Suburbanization, social ecologies, neighborhood change, cluster analysis.

Introduction

The traditional social ecology of the stereotypical American metropolis – the sectors and zones of Murdie's famous model (1969) of factorial ecology – has long disappeared. Likewise, unqualified concepts and labels – city, suburb, metropolis – are fast becoming examples of what Ulrich Beck calls "zombie categories," concepts that embody nineteenth- to mid-twentieth-century horizons of experience distilled into a priori and analytic categories that still mold our perceptions and sometimes blind us to the significance of contemporary change (see, for example, Beck, Bonss, and Lau 2003). As Lang and Knox (2009) suggest, economic restructuring, demographic shifts, digital telecommunications technologies, and neoliberal impulses have given rise to a stereotypical "New Metropolis" that is characterized by disjointed and fragmented "post-suburban" landscapes (Phelps, Wood, and Valler 2010) of edge cities, off-ramp subdivisions, office parks, commercial corridors, and "edgeless cities" (Lang 2003) of low-density office development. The social ecologies that have developed within and around these landscapes have not, until now, been systematically and comprehensively mapped, though it is clear from the literature that the classic, Fordist "sitcom suburbs" of mid-twentieth century metropolitan development (Hayden 2003) have been increasingly overshadowed by a splintering suburbanism of exurbs, boomburbs, manufacturing suburbs, aging suburbs, cosmoburbs, immigrant suburbs, and gated privatopias (Frey 2003; Katz and Lang 2003; Katz Lang and Berube 2006; Lewis 2004; McKenzie 1994; Nelson 1992). Nevertheless, as Hanlon observes (2009: 222), "While suburbs have evolved over time, the traditional, middle-class suburb still remains a relevant feature of the U.S. metropolitan landscape."

In this article, we document the evolving social ecological structures of modern American suburbanism and systematically evaluate the trajectory of changes that took place in

post-Fordist suburbia based on decennial census tract data between 1960 and 2000 for every metropolitan region in the United States. Specifically, this article makes a number of contributions to the literature: We identify an intuitive set of six clusters that characterize the principal suburban social ecologies of the post-war metropolitan United States: "sitcom suburbs", "elite suburbs", "affluent suburbs", "renter-condo suburbs", "lower income mixed suburbs", and "minority and immigrant suburbs".[1] These clusters form the analytical building blocks for our multi-dimensional description of the changing social ecologies of suburban areas in the United States over the course of four decades from 1960 to 2000. Documenting the changing social ecologies of suburban areas, we pay particular attention to regional differences in the relationship between sitcom suburbs and the process of suburbanization at the level of metropolitan areas. Our analysis distinguishes a number of stylized facts: First, the decline of sitcom suburbs is not simply the symmetrical analog of their rise. Instead, it reflects a profound change in the socio-economic fabric of the post-war US cities. Second, the duration of the "sitcom cycle" is characterized by large amounts of local heterogeneity in terms of its intensity and in terms of its duration. Third, there is a close connection between change in the social ecologies of U.S. suburbs and the joint processes of urban growth and suburbanization. Overall, we identify a positive relationship between the prevalence of the sitcom cluster typology and the rate of suburbanization, whereby rapid increases in the proportion of the suburban population tends to be associated with large changes in the share of sitcom suburbs. The magnitude of these effects appears vary across different decades and regions.

The remainder of this article is structured as follows. The next section outlines and contextualizes the historical changes across the social ecologies of metropolitan areas in the United States. Then we discuss our data set and the methodology for deriving the suburban

typology, whereas a detailed examination of our empirical results – both across space and time – follows in the following section. We then explore the interdependencies between the process of suburbanization and changes in the social ecologies, and the final section concludes with some tentative suggestions for future work.

Suburban change in post-war US metropolitan areas

Until the middle of the twentieth century, the social ecologies metropolitan America could safely be conceptualized, following the textbook models of Alonso, Burgess and Hoyt, in terms of processes of congregation, segregation, bid-rent, and sequent occupancy – all pivoted tightly around a dominant central business district and transportation hub. During the middle decades of the twentieth century, however, American metropolises were unbound by the combination of increased auto mobility and the blossoming of egalitarian liberalism in the form of massive federal outlays on highway construction and mortgage insurance. Within almost every metropolitan area, the ring of suburban counties grew much faster than the central city (or cities). This spurt coincided with a dramatic postwar increase in prosperity and the consequent rise of consumerism (Beauregard 2006; Teaford 2007). Between 1948 and 1973 the U.S. economy grew at unprecedented rates. The Gross National Product increased five-fold, median income more than doubled (in constant dollars), and home ownership rose by 50 percent. Historian Lizabeth Cohen (2003) has traced the development of a "consumers' republic" in the United States in this era: a society based on mass consumption of automobiles, houses, and manufactured household goods, all celebrated by the new medium of television, with its situation comedies set, almost always, in idealized suburban neighborhoods.

Suburban development in the United States in the 1960s and 1970s was dominated

everywhere by small- and medium-sized companies. Taking advantage of pattern-book designs and balloon-framing techniques, they tended to opt for what was easiest to produce and what was the safest bet in terms of effective demand: two- and three-bedroom single-family suburban housing for middle-middle class households. This was the era of the "sitcom suburb" (Hayden 2003), a democratic utopia of (by today's standards) modestly-sized ranch-style and split-level homes. Thanks to the landmark Supreme Court ruling on *Euclid v. Ambler*, sitcom suburbs were founded on local government zoning regulations that prohibited apartments, duplexes, small houses, or small lots as well as stores and offices. Federal intervention also contributed significantly to the creation of standardized suburban settings dominated by detached single-family homes occupied by white families. The Federal Housing Administration was clearly biased from its inception toward single-family detached and owner-occupied housing. To assist local governments with planning for single-family detached homes, the FHA recommended standardized subdivision design practices that became a template for suburban subdivisions nationwide when Congress passed the landmark Section 701 planning grant program as part of the 1954 Federal Housing Act.

But the standardization of stereotyped house plans, mass-produced materials, and "placeless" subdivisions eventually bred indifference among consumers; rationalization led inevitably to disenchantment (Knox 2008). By the late 1970s, sitcom suburbs had become tinged with an aura of failed ambition, and disenchantment with suburbia had become the conventional wisdom. In spite of the fact that there were few practical alternatives to the "sprawl machine," suburbia had acquired a connotation not only of bland standardization but also environmental degradation, social isolation, and malaise (Brooks 2002; Putnam 2000; Kunstler 1993). It did not take long, however, for developers and their marketing consultants to catch up with changing

consumer tastes and the social shifts that had made the "typical" middle class household of the sitcom suburb a socio-demographic minority. Their response was to begin to cater to affluent singles, divorcees, retirees, and the growing number of upper-middle income households, adding luxury condominiums, townhouses, lofts, and private master-planned communities to their product lines. With more than ninety percent of metropolitan population growth in America since 1980 having taken place beyond central cities, there is a great deal of socio-economic diversity across the entire body of the New Metropolis. Retiring and empty-nester baby-boomers, Gen-Xers, Echo Boomers, and new streams of immigrants have all left their mark on housing markets.

As a result, suburbia is no longer synonymous with upwardly-mobile, white, nuclear families. Moreover, while suburban population as a whole has been growing, it has been highly uneven from suburb to suburb, metropolis to metropolis. An analysis of 2,586 suburban municipalities by William Lucy and David Phillips (2006) found that 700 of them – 27 percent – actually declined in population between 1990 and 2000, with 124 of them – almost 5 percent of the total – declining in population faster than their central cities. Lucy and Phillips also showed that, contrary to the popular image of suburbia as solidly white, upper-middle-class, and family-oriented, the suburbs contain significant and increasing numbers of ethnic minorities, including many immigrants, along with significant concentrations of poverty and a growing share of the nation's single-person households and seniors.

As with the nation as a whole, suburbia has become increasingly polarized in terms of income distribution – a development that we will discuss in more detail in section 6 below. Lucy and Phillips found that the number of low- and moderate-income suburbs (below 80 percent relative median family income) increased by a factor of four between 1960 and 1990, while

concentrated poverty in suburban neighborhoods nearly doubled between 1980 and 2000. Approximately half of the municipalities in their study had relative incomes below those of their respective metropolitan-wide median incomes in 2000, and about half had declined in relative income between 1990 and 2000. This included some suburbs as much as forty miles from city centers as well as inner-tier suburbs. At the other end of the scale, the 50 percent or so of suburban municipalities where relative incomes had increased were predominantly in rapidly-growing peripheral settings. Lang and LeFurgy (2007) have documented the "boomburbs" that experienced sustained double-digit rates of population growth between 1970 and 2000, while Berube et al. (2006) have highlighted the exurbs that grew more than twice as fast as their respective metropolitan areas overall between 1990 and 2005. Meanwhile, what many of America's newly- and increasingly affluent households evidently wanted, in order to set themselves apart from all this, was a home worthy of their repayment burden: impressively large, enviably superior. Knox (2008) has shown how the development industry responded with themed master-planned communities that have enabled affluent households to secede into narrowly-defined enclaves that have become a pervasive feature of contemporary metropolitan America.

Just how have all these changes played out across U.S. metropolitan areas? Several empirical analyses have confirmed the diversity of contemporary U.S. suburbia, providing typologies of samples of suburban municipalities and census designated places that identify distinctive suburban ecologies by race, age and economic status, along with evidence of the continued existence of the stereotypical white, middle-middle class suburbs – the successors of the sitcom suburbs of the 1950s and 1960s (Orfield 2002; Mikelbank 2004; Hanlon, Vicino and Short 2006; Vicino, Hanlon and Short 2007; Hanlon 2009, 2010). However, this literature does

not address a number of issues; most significantly, perhaps, the samples are usually cross-sectional place-level data which might miss specific trends that have taken place within suburbs. Our work attempts to fill this gap by investigating how different social ecologies have evolved over time and across regions in the post-war United States.

Data and Methodology

Data set

The data for our analysis comes from multiple sources. The 1960 tract level data are from National Historical Geographic Information System (NHGIS). The Neighborhood Change Database (NCDB) produced by the Urban Institute and GeoLytics provides 1970-2000 tract-level data. The GIS boundaries have been extracted from NCDB, TIGER (Produced by the US Census Bureau), and the national historical Geographic Information System (NHGIS). Establishing a pooled data set for the entire country at this level of resolution involves careful compromise. Given our interest in the changing social ecologies of the suburban (i.e. non-central city) components of U.S. metropolitan regions, we rely on definitions released by the Office of Management and Budget in 2000, whereby metro areas are delineated around at least one population nucleus with adjacent areas that are connected to it economically and/or socially – the central city.[2] Although this definition is a convenient point of departure, its major drawback stems from the fact that the boundaries for metropolitan areas, central cities, suburbs and census tracts can change from one census year to another. In order to make suburban areas comparable over time, researchers usually either apply one uniform boundary system by standardizing spatial units to one particular date, or they use those areas that have relatively "permanent" boundaries, such as census places, minor civil divisions (MCDs) or Census County

Divisions (CCDs) (e.g. Massey and Denton 1988; Madden 2003; Vicino, Hanlon and Short 2007; Mikelbank 2006; Fischer 2008). While the standardization of boundaries across time avoids the problem of historical boundary shifts, it can also cause potentially serious problems. First, according to the Census Bureau, MSAs are divided into tracts that are "homogeneous with respect to population characteristic, economic status, and living conditions" in order to obtain "pure" basic observation units. Standardizing tract boundaries means that the tracts do not necessarily remain homogeneous. Second, when metropolitan areas expand by annexing surrounding areas, the former rural areas can (and do) become suburbs, and former suburbs can become central cities. Therefore, in this article we use the boundaries of MSAs, central cities and suburban tracts as defined for each census year.[3]

[Table 1 about here]

The pooled data for all MSAs from 1960 to 2000 cover a total of 109,513 suburban tracts. Table 1 provides an overview of the sample characteristics of our panel data in term of tracts, population and MSAs for each decade. The familiar trend of rapid suburbanization during the first half of the postwar period is clearly visible in our data as the population share of suburban neighborhoods rapidly increases from 28 percent in 1960 to almost 50 percent in 1980. While the nation's population continued to grow at or near its postwar average rates during the final two decades of our sample period, the urban-suburban balance has broadly remained stable since the 1980s. Suburbia had established itself as the predominant urban paradigm with a stable majority of roughly two-thirds of the urban population in the United States living in the suburbs. As we will show later, however, this compositional stability between urban and suburban areas

masks much deeper socio-economic changes that have taken place *within* suburbs over the course of the four decades that span our sample.

In documenting these changes, variations in the structure and format of data from the Decennial Census limit our choice of variables. Nevertheless, we identify a consistent set of basic indicators that are able to capture the key characteristics of suburban social ecologies: home ownership, dwelling type, income, age, race, family status, educational status, and immigrant status. Table 2 provides a list of these specific variables and their descriptions, whereas the summary statistics for these variables in Table 3 permit a first cursory preview of the main national and regional postwar trends across U.S. suburbs.

[Tables 2 and 3 about here]

A few of these trends in our variables are worth highlighting explicitly as they pertain to our high-level discussion of post-war suburban change in the previous section. At the subnational level, most regions show distinct differences from national trends with respect to at least one or two of our socio-economic variables. For example, suburbs in the Northeast have seen the biggest transformation in terms of educational attainment (+61 percent), growing at almost twice the national rate, and in terms of income growth (+71 percent) between 1960 and 2000. Over the same period, the phenomenal growth of sunbelt suburbs in the South has almost trebled their share of foreign-borns, has seen the largest growth in retirees (+89 percent) and has also led to the sharpest regional reduction in the census-tract level share of single family housing (-27 percent). With above average rates of home ownership and single family homes, suburbs in

the Midwest essentially remain the closest to the old stereotype: solidly white, middle-class. In the West, by contrast, large-scale immigration was one of the key drivers behind the biggest regional increase in suburban racial diversity from 1960 to 2000. Over all, suburbs have largely become richer, more educated and more racially and socially diverse places across the span of our sample.

Methodology

Previous empirical studies of U.S. suburbs have resulted in typologies that generally distinguish between four to six classes of suburbs (Orfield 2002; Mikelbank 2004; Hanlon, Vicino, and Short 2006; Hanlon 2009, 2010). In most of this work, the typologies are created via statistical techniques that classify the observational units in terms of the (dis)similarity of the underlying socio-economic variables that describe the respective suburban samples. This is usually achieved via a two-stage procedure; first, the dimensionality of the data set is reduced (either using principal component analysis or factor analysis) and then, the within-group variability of the transformed data is minimized while maximizing the between-group variability by employing a clustering algorithms such as *k*-means clustering or hierarchical clustering. This two-step process is largely motivated by a desire to "let the data speak", thus avoiding some form of omitted variable bias that might arise from selectiveness in the choice of socio-economic characteristics.

Indeed, most of these studies start with in excess of 30-40 socio-economic variables which are usually mapped onto 4-5 factors that are capable of explaining most of the dispersion among covariates. Without the need to reduce the cross-sectional dimensionality of our data, but

with a large degree of temporal diversity, we directly apply a *k*-means cluster analysis to our pooled data. The *k*-means method employs an iterative grouping process whereby the grouping is adjusted until a satisfactory dissimilarity coefficient is achieved. It is an algorithm that is generally suited for large numbers of observations, such as our data set. In contrast to hierarchical clustering algorithms, where clusters are developed stepwise and the final number of clusters is determined by on an ad-hoc basis in terms of the largest dissimilarities in the data set, *k*-means clustering requires the number of groups to be "exogenously decided" on the basis of background information (Davis 2002). Indeed, the relatively ad-hoc nature of determining the a priori number of clusters remains one of the main challenges with this clustering method.

Given that most large datasets such as ours contain masking outliers and other deviations, non-hierarchical clustering methods rarely yield a clear partitioning structure of the data on a first pass. This complicates the identification and selection of a stable number of clusters. One way to overcome the cluster selection problem is by relying on data visualization, using so-called clustergrams that guide the choice of the number of clusters. We adopt this strategy for our data and follow the visualization procedures introduced by Henning and Christlieb (2002) and Schonlau (2004). The next section discusses the typology that emerges from the results of our cluster analysis.

The Changing Social Ecologies of U.S. Suburbia

Our *k*-means cluster analysis partitions the pooled tract-level data of 109,513 observations into six groups.[4] These six clusters capture the principal suburban social ecologies of metropolitan America as they evolved over the four decades of the study. Reassuringly, the profiles of these six clusters largely echo the findings of the extensive existing literature on

American suburbia (e.g. Mikelbank 2004 or Vicino, Hanlon and Short 2007). Given their unique combinations of our socio-economic variables, we have labeled the six clusters as "sitcom suburbs", "elite suburbs", "affluent suburbs", "renter-condo suburbs", "lower income mixed suburbs", and "minority and immigrant suburbs". The average cluster characteristics are summarized in Table 4 and their distributional properties are illustrated in Figure 1.

[Table 4 about here]

[Figure 1 about here]

We will now briefly discuss the main features of each cluster in turn, before analyzing the evolution of their variation over time and across space in the next section.

A typology of suburbs

Sitcom suburbs: This cluster is characterized by almost all-white census tracts with predominantly single-family detached homes, where homeownership rates are well above the suburban average and almost half of households are married with at least one child. Both educational attainments and household incomes in this cluster are between the national median and the national average, whereas the proportion of residents who were born abroad is only about half the suburban national average. The census tract features of this cluster indeed epitomize the all-American post-war utopia where relatively young families of first-time homeowners pursue their suburban dreams.

It is important to highlight that our analysis does not constrain the socio-economic characteristics of a given cluster be completely static across different decades. By virtue of clustering on a pooled data set, however, the properties of the clusters are fairly stable over the four decades from 1960 to 2000. In the case of the sitcom cluster, for example, the temporal changes of its most salient socio-economic features – white single-family neighborhoods with high rates of homeownership – are minimal (cf. top section of Table 4). Other aspects of the sitcom cluster broadly move in line with national suburban trends.

Elite suburbs: This cluster represents the suburban enclaves of the very wealthy elites. In these mostly white census tracts – many of them covering the quintessential, gated "privatopias" – educational attainment, income and homeownership rates are the highest in all of suburbia. Elite suburbs also have above average shares of residents that were born aboard which is consistent with the notion that these census tracts are the preferred locational choice for a segment of the global "jet set", top-earners among foreign-born business people or wealthy entrepreneurs. In particular with regard to education and income, the elite suburbs are home to the "Upper Ten Thousand" or – perhaps more fashionably – the "One Percent". Indeed, as we will discuss in more detail below, the elite suburbs comprised barely twelve thousand people in 1960 and stayed below the one percent threshold of total suburban until 1980, steadily rising thereafter up to just below five percent in 2000.

Originally, elite suburbs tended to be located in the outer bounds of suburbs of a few coastal economic hubs, and were invariably enclosed by affluent suburbs. Early additions to elite suburbs emerged from affluent suburbs, such as Chicago's North Shore area, Cleveland Heights in east side of Cleveland; Greenwich, west Stamford and Norwalk, Connecticut; Gold Coast in Long Island (Nassau County, New York); Lincoln and Wellesley in Boston; and Portola

Valley and west San Rafael in the Bay Area. More recently, many elite suburbs emerged around enclaves of existing elite suburbs, in booming edge cities of large metro areas, such as Washington, DC. Extending far beyond the "old money" wealthy suburbs of the early post-war years, new elite suburbs now occupy the most expensive inner ring suburban while extending into outer suburbs.

[Table 5 about here]

Affluent suburbs: This cluster shares many of the socio-economic features of both sitcom and elite suburbs. In that sense, it represents a half-way house between sitcom and elite census tracts; with a housing typology and household structure resembling the most wealthy areas, households in these affluent neighborhoods have substantially higher earnings and are better educated than in the sitcom suburbs. They are, however, not as internationally diverse as in neighborhoods in the elite cluster, but appeal to a growing affluent upper-middle class – from well-earning singles to wealthy retirees – who enjoy townhouses and luxury condominiums as alternatives to mass-produced detached single-family houses. As we touched upon in the previous section, affluent suburbs emerge as one of the two dominant social ecologies by the end of our sample period.

Early affluent suburbs were mostly found in parts of the inner-ring suburbs adjacent to central cities, mostly enclosed by sitcom suburbs from which they subsequently most frequently emerged. The distribution pattern of affluent suburbs, however, varies between coastal metros and non-coastal cities of the "heartland".[5] In heartland cities, they are generally smaller and, in

direct proximity to the core, grew outward, forming sectors surrounding central cores. In coastal mega cities, affluent suburbs grew into huge belts, or middle rings, around central cores, developing somewhat similar patterns what sitcom suburbs used to be decades ago. Together with elite suburbs, the affluent suburbs have seen the largest increases in the metropolitan areas with above average quality of life – from the Bay Area to Colorado and Florida – where households tend to spend large fractions of their income on localized amenities (Bieri, Kuminoff and Pope 2012).

Renters and condos: This cluster is largely characterized by its unique housing typology of multi-family houses, apartment blocks and condo high rises. Consequently, it features the lowest homeownership rates of all the clusters. Furthermore, households with the traditional nuclear families are only represented at roughly half the national suburban average in this cluster. At the same time, the share of retirees is around the national suburban average. With neighborhood incomes comparable to those in the sitcom suburbs, households in renter and condo suburbs also have substantially higher educational attainments and a relatively high share of foreign-born residents. In combination, this suggests a sizeable proportion of early to mid-career, professional commuters who live in large bedroom communities. The high presence of the renters and condo clusters along urban transit lines is consistent with the emergence of edge cities and transit-oriented infill development that took off in major metro areas during the 1970s. The emerging visions of walkable urbanism that produced mixed-use pedestrian pockets further established this cluster in the urban morphology of some of the fastest growing metro areas – in the boomburbs of, for example, Reston, Virginia and Tyson's Corner, Virginia in the national capital region around Washington, DC, in Coral Springs, Florida north west of Miami, in Plano, Texas north of Dallas, or in Santa Ana in the Los Angeles metro area.

Mixed income: This cluster is essentially a socially less homogenous counterpart to the sitcom cluster, with consistently lower incomes and rates of homeownership that are below the suburban average. Mixed income neighborhoods also have a higher incident of multi-family housing, occupying almost exclusively the original inner-ring suburbs of the larger metropolitan areas or the more modest smaller towns and cities that grew rapidly and affordably along the radial highways outwards from large urban cores. Next to affluent suburbs, these neighborhoods in the mixed income cluster mark the second important social ecology that emerges over the course of our sample period.

Only sparsely represented in 1960, mixed income suburbs were mainly found in small patches of the city peripheries in the Northeast and some westerns metros (San Francisco, Los Angeles and Portland). Growing rapidly until 1980 around previous concentrations of mixed income suburbs or converted from sitcoms, they are often located adjacent to central cities and affluent suburbs, where land use is more likely mixed and land prices are higher, but also in the outer suburbs enclosed by sitcoms.

Immigrants and minorities: This cluster encompasses census tracts that have both the lowest share of white residents and the highest proportion of foreign-born residents. Households in this cluster have the lowest average household income levels and homeownership rates that are substantially below the suburban average, with lower rates found only the renter/condo suburbs. The neighborhoods in this cluster are traditionally African-American and in 1960, they are generally not suburbanized and hardly present in the large immigrant gateways like New York City, but instead concentrated in the segregated communities in the South and West's distant suburbs, including Columbia and Charleston in South Carolina, Montgomery and

Columbus suburbs in Alabama, Shreveport in Louisiana, south and east of Phoenix, Indio and Stockton, California.

In the second half of our sample, the growth of immigrant and minority suburbs is remarkable. While previously mainly found in outer suburbs in the South and almost exclusively African-American, the immigrants and minority suburbs, began to develop a much higher share of foreign-born residents. Consistent with the well-documented shift of racial and ethnic groups into the suburbs (e.g. Teaford 2007), this cluster type increasingly included suburban immigrant communities and was emerging closer to central cities than affluent and sitcom suburbs. These ethnically diverse census tracts in the immigrant and minority cluster are mostly Latin or Asian and, in part, form suburban counterparts to the urban immigrant typology identified in Vicino, Hanlon and Short (2011).

Temporal changes across the typology

This section now turns to describe the dramatic post-war process of suburbanization (along with deindustrialization and social transformation) in terms of the above typology and its changing suburban social ecologies. As Figure 2 highlights, sitcom suburbs accounted for just over 70 percent of all suburban metropolitan tracts in 1960, but by 2000 this social ecology was found in less than one seventh of all tracts. Their trajectory of steep decline was only moderately slowed down during the last decade of our sample, largely a direct consequence of the beginning of the great housing boom. The decline of the sitcom suburbs was paralleled by the simultaneous emergence of mixed income and affluent suburbs. While the share of mixed income suburban neighborhoods grew steadily – peaking in 1990 – before stabilizing in 2000,

the share of affluent suburbs only began to rise sharply after 1980, reaching its peak in 2000. By the end of our sample, these two clusters represent the most important suburban social ecologies, jointly accounting – with almost identical shares – for just under percent 60 percent of all suburban tracts. The temporal trend of elite suburbs is very similar to that of the much more numerous affluent suburbs, growing at exceptional rates – albeit in admittedly small absolute numbers – from 1980 onwards. Elite suburbs were almost completely insignificant in 1960 (less than 1 percent of all tracts), and began to proliferate after 1980, just as the large rates of suburbanization of the previous decades began to level off. By 2000, these enclaves of the super-rich accounted for almost one in twenty of all tracts. Both renter/condo suburbs and immigrant/minority suburbs grew more moderately over the four decades since 1960, making up 12 percent and 11 percent respectively by the end of our sample period.

[Figure 2 about here]

Sitcom suburbs had defined the suburbanization process of U.S. cities for the first twenty years of the post-war period. Indeed, the stereotypically white, middle-class census tracts of mass-produced single-family houses were not only a large-scale cultural phenomenon, but – fuelled by a steadily increasing population and unprecedented economic growth – sitcom suburbs were also the predominant social ecology, at least until the early 1970s. However, the pre-eminence of this version of suburbia, perhaps tellingly, went into decline shortly after it reached its peak. Within two decades from accounting for 70 percent of all suburban census tracts, sitcom suburbs made up little more than one third of the social ecology of U.S. suburbs. By and large, it seems that the staunchly middle-class fabric of the sitcom suburbs was slowly being torn

apart by rising income polarization, giving way to either mixed income neighborhoods on the one hand or affluent suburbs on the other hand. This large-scale social (and physical) transformation of the suburban landscape raises warrants a closer look at the very different temporal trajectories of our six suburban ecologies.

[Table 6 about here]

In Table 6, we highlight another aspect of these changes by using state-specific transition probabilities to summarize the likelihood that a census tract in a given cluster in one period remains in the same cluster in the next period. Across our entire pooled sample, sitcom suburbs are the least likely of all clusters to remain the same from one decade to the next; for a census tract that belongs to the sitcom cluster, there is only a 58 percent probability that it will remain classified as sitcom in the following period. By contrast, the same stability probabilities for the other clusters, i.e. the probabilities along the main diagonal of table 6, are much higher and range from 76 percent (mixed income) to 93 percent (immigrant/minority).[6] By far the most likely transitions for a sitcom census tracts is to become classified either as mixed income (24 percent) or as affluent (15 percent). Only affluent suburbs that switch to elite suburbs have a similarly significant likelihood of change (13 percent) amongst all other possible period-to-period transitions in the ecology of our census tracts. Mixed income neighborhoods have a one in twelve chance to become either "gentrified" affluent suburbs or more densified renter/condo suburbs.

Metropolitan patterns of suburban spatial change

At the metro level, the patterns of suburban change suggests a nuanced picture of sequential change from a relatively uniform geography, dominated by sitcom suburbs, to one that contrasts the suburban ecologies on the coasts – both on the oceans and the Great Lakes – with those in the heartland. Indeed, the distinct regional differences in post-war suburban development patterns appear to reflect the increasing concentration of productivity and quality of life in proximity to the coasts (Rappaport and Sachs 2008). Figures 3 and 4 map the monumental changes in the suburban ecologies from 1960 to 2000 on both coasts.

[Figures 3 and 4 about here]

Coastal suburban change

In 1960, sitcom suburbs dominated the social landscapes outside the central cities of the rapidly growing metro areas both on the East Coast and the West Coast. Yet a greater degree of suburban diversity was already present in some of the larger coastal metros (Boston, New York, Philadelphia, Washington, DC, Chicago, San Francisco, and Los Angeles), with affluent and mixed income suburbs showing up in their inner rings, along with a few elite suburbs in outer districts. Nevertheless, the overall picture at the beginning of our sample is one of broad socio-economic homogeneity in the nation's suburbs: Almost 97 percent of all of suburban tracts were 90 percent or more white, while more than 80 percent of them had an average family income of around $50,000 dollars (in terms of 2000 purchasing power).

Forty years later, this suburban paradigm had dramatically changed, albeit in slightly different ways on opposite sides of the country: Along the corridor of "megacities" on the Eastern Seaboard – from Washington DC to Boston (and similarly in Chicago and Detroit, see Figure 5) sitcom suburbs were almost concentrically pushed into the outer suburban rings. The share of affluent suburbs grew around increasing nodes of suburbanized elite wealth and took a foothold outside the city centers as part of the larger process of rapid suburbanization.

[Figure 5 about here]

By contrast, western sitcom suburbs, in California in particular, became spatially much more fragmented than their eastern counterparts. As steady population flows, immigration and wealth accumulation redefined the suburban landscapes, the state's large economic contrasts found their spatial expression in the dissimilarities of a relatively fractured, multi-nodal suburban geography. From the Bay Area's wealthy Silicon Valley to the Central Valley's vast agricultural machinery and the large-scale distribution facilities of the Inland Empire, California's suburban homogeneity of the 1960 was replaced with a new suburban topography that reflects the polycentric mode of post-Fordist production. In San Francisco, sitcoms rapidly evolved into affluent suburbs and mixed income suburbs. In Sacramento and Salinas, sitcom suburbs faded into suburbs of immigrants and minorities. In southern California, sitcoms became mixed income or immigrants and minority suburbs. Much less spatially linear than the changes of their East Coast counterparts, West Coast sitcom suburbs saw a sharper decline, largely as the proportion minority and immigrant suburbs rose to over 20 percent, twice the national average, in 2000.

Despite these regional nuances, the transformation of the suburban ecologies of metros on the coasts proceeded in a number of distinct, common stages from 1960 to 2000. First, intensive suburban growth in the 1970s saw both the addition of sitcom suburbs to their peripheries, but also began to reflect internal ecological change, with some older sitcom suburbs turning into either mixed income or affluent suburbs, and some affluent suburbs turning into elite suburbs. Second, a decade later, coastal metros underwent their most dramatic changes as extensive districts of sitcom suburbs began to give way to the other five types of suburbs on a large scale. Vast areas that had previously been beyond the metro boundaries were now developed into tracts of every suburban type except sitcoms. In a third stage, the large coastal metros, including the Washington DC-Baltimore-Philadelphia-New York City-Boston megalopolis, Seattle-Tacoma, San Francisco, Los Angeles-San Diego, developed distinctive quasi-concentric patterns around their central cities. Inner-ring suburbs became mostly sectors of mixed income, renters/condo and immigrant/minority suburbs, along with some elite and affluent neighborhoods. Simultaneously, middle-ring neighborhoods became affluent suburbs, and peripheral districts were still comprised largely of sitcom suburbs surrounded by mixed income suburbs. Immigrants and minorities and mixed income suburbs also appeared in peripheral districts, around the mixed land use nodes of edge cities and boomburbs.

Suburban spatial change in the "heartland"

In contrast to the striking changes on the coasts, the transformation of the heartland metro areas was more subtle and spatially more segregated into sectors, rather than concentric rings. By 1970, the overall pattern in the heartland was still dominated by sitcom suburbs, but affluent and mixed income suburbs had begun to develop in immediate adjacency to the central cities. In parallel, sectors of mixed income and immigrant and minority suburbs emerged along with

sitcom suburbs in newly-developed peripheral tracts. Overall, the smallest heartland metros experienced the least transition, broadly maintaining a basic central city/sitcom suburb pattern. In many smaller heartland metros, particularly in the South, the spatial legacy of racial segregation remained largely intact as these metro areas continued to exhibit predominantly sectorial patterns (for example, Little Rock, Arkansas; see Figure 6). At the same time, some of the larger heartland metros – including Indianapolis, Indiana; Kansas City, Missouri-Kansas, and St Louis, Missouri – also increasingly began to gravitate towards quasi-concentric suburban patterns similar to those of the large coastal metros.

[Figures 6 and 7 about here]

Suburbanization and the dynamics of suburban change

By the end of our sample, the bi-coastal/heartland cleavage in terms of the patterns of suburban social ecology had been substantially modified along groups of metropolitan areas that varied by size and coastal proximity. Given these national temporal trends, this section will now analyze how the spatial patterns of changing ecologies at the metropolitan level reveals additional insights into a regionally nuanced process of suburban change.

The rise and decline of the sitcom suburb across metro areas

At the level of individual metropolitan areas, Table 7 summarizes the rise and decline of sitcom suburbs across mid- to large-sized U.S. cities (with a population of at least 750 thousand people). We focus on the twenty-five metro areas that saw the largest percentage change in the

number of census tracts that are classified as sitcom suburbs in a given decade. The top portion of Table 7 confirms that sitcom suburbia saw the most substantial gains between 1960 and 1970, a period during which the nation experienced the largest jump in its overall suburban population.[7] From Virginia-Beach to Detroit and Atlanta, the combination of double-digit population growth (column 7) and a relatively rapidly changing share of suburban population (columns 5 and 6) went hand-in-hand with significant increases in the relative share of sitcom census tracts (column 2). For many of these growing cities, more sitcom suburbs also translated into more mixed income suburbs. By 1970, sitcom suburbia had reached its climax in most of the US, except for southern cities like Atlanta, Georgia, Charlotte, North Carolina, Lexington, Kentucky and Memphis, Tennessee. Southern sitcom suburbs did not peak until 1980, lifted by a period of manufacturing-led regional growth that originated in the aggressive lobbying for right-to-work legislation during the 1970s.

[Table 7 about here]

Once the process of suburbanization had broadly stabilized around 1980, the suburbs in many metro areas began a remarkable process of socio-economic transformation. Over the course of the following two decades, suburban America would fundamentally shed its stereotypical sitcom character. Throughout this adjustment period, many of the same cities that had seen the biggest percentage gains in their share of sitcom suburbs would begin to lose their sitcom sceneries at almost the same pace. Unlike the rise to their peak over the previous two decades, the steepest part of the decline of sitcom suburbs was much less synchronous across the metropolitan landscape. Although there were isolated precursors in the West and the declining suburbs of the Rust Belt in 1970 (e.g. in Riverside, California MSA in the Inland Empire and in

Pittsburgh and Philadelphia, Pennsylvania), the first big wave of this development gathered momentum in the sprawling subdivisions of major cities of the western Sunbelt in 1980 (San Jose, California; San Diego, California; Dallas, Texas). A decade later, sitcom suburbs were experiencing their largest decline in the rest of the Sunbelt, in smaller cities of the Midwest (Kansas City, Missouri-Kansas; Columbus, Ohio) and New England (New Haven, Connecticut; Hartford, Connecticut). By the final decade in our sample period, the dramatic double-digit percentage drop in sitcom shares had leveled off somewhat, for the most part moderated by the beginning of the great housing boom during the late 1990s.

A number of stylized facts emerge from looking at the changing suburban ecologies at the metropolitan level. First, and perhaps most important, the decline of sitcom suburbs is not simply the symmetrical analog of their rise. Instead, it reflects a profound change in the socio-economic fabric of the post-war US cities. Second, the duration of the "sitcom cycle" is characterized by large amounts of local heterogeneity in terms of its intensity (amplitude), i.e. how much of the suburban growth became sitcom, and in terms of its duration (frequency), i.e. the time between peak sitcom growth and their steepest decline. For example, the boomtown sitcom suburbs in Virginia Beach, Virginia and Charlotte, North Carolina experienced some of the highest overall rates of growth and decline within a decade (albeit with a ten year delay of each other), whereas the transformation of the sitcom typology in the shrinking legacy cities of Cleveland, Ohio, Detroit, Michigan and Pittsburgh, Pennsylvania proceeded at a much lower amplitude and a lower frequency, taking thirty years from peak to trough. Figures 6 and 7 document the spatial patterns of sitcom change for a selection of the cities discussed above. Third, there is a close connection between change in the social ecologies of U.S. suburbs and the joint processes of urban growth and suburbanization. Overall, we find that the change in the

share of the suburban population is a statistically significant predictor for different social ecologies. With regard to sitcom suburbs, there is a positive relationship between the prevalence of the sitcom cluster typology and the rate of suburbanization. [8]

The social ecologies-suburbanization nexus across space and time

The previous section has revealed how the U.S. post-war experience of rapid urban growth – accompanied by large increases of the suburban population – also tended to be associated with large changes in the share of a city's sitcom suburbs. The nature of this relationship itself, however, has undergone fundamental changes over the course of our sample period. Figure 8 illustrates how the gradient of this trend has gradually shifted out and flattened over the course of our forty year sample. From 1960 to 1980, there is a statistically significant association between the role of sitcom suburbs and the process of suburbanization, whereby a 10 percent increase in the share of the suburban population would correspond to a 4.5 percent growth in the presence of sitcom suburbs.

[Figure 8 about here]

Staying approximately constant during the first part of the sample, the top panel of Figure 8 also demonstrates that this relationship shifted to the right of the origin from 1970 to 1980. This implies that at lower levels of rates suburbanization (below a rate of 25 percent per decade, or equivalently, 2.3 percent per annum), the share of sitcom census tracts in a given city would actually fall. There are no significant regional differences in this link between suburban

growth and the rise of sitcom suburbs as is evidenced by the relatively narrow of dispersion of cities along the trend line in the scatter plot in the upper portion of Figure 8. As the suburban typology matured, higher speeds of suburbanization were required in 1980 relative to 1970 to yield the same increase in the number of suburban census tracts that are classified as "sitcom".

By the second half of our sample, this connection between the relative importance of sitcom suburbs and flatter density gradients (i.e. suburbanization) seems to lose most of its statistical significance. In 1990 and 2000, there is only a mild association between the change in a metropolitan area's share of sitcom suburbs and how fast its suburban population rises relative to the population of its central cities, as shown in the lower panel of Figure 8. However, the apparent break-down of the sitcom-suburbanization linkage at the national level belies more subtle regional nuances. Once we account for regional effects, the sitcom-suburbanization relation is statistically significant once more, albeit much more muted compared to the first half of the sample; as before, its marginal effects are virtually identical in subsequent decades, but for 1980 and 2000 a 10 percent increase in the share of the suburban population now only corresponds to a 0.8 percent growth in the proportion of sitcom suburbs.

Yet, depending on the region, the change in the level of suburbanization at which the growth in the proportion of sitcom suburbs turns from positive to negative varies significantly. In other words, assuming that there is no change in the proportion of the suburban population from one decade to the next, there are large regional differences among metro areas whether this would cause sitcom suburbs either to grow or to decline. In the booming cities of the western Sunbelt and in Florida where the enchantment with sitcom suburbia held sway, our simple model predicts that the growth of sitcom suburbs could have even been sustained even at declining rates of suburbanization. In most other regions by contrast, the fraction of people living in the suburbs

would have to have grown at double digit rates each year between 1980 and 2000, if sitcom suburbs were not to decline in terms of their relative importance of the social ecology. Instead, of course, the actual rates of suburbanization slowed down dramatically during the second half of our sample, hovering around zero or even turning negative by 2000. Indeed, the largest declines in the share of sitcom suburbs largely occurred in metro areas where the bulk of the population growth took place in the center cities (i.e. where the suburban share change turned negative. See column 6 in Table 7). Over all thus, the large decline in sitcom suburbs appears to be a direct consequence of the slow-down in suburbanization by the 1980s. Consequently, metropolitan areas where suburbanization increased as part of the building boom at the beginning of the great housing boom between 1990 and 2000 – for instance in Florida, Arizona, Nevada and southern California – also saw a resurgence or revival of the sitcom suburb.

Conclusion: Towards a model of spatial change

Emblematic sitcom suburbs were once the most wide-spread socio-economic and physical landscapes associated with middle class and American dream. Driven by the strong manufacturing economy, mass consumption and a growing system of mortgage credit, they flourished after WWII and sprawled rampantly into greenfields. Using pooled data of the entire universe of U.S. metropolitan areas from 1960 to 2000, we identify a typology of six suburban types with which we then assemble a portrait of post-war suburban change. One of the central features of this picture is the long process of a fading of the stereotypical sitcom suburbs from the fabric of suburbia. This process was in full swing by the 1970s and, by the end of our sample, the homogeneous sitcom suburbs of the early post-war years had given way to complex social ecologies with enormous diversity. In 1960, the uniform landscapes of suburban census

tracts was unparalleled in that 83 percent of households earned around $50,000 dollars and nearly 97 percent of suburban neighborhoods had a population that was at least 90 percent white. By 2000, this homogeneity and equality had fundamentally changed with those two statistics dropping to 63 percent and 80 percent, respectively. Overall, sitcom suburbs were the least likely of all clusters to remain the same from one decade to the next; maintaining an average probability of less than 60 percent that they will remain classified as sitcom in the following period. Once the dominant social ecology, sitcom suburbs have become marginal spaces where less than fourteen percent of all suburbanites lived in 2000.

However, this general process of suburban change did not evolve uniformly across time or space. Nor was its level of transformation equal in strength across regions. The large cities on the coasts of the northeast and the southwest led the movement as loci of change as early as 1960, developing a quasi-concentric suburban typology by 1980. The heartland's bigger metros followed this trend and evolved into similar patterns by 1990. Suburbs in the non-coastal smaller cities seemed to react most slowly, largely developing social ecologies along distinct sectorial patterns. We also find that the decline of sitcom suburbs is not simply the symmetrical analog of their rise. Indeed, the duration of the "sitcom cycle" is characterized by large amount of local heterogeneity in terms of how much of the suburban growth became sitcom, and in terms of the time between peak sitcom growth and their steepest decline. We document that there is a close connection between change in the social ecologies of U.S. suburbs and the joint processes of urban growth and suburbanization. In the case of sitcom suburbs, we find that the relative importance of the sitcom cluster typology and the rate of suburbanization are positively related. Despite large local variation and distinct patterns of change within the metropolitan hierarchy,

the large decline in sitcom suburbs appears to be a direct consequence of the slow-down in suburbanization by the 1980s.

The fact that our sample ends in 2000 gives rise to a natural starting point for future work which could extend our exercise to include data from the most recent decennial census. As our work only captures the beginning of the great housing boom, one of the most imminent questions to address would be how the bursting of the housing bubble – and its far reaching economic consequences – have affected the spatial distribution and socio-economic transformation. As the nation grew by 9.7 percent from 2000 to 2010, inner suburbs in the 50 largest metropolitan areas increased by 11.3 percent and have become more city-like. At the same time, the surge in house prices and development of ever cheaper land on the suburban periphery has led to moderate upticks in the suburbanization rates. Our analysis suggests that this might have also triggered some form of a revival of the sitcom suburb. Judging by the iconic images of the housing bust – from the unfinished cookie-cutter homes in half-developed subdivisions to a sea of foreclosure signs along rows of mass-produced single family homes – there does not appear to be any shortage of pictorial evidence that sitcom suburbs made somewhat of a comeback. To what extent and where this rehabilitation might have actually occurred in the sense of our suburban typology, and to what extent it might have been cut short by the housing crisis is left to future work.

Notes

[1] Our set of clusters appears consistent with other work that documents the post-war transformation of U.S. suburbs, both in terms of the structure of clusters that emerge from the data and in terms of their broad socio-economic characteristics (e.g. Mikelbank 2004 or Vicino, Hanlon and Short 2007). As further support for the plausibility of our results, we discuss a series of robustness checks to our model specification in Section 3.

[2] In 2003, a new standard of "principal cities" for metropolitan areas was developed by the U.S. Bureau of the Census; however, it is difficult to capture central city-suburb differences using this definition.

[3] For 1960 and 1990, both data sets contain place identifiers for central cities of SMSAs. In 2000, NCDB provides a variable indicating the percentage of the tract population who were living in the central city. For the 1980 data, a single character code indicating the type of place where the tract is located is provided by NCDB data. Due to limitations of the data, the boundaries of central cities for 1970 are taken as identical to those of 1960.

[4] Details of our k-means analysis, including the sequence of clustergrams that determined the number of clusters, are relegated to the appendix. More detailed results are available upon request from the authors.

[5] We use the term "heartland" in its conventional sense to mean the non-coastal metropolitan areas of the Midwest, the non-Atlantic South and the Mountain West.

[6] The fact that immigrant and minority suburban neighborhoods appear the least likely to be subject to social change is consistent with spatial discrimination and the lack of access to

economic opportunity in these neighborhoods. This adds further evidence to a large literature on urban desegregation efforts and the policy challenges of spatially de-concentrating poverty (e.g. Dawkins 2003).

[7] No other period in US urban history has seen similar suburban growth, both in absolute terms (adding around 39 million people) and as a relative share (increasing the share of the suburban population by just over 57 percent).

[8] We run different specifications of a simple fixed-effects panel regression with the share change of sitcom suburban tracts (*d_subshare*) as the dependent variable and the change in the share of suburban population plus a number of city-level controls, such as city size and region. The coefficients on *d_subshare* are highly significant and always positive across different models. The results are not reported here, but are available from the authors upon request.

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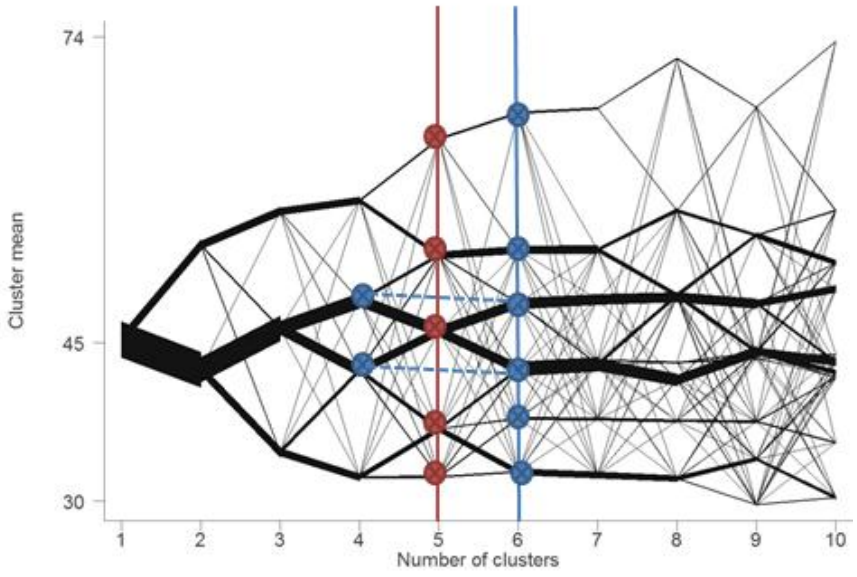
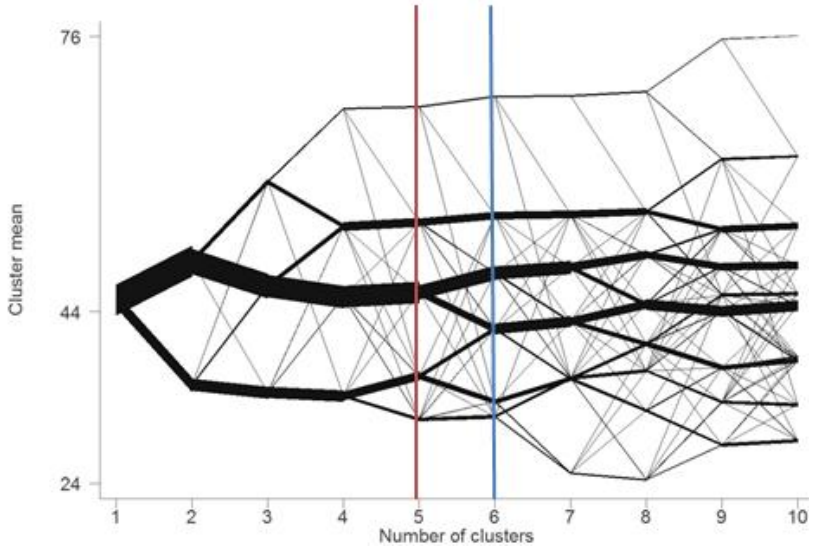
Appendix

Visualization and cluster selection

In hierarchical cluster analysis dendrogram graphs are used to visualize how clusters are formed. However, for non-hierarchical cluster algorithms such as *k*-means clustering a graph like the dendrogram does not exist. Following a visualization technique introduced by Schonlau (2004), we compute a clustergram for our pooled data of socio-economic variables indicates instability of *k*-means clustering algorithm in JMP between 4 to 6 clusters (top panel of Figure A-1).

Figure A-1: Visualisation of Clusters via Clustergram





Cross-validation in Stata (bottom panel) highlights the emergence of a sixth cluster that remains stable across higher-order specifications. This becomes our preferred specification for our typology of social ecologies.

In this instance, the results of Ben-David et al. (2007) who argue against stability tests on asymptotic grounds do not directly carry through within the finite sample setting of our data.

Tables

Table 1: Geographic sample characteristics

Year	*Population (millions)*				*% of total population*			*Tracts*			
	Total	*Suburban*	*Urban*	*Rural*	*Suburban*	*Urban*	*Rural*	*Suburban*	*Urban*	*Counties*	*MSAs*
1960	179.3	50.1	51.3	77.9	27.9%	28.6%	43.4%	10,270	11,951	423	175
1970	203.2	89.0	49.6	64.6	43.8%	24.4%	31.8%	19,524	12,354	643	238
1980	226.5	112.5	70.8	43.2	49.7%	31.2%	19.1%	24,242	15,959	729	318
1990	248.7	124.0	68.6	56.1	49.9%	27.6%	22.6%	26,199	18,471	843	284
2000	281.4	140.3	85.6	55.5	49.8%	30.4%	19.7%	29,332	21,840	1,090	276
Total								109,513			

Table 2: List of variables and descriptions

Variable	*Description*
White	Percentage of white population
MarriedKid	Percentage of married couples with children under 18
ForBorn	Percentage of population who are foreign born
HighEdu	Percentage of Persons 25+ years old who have a bachelors or graduate/professional degree
Old	Percentage of persons over 65 years old
HomeOwner	Homeownership rate
SigFamHouse*	Percentage of total housing units consisting of 1 unit, detached
AveFamInc(K) **	Average family income (thousand dollars)

* For 1960 data, we use the percentage of total housing units consisting of 1 unit due to data limitations.

** Average family incomes of 1960, 1970, 1980 and 1990 have been converted to 2000 current dollars using Consumer Price Index (CPI) conversion factors.

Table 3: Descriptive statistics of suburban characteristics by region

	Nation						*Census Region (2000, change since 1960)*							
	1960			*2000*			*Northeast*		*Midwest*		*South*		*West*	
	Mean	Std	IQR	Mean	Std	IQR	Mean	Chnge	Mean	Chnge	Mean	Chnge	Mean	Chnge
Whites	94.06	15.34	2.81	82.03	20.53	20.02	87.54	-9.3%	89.82	-6.0%	78.81	-10.1%	72.89	-22.6%
MarriedKid	52.08	13.83	17.62	27.80	10.34	12.60	26.76	-47.4%	28.04	-47.0%	26.84	-50.4%	29.99	-41.3%
ForBorn	5.52	4.76	5.51	10.19	11.93	10.64	9.25	16.5%	5.34	25.2%	9.02	283%	17.61	178%
HighEdu	20.01	13.97	17.22	26.24	16.94	36.01	29.40	61.3%	26.19	33.6%	24.29	22.2%	25.66	12.1%
Old	7.84	4.60	5.42	12.70	7.88	7.60	14.67	62.0%	12.47	63.8%	12.63	88.8%	10.95	46.9%
HomeOwner	71.58	20.64	23.59	73.19	19.55	24.31	73.03	2.5%	77.73	2.5%	74.22	5.3%	67.41	-0.8%
SingFamHouse	83.38	23.59	11.98	67.22	23.60	31.92	65.49	-16.0%	73.03	-14.3%	65.86	-26.7%	65.17	-21.6%
Inc	45.00	14.40	14.41	72.36	33.64	31.05	79.35	70.9%	73.88	56.7%	66.05	63.9%	72.16	62.5%

Table 4: Cluster characteristics (means)

Cluster name	*Cluster*	*White*	*MarriedKid*	*ForBorn*	*HomeOwner*	*SigFamHouse*	*HighEdu*	*Old*	*AveFamInc(K)*
Sitcom suburbs	5	95.11	45.44	3.65	82.56	87.37	13.71	8.33	51.69
1960		96.82	56.63	4.43	79.13	93.82	17.94	6.72	43.21
1970		96.56	51.49	3.16	80.68	87.03	9.94	6.93	52.37
1980		94.33	42.20	3.51	84.91	84.49	13.60	8.40	51.16
1990		94.20	35.88	3.15	84.06	85.22	14.07	10.59	55.89
2000		91.60	31.47	4.54	85.72	86.72	15.80	11.43	59.83
Elite suburbs	3	91.74	34.54	10.64	86.09	81.42	59.88	13.47	174.45
Affluent suburbs	4	91.83	36.48	7.54	84.48	81.67	38.79	10.65	89.91
Renter/condos	1	82.87	22.99	14.1	37.03	23.90	22.30	12.87	52.05
Mixed income	2	91.65	28.39	5.64	68.20	61.38	15.27	13.54	50.68
Immigrant/minorities	6	31.82	28.29	14.13	56.85	59.89	10.51	9.29	43.20
Pooled sample average		87.28	34.96	7.09	71.62	69.40	20.44	10.91	60.85
1960		94.06	52.08	5.52	71.58	83.38	20.01	7.84	45.00
1970		92.61	44.89	4.52	70.96	73.21	12.68	8.56	55.12
1980		88.61	34.79	5.89	71.87	68.35	17.97	10.32	53.43
1990		85.37	29.04	7.27	70.17	64.52	22.16	12.39	65.32
2000		82.03	27.80	10.19	73.19	67.22	26.24	12.70	72.36

Table 5: Distributional changes across clusters

	Suburban	Sitcom suburbs		Elite suburbs		Affluent suburbs		Renters/Condo		Mixed income		Immigrant/ minority	
		Pop	*Share*	Pop	*Share*	Pop	*Share*	Pop	*Share*	Pop	*Share*	Pop	*Share*
1960	50.1	35.3	*70.5%*	0.0	*0.0%*	3.2	*6.5%*	3.9	*7.8%*	5.7	*11.4%*	1.9	*3.8%*
1970	89.0	48.9	*55.0%*	0.8	*0.9%*	7.8	*8.8%*	8.8	*9.9%*	18.7	*21.0%*	4.0	*4.5%*
1980	112.5	44.8	*39.8%*	0.7	*0.6%*	12.4	*11.0%*	1.0	*11.6%*	34.8	*30.9%*	6.9	*6.1%*
1990	124.0	25.4	*20.5%*	3.7	*3.0%*	26.2	*21.1%*	18.2	*14.7%*	40.4	*32.6%*	10.1	*8.1%*
2000	140.3	19.2	*13.7%*	6.9	*4.9%*	41.6	*29.7%*	16.6	*11.8%*	41.2	*29.4%*	14.7	*10.5%*

Table 6: Transition probabilities across clusters

		To cluster state						
		Sitcom	*Elite*	*Affluent*	*Renters/ condos*	*Mixed income*	*Immigrant/ minority*	Total
From cluster state	Sitcom	**57.79**	0.03	15.46	0.61	23.9	2.21	100
	Elite	0.18	**86.99**	11.74	0.72	0.18	0.18	100
	Affluent	1.10	13.08	**81.20**	0.98	2.66	0.99	100
	Renters/condo	0.14	0.83	1.92	**87.08**	3.15	6.88	100
	Mixed income	2.20	0.10	8.11	8.45	**75.67**	5.48	100
	Immigrant/minority	1.30	0.03	0.57	2.16	3.26	**92.67**	100
		22.3	3.86	20.07	13.51	31.47	8.78	100

Table 7: Rise and decline of the sitcom suburbs across US cities

MSA	*Year (1)*	*Sitcom change† (2)*	*Mixed income change† (3)*	*Affluent change† (4)*	*Suburban share‡ (5)*	*Suburban share change (6)*	*Decennial population growth (7)*	*MSA population (000s) (8)*
*25 sitcom suburbs with largest gains**								
Virginia-Beach, VA-NC	1970	53.80%	12.50%	6.70%	56.70%	79.20%	49.60%	1,097.1
Houston, TX	1970	52.40%	8.70%	0.90%	40.10%	86.40%	37.50%	2,201.8
Dayton, OH	1970	50.40%	16.80%	6.60%	71.90%	147.00%	17.20%	852.5
Portland, OR-WA	1970	50.00%	23.00%	6.30%	62.80%	15.60%	22.70%	1,081.9
Birmingham-Hoover, AL	1970	39.50%	3.70%	0.00%	53.80%	48.60%	2.60%	833.1
New Orleans, LA	1970	38.20%	18.60%	1.00%	40.90%	64.70%	16.10%	1,125.1
Cincinnati, OH-KY-IN	1970	37.30%	17.50%	0.50%	62.90%	117.80%	9.60%	1,692.6
San Antonio, TX	1970	30.60%	12.90%	3.20%	24.30%	95.20%	19.50%	951.8
Rochester, NY	1970	29.40%	19.00%	5.60%	61.30%	83.30%	20.10%	961.5
Memphis, TN	1980	25.70%	7.10%	7.10%	33.10%	7.60%	9.50%	997.8
Charlotte, NC	1980	25.40%	27.10%	-0.80%	70.90%	96.60%	15.40%	855.5
Columbus, OH	1970	24.50%	20.00%	3.60%	37.40%	72.30%	19.70%	1,170.8
Indianapolis, IN	1970	21.90%	21.30%	-0.60%	67.60%	131.80%	17.50%	1,147.3
Dallas, TX	1970	21.60%	10.80%	2.20%	47.40%	40.30%	36.40%	2,424.1
Detroit, MI	1970	20.70%	10.10%	5.40%	62.50%	17.90%	12.30%	4,435.1
Phoenix, AZ	1970	20.70%	28.90%	2.20%	50.30%	33.80%	43.20%	1,039.8
Sacramento, CA	1970	20.60%	24.60%	3.20%	73.50%	50.10%	29.40%	847.6
Minneapolis, MN-WI	1970	20.30%	16.00%	6.00%	53.00%	27.50%	23.10%	2,026.9

Kansas City, MO-KS	1970	17.80%	13.10%	1.90%	80.70%	23.20%	13.50%	1,437.2
Louisville, KY	1980	17.30%	17.30%	1.40%	62.30%	13.20%	6.40%	1,053.7
Denver-Aurora, CO	1970	16.80%	14.40%	13.20%	57.90%	30.90%	28.70%	1,118.6
Cleveland, OH	1970	16.20%	9.40%	2.70%	62.50%	29.60%	9.10%	2,320.6
Columbus, OH	1980	14.50%	19.50%	5.00%	65.50%	74.90%	8.50%	1,270.3
Atlanta, GA	1980	14.20%	12.60%	2.40%	71.30%	36.90%	26.40%	2,327.0
Seattle, WA	1970	14.20%	16.90%	6.70%	62.30%	62.00%	28.60%	1,837.0
*25 sitcom suburbs with largest losses**								
Charlotte, NC	1990	-33.7%	25.0%	3.8%	48.4%	-31.7%	19.7%	1,024.1
Hartford, CT	1990	-29.8%	-6.6%	39.2%	66.7%	3.1%	6.9%	1,124.7
Kansas City, MO-KS	1980	-29.4%	7.0%	1.3%	61.4%	-23.9%	4.7%	1,504.2
Indianapolis, IN	1980	-29.3%	-2.4%	3.3%	49.7%	-26.4%	5.3%	1,208.1
San Diego, CA	1980	-28.2%	9.9%	6.1%	59.4%	-6.4%	37.1%	1,861.8
Virginia Beach, VA-NC	1980	-27.8%	-2.8%	-9.7%	27.1%	-52.0%	10.0%	1,207.6
Albany, NY	1990	-26.0%	4.7%	21.3%	68.6%	3.0%	5.0%	809.3
New Haven, CT	1990	-25.0%	-2.1%	24.0%	56.6%	12.7%	5.6%	804.2
Dayton, OH	1990	-24.7%	2.0%	13.3%	74.2%	-10.0%	1.7%	843.8
Sacramento, CA	1980	-24.1%	19.9%	2.8%	71.7%	-2.5%	29.8%	1,099.8
Jacksonville, FL	1990	-23.8%	7.1%	11.9%	29.3%	8.2%	25.4%	925.2
San Jose, CA	1990	-23.2%	-32.5%	-3.3%	46.2%	-45.6%	16.2%	1,534.3
Indianapolis, IN	1990	-22.8%	1.0%	3.0%	39.4%	-20.6%	7.1%	1,294.2
Orlando, FL	1990	-22.3%	7.0%	8.9%	73.9%	-7.2%	52.2%	1,224.8
Columbus, OH	1990	-22.2%	2.3%	-0.6%	50.6%	-22.7%	10.6%	1,405.2
Birmingham, AL	1990	-21.9%	22.6%	5.5%	68.0%	-4.8%	2.8%	956.7
Oklahoma City, OK	1980	-20.7%	12.6%	3.7%	54.9%	0.4%	20.3%	871.8
San Antonio, TX	1990	-20.3%	14.9%	4.1%	25.9%	-22.7%	21.9%	1,407.7
Tulsa, OK	1990	-20.2%	33.7%	2.2%	52.4%	92.1%	6.9%	761.0

Los Angeles, CA	1980	-20.0%	-0.5%	6.6%	61.5%	-4.4%	11.2%	9410.2
Dallas, TX	1990	-19.6%	10.7%	16.6%	61.1%	-3.0%	32.2%	3,989.3
Louisville, KY	2000	-19.6%	-2.7%	12.8%	61.3%	-5.5%	10.0%	1,162.0
Bridgeport, CT	1990	-18.8%	-3.8%	10.5%	65.5%	31.7%	2.5%	827.6
Riverside, CA	1980	-18.6%	9.8%	2.6%	87.2%	1.7%	36.8%	1,558.2
Riverside, CA	1970	-18.1%	28.0%	1.6%	85.7%	4.9%	40.7%	1,139.1

* Notes: All changes are decennial changes. MSA boundaries correspond to those definitions used in a given decennial census. † Changes indicate the percentage change in the share of suburban census tracts classified as "sitcom", "lower income/mixed" and "affluent" from one decade to the next. ‡ Suburban share is the percentage of the total metropolitan population living outside the central city as defined by the Office of Management and Budget.

Figures

Figure 1: Boxplot of key variables by cluster

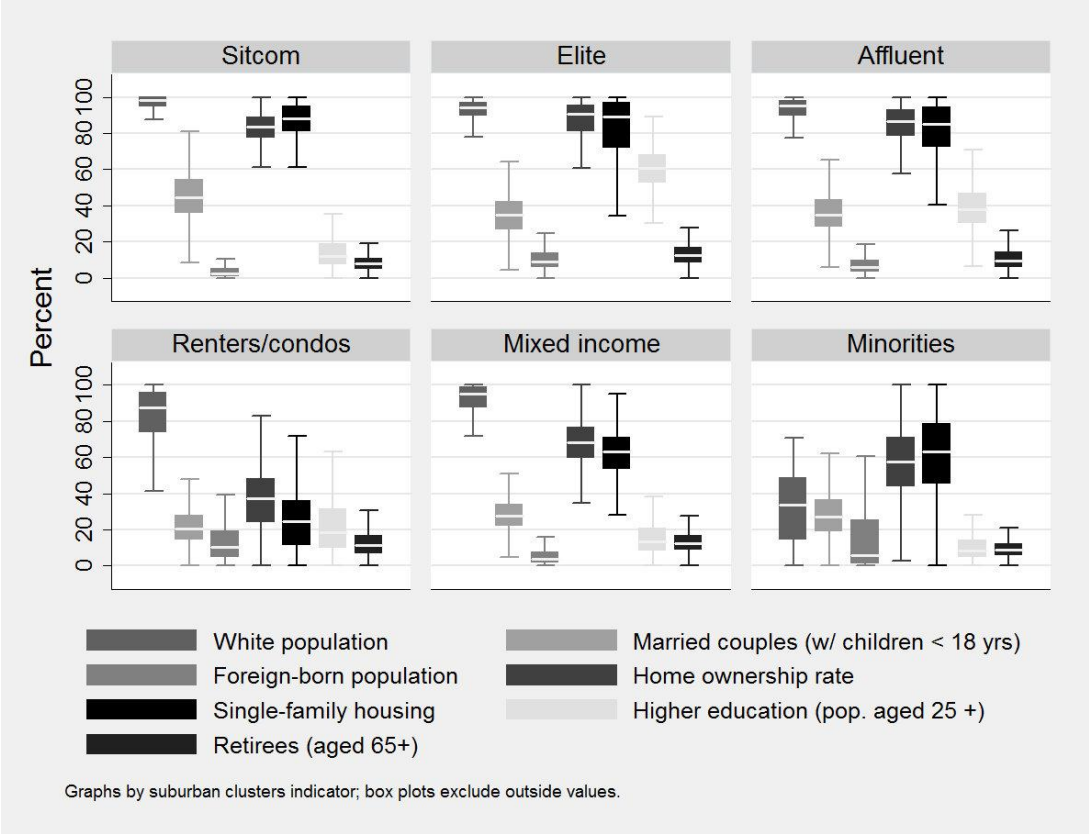


Figure 2: Changes in the Percentage of Tracts of Clusters

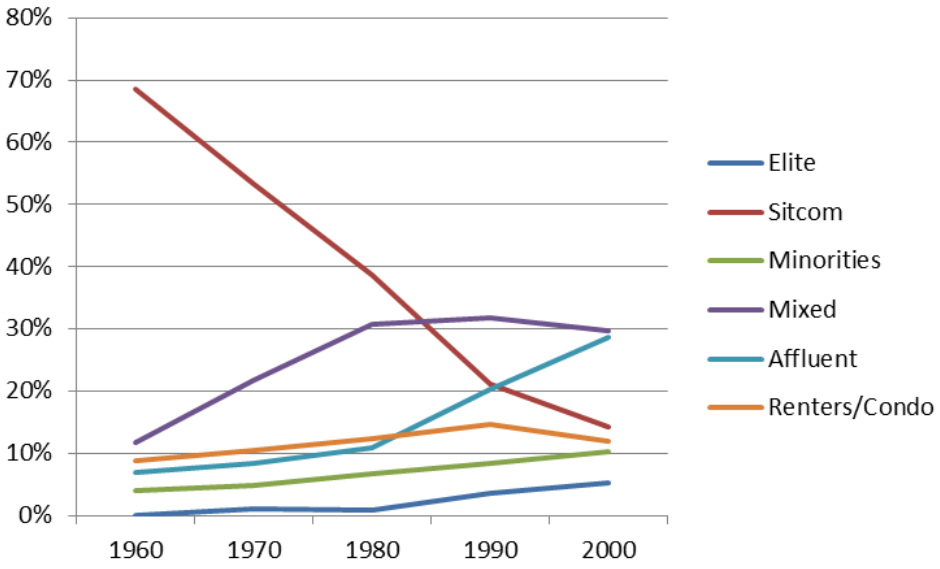
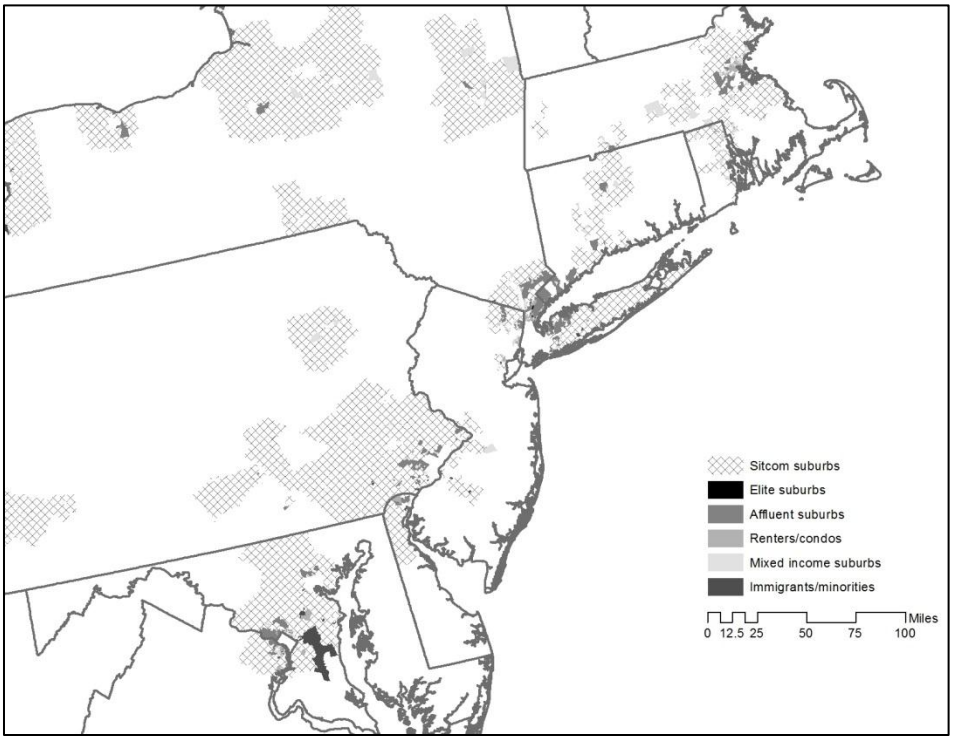


Figure 3: Eastern Seaboard, 1960 and 2000



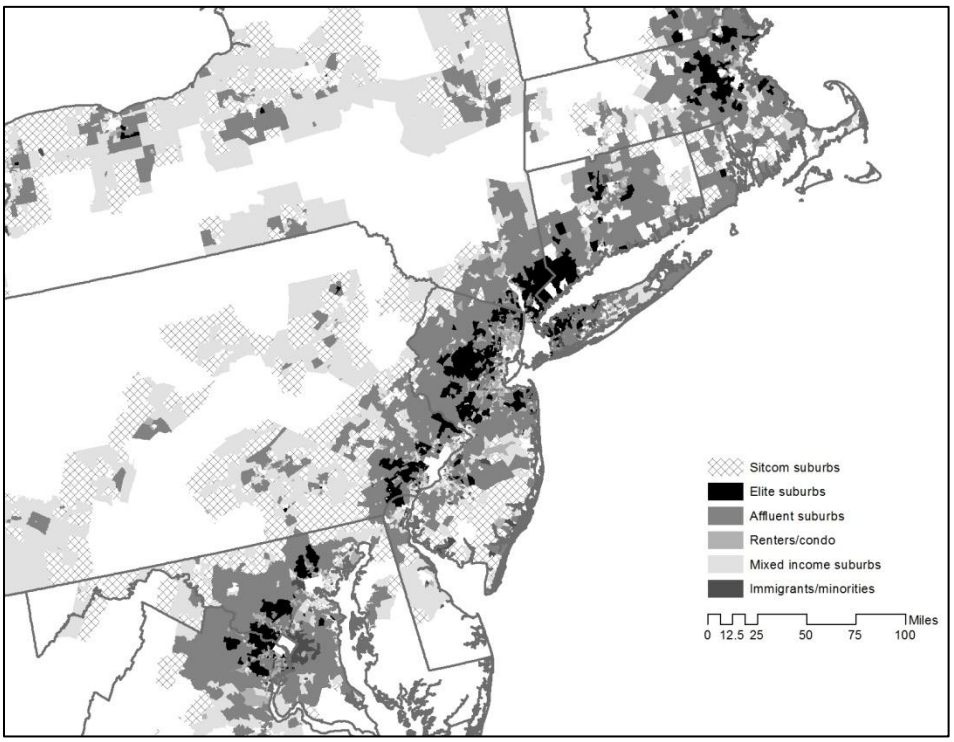
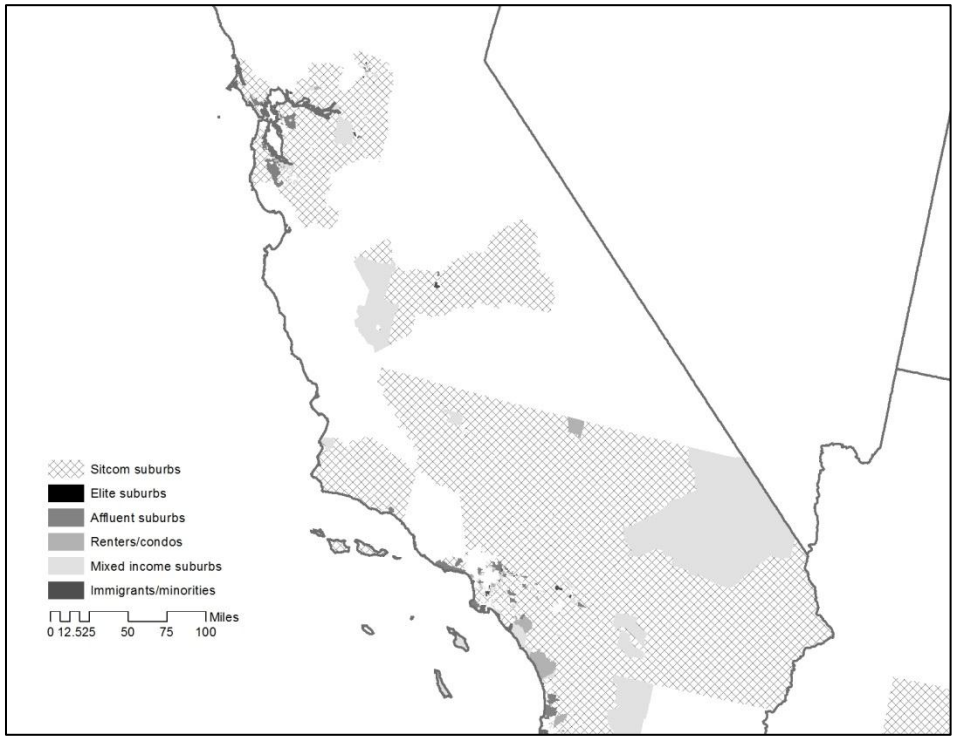


Figure 4: Bay Area and Southern California, 1960 and 2000



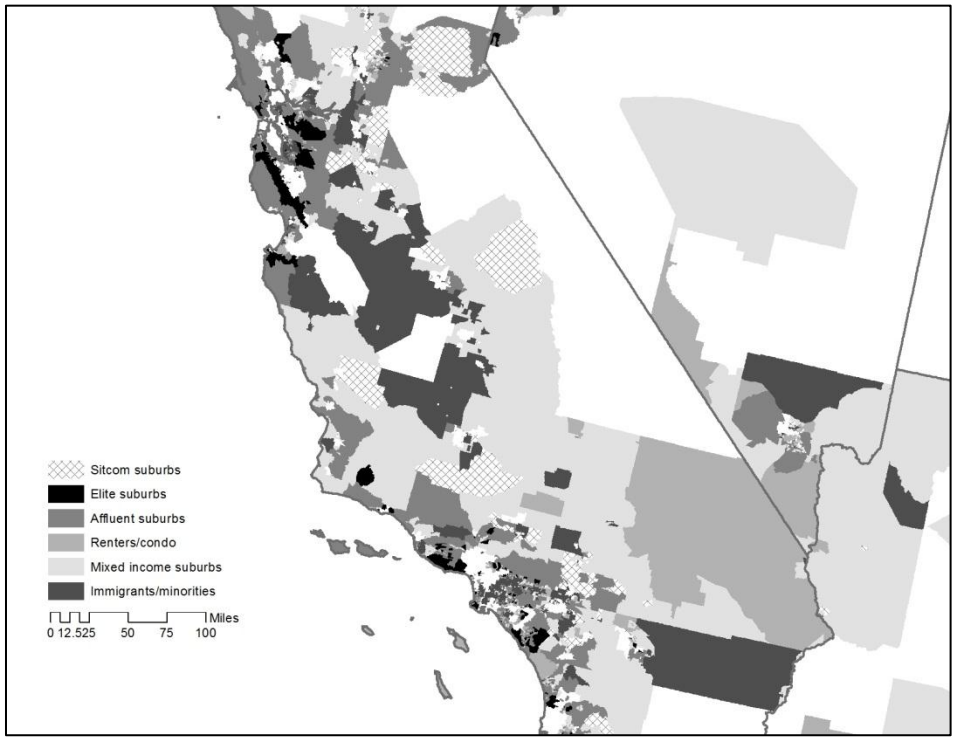
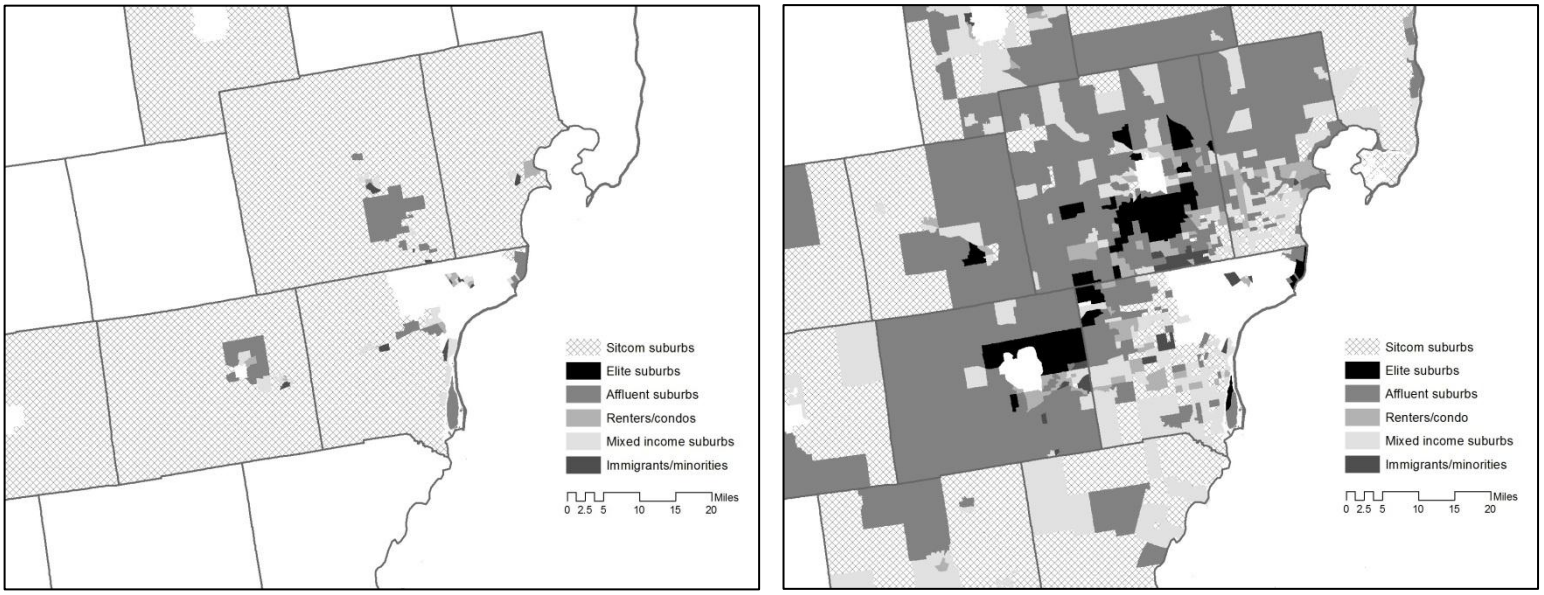


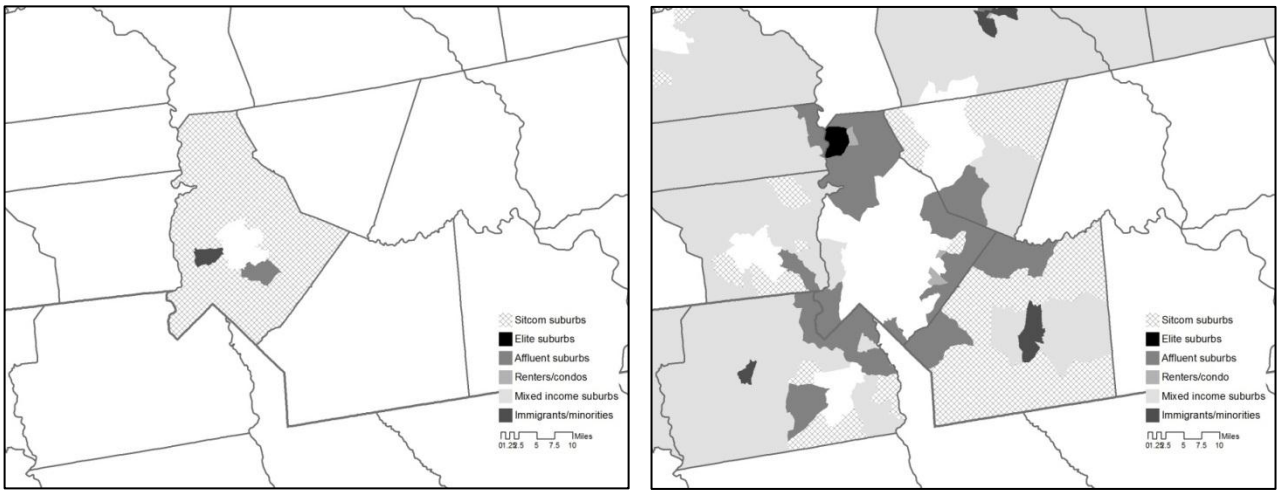
Figure 5: Midwest, 1960 and 2000

(a) Chicago, IL



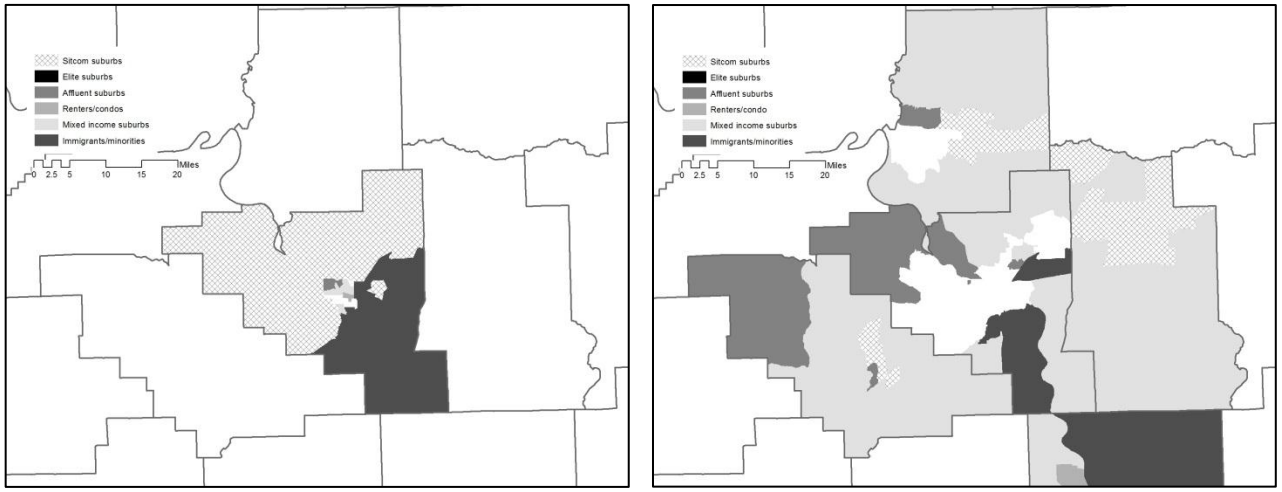
(b) Detroit, MI

Figure 6: South, 1960 and 2000



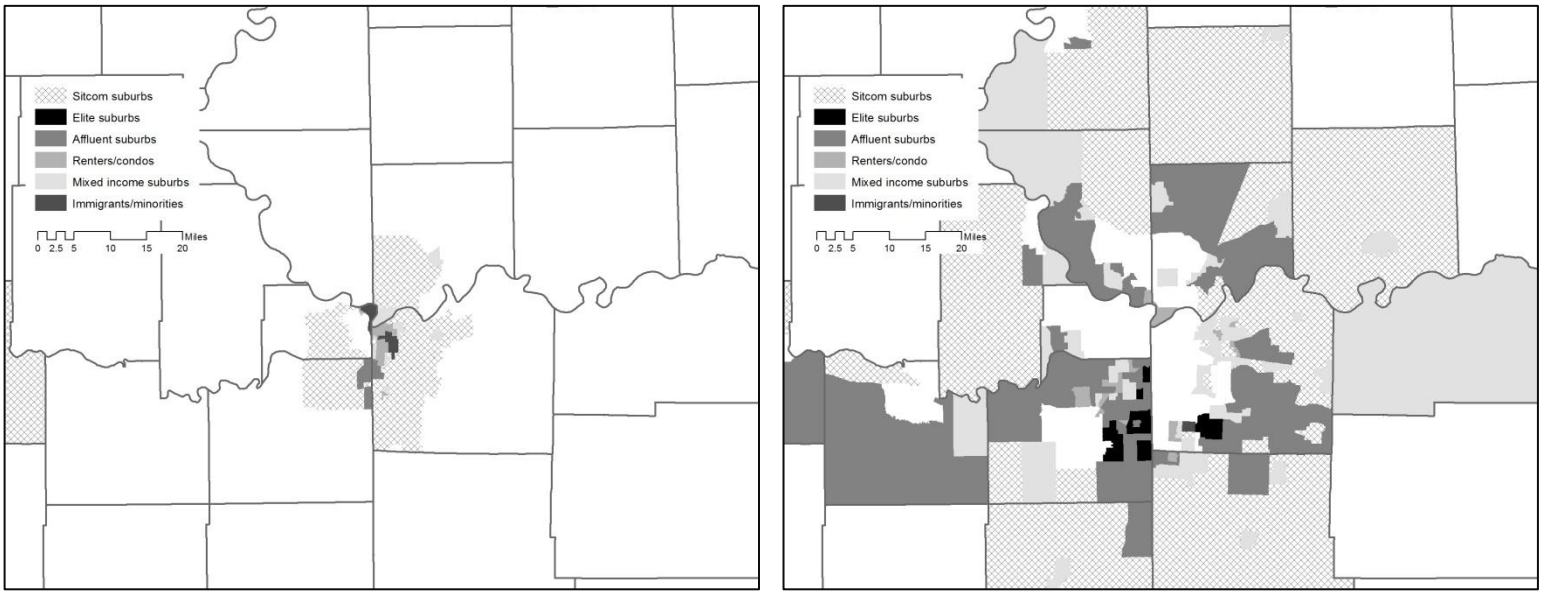
(a) Charlotte, NC

(b) Atlanta, GA



(c) Little Rock, AR

Figure 7: Plains and Southwest, 1960 and 2000



(a) Kansas City, MO-KS

(b) Dallas-Fort Worth, TX

Figure 8: Changes of Sitcom Suburbs across Cities