Published in final edited form as:

GeoJournal. 2012 April ; 77(2): 203–222. doi:10.1007/s10708-009-9325-2.

From Picket Fences to Iron Gates: Suburbanization and Gated Communities in Phoenix, Las Vegas and Seattle

Elena Vesselinov* and

Department of Sociology Queens College and the Graduate Center City University of New York
Flushing, NY 11367

Renaud Le Goix

Department of Geography University of Paris 1 Pantheon Sorbone Paris, France

Abstract

Suburbanization has been a prominent urban process in the United States since the World War II. It has transformed American cities in profound ways in every single aspect of urban development; from population and wealth distributions, through political organization and affiliations, to the built environment. This paper investigates the link between gated communities and the process of suburbanization in the context of socio-economic inequality. As it has been shown time and again in the scholarly literature on suburbanization, the suburban neighborhoods in American cities have been traditionally more affluent and less diverse than central cities. The research on gated communities in the U.S. also shows that they are, on average, more affluent compared to other communities in terms of family income and housing values. Then are gated communities simply a new form of suburban communities? Is the gated community in fact a suburban community with the added element of security features? The paper investigates these questions based on segregation and spatial analyses. The research contributes to the long line of studies on suburbanization, gating and the larger issues of urban inequality.

Introduction

In this paper we address the question: Do socio-economic patterns between gated and non-gated neighborhoods in metropolitan areas correspond to the traditional patterns of differentiation between suburban and non-suburban neighborhoods? The study is based on unique geographically referenced dataset for three metropolitan regions in the United States: Phoenix, Las Vegas, and Seattle¹ and for the first time compares gated and non-gated neighborhoods within specific metropolitan areas. While the study is not representative for urban America, the three metropolitan areas are located in different states and can serve as an indication of similar/dissimilar patterns between the current process of gating and the traditional process of suburbanization.

*Direct all correspondence to: Elena Vesselinov at elena.vesselinov@qc.cuny.edu.

¹Baltimore, MD and Washington, DC metropolitan areas were considered also. However, since each was found to have less than 50 gated block groups, the analyses in this paper were focused on the three metropolitan areas with sufficiently large number of gated block groups.

In the United States the post-World War II suburbanization process led to the formation of metropolitan neighborhoods known for a long time as mostly white, middle and upper class communities. This process also led to a marked differentiation between the suburban and central city neighborhoods, whereas the former became more affluent and racially homogeneous, while the latter became rather economically deprived with high minority concentrations. In the 1960s, two important legislative events stimulated the increased racial/ethnic and economic diversity within suburban communities: the Civil Rights era's anti-discriminatory legislation and the Immigration Act of 1965, which led to increased immigration. Although access to suburban neighborhoods widened, the changes in diversity have been far from uniform across metropolitan suburbs.

As Logan and Schneider (1984) show, the suburban diversification in the 1970s meant that African-Americans finally broke through into some of these more privileged communities; however, the black suburban communities were closer to the more disadvantaged central city neighborhoods and contained much lower proportion of whites compared to the average suburban neighborhood. Particularly in Northern cities, Logan and Schneider found that blacks accessed suburbs which had the weakest tax base and the highest tax rates. Massey and Denton (1988) also argue that black suburbanization accelerated during the 1970s while suburban segregation remained unchanged. Increase in number of black suburbanites was reported by Guest (1978), Nielson (1980), and Long and DeAre (1981). Therefore it could be argued that the first wave of suburban diversification in the 1970s and 1980s was the slow and uneven process of African Americans' struggle to share into the quieter, single-family, picket-fenced suburban life.

The second wave of suburban diversification seems to be the one of the 1990s and 2000s (Spatial Structures for Social Sciences, 2002; Katz and Lang, 2003), where the American suburbs experience much higher levels of ethnic and racial diversification compared to the first wave. This second wave is due mostly to the increased diversity of the American society itself, particularly given the diverse racial/ethnic and social background of the post-1965 immigrants and their offspring. Immigrants in the last two decades are increasingly bypassing central cities and locating in suburban areas upon arrival, because many immigrants are highly skilled and can afford to live in better neighborhoods (Foner, 2000). Therefore, the suburban neighborhoods are no longer defined by being mostly white, or being some combination of black and white. Now, the scholars are studying the varying degrees of racial and ethnic integration in suburban communities; there are studies of polyethnic neighborhoods (Foner, 2000), of ethnic communities (Logan, Alba and Zhang, 2002), and of melting pot suburbs (Frey, 2003).

The first wave of suburban diversification had its perils whereas the access of African Americans to suburban neighborhoods was problematic in many ways. At the same time, the white majority was more in control during this time, some actively advocating integration, some accepting it and some moving to further suburban rings to escape it. The second wave of diversification seems less in the control of the white majority, just because it is no longer about one single minority group, but about many different groups: Latinos, native and foreign-born; Asians, native and foreign-born; foreign-born blacks, foreign-born Middle Easterners, etc. It seems to us that in the context of this increased diversity and lack of easy

ways to control the significant population changes, some groups have found yet another way to ensure neighborhood homogeneity: living in gated communities. The initial proliferation of gated communities in the United States can approximately be associated with the beginning of the suburban ethnic/racial diversification of the 1970s (Vesselinov, *et al.*, 2007). The gating process has intensified particularly with the second wave of diversification.²

Certainly, research shows that not only whites live in gated communities in the United States (Lang and Danielson, 1997; Grant and Mittelsteadt, 2004; Sanchez et al., 2005; Vesselinov, 2007). However, one of the most common features of the gated enclaves remains racial/ethnic (Le Goix, 2005b) and economic homogeneity (Le Goix, 2007). Even if Latinos, for example, are also found to live in gated enclaves, it will most likely be a Latino community of a similar socio-economic status. Therefore, some parallels can be drawn between the “classical” stage of suburbanization and the current process of gating: just as the suburbs of 1950s and 1960s embodied a pattern of predominant white, affluent population, in a similar way now GCs reproduce a pattern of racial/ethnic and economic homogeneity. Therefore, the present study aims to empirically determine whether this is indeed the case. In the next section we discuss the process of suburbanization and the process of gating, focusing specifically in the level of differentiation between suburban and central city neighborhoods, as well as between gated and non-gated neighborhoods. After that we discuss the research design, the findings and conclude with discussion about the implications from our results.

The Process of Suburbanization

In prior research scholars have studied the differences between central cities and suburbs. In our study we separate gated from non-gated areas and assess the similarities between the “old” or traditional suburbs and the new gated communities (hereafter GCs). We expect that in many ways GCs are reproducing what suburban areas stood for in the early stages of suburbanization: escaping the crowded, diverse central cities for a secluded living among more affluent, mostly white co-residents. The expectation is guided by the existing research on city/suburban differentiation and by research showing the relative racial/ethnic homogeneity and affluence of GCs compared to all other neighborhoods in each urban region.

Definition of Suburbs

In his classical study of suburbanization Jackson (1985) defines it “as a process involving the systematic growth of fringe areas at a pace more rapid than the core cities” (p. 13). He also establishes several well known characteristics of what a suburb is: (1) it is a place that is defined by a lower density than the central city neighborhoods; (2) it is a place of inhabited mostly by homeowners; (3) it is a place differentiated from central cities along status, income and race; and (4) the place of residence is at a significant distance from the place of

²Low (2003) reports that the number of people estimated to be living in gated communities (hereafter GC or GCs) in the U.S. increased from 4 million in 1995, to 8 million in 1997, to 16 million in 1998. Webster et al. (2002) show that the number of gated and guarded communities and condominiums in the U.S. almost doubled starting from a little over 25,000 in 1990 and reaching over 40,000 in 1998. Based on AHS data Vesselinov (2009) finds that only between 2001 and 2005 the number of gated households increased by 18 percent in the southwest, as opposed to 12 percent in the entire nation.

work and therefore, according to Jackson, is characterized by the journey-to-work, which according to the 1980 census averaged 9.2 miles or twenty-two minutes (Jackson, 1985).

Gated communities have reached a stage where they are developing in a systematic way as well. Vesselinov *et al.* (2007) argue that GCs serve as an excellent contemporary example of a growth machine (Logan and Molotch, 1987), because developers, local politicians and consumers work consistently together to produce the gated enclaves. These enclaves are long past the stage of occasional building, also past the phase of constituting only prestige or retirement communities (Blakely and Snyder). They have been spreading, at least until the current global economic crisis, with remarkable speed (Le Goix 2005a ; Le Goix, Webster, 2008).

The next section discusses the established socio-economic distinctions between central city and suburban neighborhoods, which are later compared to the differentiation between gated and non-gated neighborhoods. We focus on racial residential segregation, which is among the most problematic and lasting consequences related to suburbanization.

Socio-Economic Differentiation between Central Cities and Suburbs

The traditional differentiation between central cities and suburban areas encompasses most demographic, social and economic characteristics. In the early scholarly research the city/suburb socio-economic and racial differences were understood to apply mostly to the large metropolitan regions in the Northeast (Campbell and Sacks, 1967; Hill and Wolman, 1997). Based on analyses of the 1960 census Schnore (1963) reports that suburbs in the largest and oldest urban areas have higher socio-economic status than central cities. The author measures socio-economic status by income, education and white collar position. Logan and Schneider (1982) also documented that income inequalities between cities and suburbs rose sharply in most metropolitan regions between 1960 and 1970.

To a great extent, socio-economic differentiation between city and suburban areas cannot be discussed separately from racial/ethnic differentiation. The research of Farley *et al.* (1978) brought about an overall consensus regarding the central city/suburban racial and socio-economic distinctions and also made famous the expression “Chocolate city, vanilla suburbs.” The central cities not only became less viable in socio-economic terms, but they housed mostly disadvantaged minority population. In addition, Farley *et al.* (1978) show that blacks who had the economic resources to move to suburban areas would have liked to move in integrated neighborhoods, whereas whites preferred not to buy houses in such neighborhoods. The subsequent strong line of residential segregation research continues to show the high levels of segregation of blacks in central cities, as well as segregation in suburban areas. Logan and Schneider (1984) argue that while blacks remained segregated in cities and suburbs, regional differences mattered in suburban segregation. In the Sunbelt, suburban racial segregation declined during the 1970s. In the North however, suburban segregation remained high, with “the more typical cases were those of white suburbs which maintained barriers to black entry and black suburbs which underwent further racial change” (Logan and Schneider, 1984; p. 887).

Using indices of dissimilarity and isolation Massey and Denton (1988) showed that black segregation persisted in cities and suburbs. They also argued that in multivariate regression analyses, controlling for population composition, socio-economic and other variables, blacks were systematically less segregated in suburbs than in cities. This finding is supported in subsequent research for blacks as well as for Asians and Latinos, as all these groups are segregated from whites: segregation of minorities from whites is less in suburban areas than in central cities. A report based on Census 2000 (Spatial Structures for Social Sciences, 2001) shows that segregation and isolation remain higher in the central cities compared to suburban neighborhoods.

A second report about the comparison between cities and suburbs, based on 2000 census data (Spatial Structures for Social Sciences, 2002), shows that the income gap between cities and suburbs remains high nationwide; that the poverty rate in cities is twice as high compared to suburbs; and that unemployment is significantly higher in cities than in suburbs. The same report also shows that the city-suburb disparity in the South and the West is significantly less than in the Northeast and Midwest and has increased less markedly since 1990. The latter finding is particularly important for our work, because GCs have increased most rapidly in the West and South. Is it possible that the traditional measures of segregation and disparity between cities and suburbs are no longer sufficient to show the new differentiation of suburban areas brought about with the rise of GCs? Is it possible that there is a hidden differentiation between gated and non-gated areas with suburban areas in the West and the South, which is not captured by the more traditional measures? Our current research begins to shed light on these important questions.

The Process of Gating

Blakely and Snyder (1997) and Low (2003) contend that whites tend to fortify themselves behind gates for reasons such as fear of increased diversity, fear of increasing crime rates, desire to protect their property values, and desire to create a sense of community. Research on GCs has consistently found that particularly homeowner GCs appear to be more privileged in socio-economic terms than other predominantly homeowner neighborhoods and more racially and ethnically homogeneous (Byers, 2003; Low, 2003; Blakely and Snyder, 1997; Fishman, 1987; Judd, 1995; Guterson, 1992; Blandy et al, 2003). In this section first we establish what we understand as GCs and then summarize the existing research related to the socio-economic disparities between gated and non-gated places.

Definition of Gated Community

Gated communities have been defined spatially in two major ways, either as sub-units within more general territories or as independent spatial units. The first group considers GCs as a facet of large planned communities or Common Interest Developments (McKenzie 1994, 2003; Luymes 1997; Kennedy 1995; Gordon 2004). Alternatively, others argue that the existence of fences and walls, and security features (guards, surveillance cameras) distinguish GCs as a residential setting that is significantly different from non-gated enclaves (Blakely and Snyder 1997; Le Goix 2003; Low 2003).

The latter approach is more important if we want to understand the specific ways in which GCs change the residential patterns in urban America. Therefore, for the purposes of our analyses we adopt Low's definition of a GC: "[a] residential development surrounded by walls, fences, or earth banks covered with bushes and shrubs, with a secured entrance" (Low, 2003:12). Unlike individual gated residences, GCs restrict access not only to personal residences, but also to the area's streets, sidewalks, and neighborhood amenities. A very important institutional aspect of GCs is that, like all private neighborhoods, they are characterized by homeowner associations, where elected boards oversee the common property and establish covenants, conditions, and restrictions (CC&Rs) as part of the deed.

Socio-Economic and Racial/Ethnic Differentiation

For more than a decade now, linking gating with socio-economic differentiation, and particularly residential segregation, has been a dominant yet controversial topic in GCs' scholarly research (Blakely, et al. 1997, Gordon 2004, Atkinson and Blandy 2005, Le Goix 2005, Manzi and Smith-Bowers 2005, Blandy, Dixon, Dupuis and Parsons 2006, Vesselinov, 2008a). Some emphasize the integrative effects of GCs while others point to their divisive impact.

Salcedo and Torres (2004) conducted research on a high-income gated community built next to a long-established poor squatter community on the outskirts of Santiago, Chile. They found that lower-income residents welcomed their new neighbors as sources of employment. Surprisingly, this ethnographic study documented that inter-community relations were much healthier than the intra-gated community relations (Salcedo and Torres 2004). Contrastingly, a study by Low (2003) showed that incomers to a GC were concerned about "ethnic change" and social control in the neighborhoods. The findings of these two studies are not necessarily at odds however. This question is all the richer, as in Los Angeles, in many places GCs are available within every market segment. Data from the 2000 US Census shows that gating seems to increase social and economic segregation (Le Goix 2005a; 2007). The combined effects of property values and community socio-economic structure create significantly higher levels of segregation between gated developments' block groups and adjacent areas than in non-gated neighborhoods. It also found that GCs are more likely to be segregated by age from adjacent areas than other neighborhoods. The effects of race or ethnicity in the study are particularly interesting. Gated communities in Los Angeles do not generally create 'worlds apart'. All else being equal, they are less likely to be segregated by race or ethnicity than other regions of the city (Le Goix 2003; 2005).

Therefore, the way in which GCs differentiate themselves from adjacent neighborhoods is a complex issue. Although developers try to assure that prospective buyers will feel comfortable in the broader neighborhood, they also provide them with carefully-pitched elements offering safety and status. Following these practices, social patterns inside GCs might be expected to be generally consistent with adjacent communities. However, where development sites are in short supply, this may not be possible, and where a gated development is large enough, the area effect may not act as a disincentive to buyers.

While there is competing evidence about whether or not GCs contribute to segregation, it seems quite clear that, overall, GCs are more racially and ethnically homogeneous, and more affluent compared to non-gated neighborhoods. Vesselinov *et al.* (2007) separate gated residents into those that live in renter and homeowner GCs and compare them respectively to non-gated renters and owners. The authors show that on average residents of both renter and homeowner GCs possess advantages in household income, home value (for homeowners) and housing characteristics, such as the age of the home and household size, over their respective peers living in non-gated communities. Vesselinov *et al.* (2007) further compare gated and non-gated heads of household by educational attainment and social class. In case of education the authors observe that gated households, both homeowners and renters, are comprised of a higher percentage of college educated members. Despite current diversification of GCs based on race, class and tenure, Vesselinov *et al.* find that a remarkable 42 percent of gated owners are members of the upper class, while only a third of non-gated owners are (Vesselinov *et al.*, 2007).

Based on multivariate regression analyses Vesselinov (2008b) shows that even after controlling for series of relevant variables, among two separate groups, whites and Latinos, the likelihood to select a gated residence increases as education and income increase. The predicted probabilities show that for owners and renters the likelihood to select a gated residence increases as their income increases, as well as the probability to gate increases as levels of education increase from lower to higher.

Given the clear socio-economic advantages of GCs compared to non-gated neighborhoods, this study further compares the gated vs. non-gated communities with the known distinctions of city vs. suburban communities. This is the first study to compare gated vs. non-gated neighborhoods in the same metropolitan area and extend the analysis for three such areas. In the section below we discuss in detail the research questions, the unique dataset constructed for the study and the metrological approach we use in addressing the research questions.

Research Design

Data

Using Geographical Information Systems (GIS) we identify the exact location of GCs in the five metropolitan areas. Then, we match the newly constructed data for GCs with Census data at block group level. Using data from Census 2000 we then identify the characteristics of the population living within and outside of the gated areas.

A GIS of gated communities

Data Sources

(1) Thomas Bros. Maps®. The company publishes interactive maps that identify gated streets. Access to vector maps allows spatial queries of gated streets, in order to identify gated neighborhoods. The files also contain information related to military bases, airfields, airports, prisons, amusement parks and colleges, some of which may also contain private streets with restricted access. (2) Aerial photographs (e.g. Google Earth, MapQuest). These tools also help to identify GCs and dismiss non residential gated areas (3) 2000 Census data,

SF1 and SF3. The 100% file (SF1) is used for the population characteristics. The sample data file (SF3) is used for the income characteristics.

Research Questions

Research Question 1

Do demographic and socio-economic patterns between gated and non-gated neighborhoods in metropolitan areas correspond to patterns between suburban and non-suburban neighborhoods? This question is addressed by comparing the patterns of gated and suburban neighborhoods along several important social and demographic characteristics.

Research Question 2

Do patterns of residential segregation between gated and non-gated communities in metropolitan areas correspond to patterns between suburban and non-suburban communities? This question we study by constructing the Index of Dissimilarity (D) based on block group level characteristics for a. Racial Residential Segregation; and b. Economic Residential Segregation.

Research Question 3

Do GCs locational patterns correspond to suburban neighborhoods locational patterns? In addressing the third question we apply spatial analysis (LISA, Anselin, 1988).

All analyses are conducted at block group level, because block groups come closest as geographic units to GCs. The average population of a census tract is 4,000, while an average population of a block group is 1,000. However, since there is no perfect overlap between all block groups and GCs we will use four definitions of a “gated block group.” This sensitivity analysis also helps in addressing the issue of scale. The definitions are based on estimating the percent of gated streets, where we sum the length of all gated streets and divide it by the length of all streets in each block group.

The first definition of “a gated block group” includes all block groups where we find GCs (for Phoenix MSA this measure yields 229 block groups out of 2,229). The second definition will include only the block groups where the percent gated streets falls one standard deviation above the MSA mean (in Phoenix it yields 103 block groups). The third definition will be based on a quotient measure, the ratio between the percent gated streets at the block group divided by the percent gated streets at the MSA level; “a gated block group” will have a score above 1 (which indicates overrepresentation; in Phoenix $N=191$). The last measure is based on calculating the number of gated population in each block group, using the percent gated streets. Then we calculate the MSA mean and designate gated block groups as those who fall 1 std. above the MSA mean (in Phoenix $N=90$). Therefore, we will have four measures to work with and test the robustness of our results (sensitivity analysis).

Segregation Analyses

Measures of Dependent Variables

(1) Dissimilarity Index (D). This index is a classical measure of residential segregation (Massey and Denton, 1987) and it captures the evenness of the racial and ethnic distribution within sub-units (such as census tracts or block groups) as compared to the distribution within a larger geographic unit (e.g. metropolitan areas, cities, or suburbs). **(a)** Six indices will be constructed based on race, between: non-Hispanic whites and blacks; non-Hispanic whites and Hispanics; non-Hispanic whites and Asians; non-Hispanic blacks and Latinos; non-Hispanic blacks and Asians; and Latinos and Asians. **(b)** Six dissimilarity indices are constructed based on income class, between: lower and middle, lower and upper, lower and affluent, middle and upper, middle and affluent, upper and affluent. Income class variable is based on family income; lower class: percent families with income below \$35,000; middle class: \$35,000–74,999; upper class: \$75,000–124,999; and affluent: above \$125,000.

Methods

(1) The metropolitan areas of interest are divided into two subsets: “gated block groups” and “non-gated block groups”. The segregation indices then are constructed for each of the two subsets comparing the gated block groups’ ethnic composition and the non-gated block groups’ ethnic composition to the metropolitan ethnic composition.

Spatial Analyses

Measures of the dependent variables

We use the first definition of “a gated block group,” which includes all block groups where we find GCs.

Methods

(1). Tests for global spatial autocorrelation using the Global Moran’s I statistic. The value of this statistic gives an idea of whether there is an overall pattern of spatial autocorrelation. The Global Moran’s I provides an indication of the extent to which the spatial pattern of the whole data set is compatible with a null hypothesis of randomness.

(2). Moran Scatterplot Maps for each variable to examine possible clusters. The local Moran’s I, expressed in Moran Scatterplot Maps, helps in separating the existing levels of autocorrelation in four quadrants. The horizontal axis is expressed in standard deviation units for the specific variable under study (y). The vertical axis represents the standardized spatial weighted average (average of the neighboring values, or spatial lag, W_y) for the same variable. The slope of the linear regression (W_y on y) through the scatterplot is the Moran’s I coefficient. On the scatterplot we can determine the areal unit (in this case tracts) location in one of the quadrants: high-high, low-low, high-low and low-high. The dynamic link between the scatterplot and the map of the specific variable distribution by tracts helps us to visualize the specific clusters.

(2)a. In constructing the Moran Scatterplot Maps we also use the standardized scores of our gated variable. Standardization helps in reducing the effect of extreme observations and is also a preferred method when different geographic areas have to be compared (as in this study).

Findings

Table 1 shows the number of observations for all four different definitions of gated block groups in the three metropolitan areas. The largest number of gated block groups is found in Phoenix, followed by Las Vegas, then Seattle, using Gated1 definition. The analyses of demographic and socio-economic patterns are based on using only the first definition of gated block group. This is done for two main reasons: one, the subsequent analyses of segregation using all four definitions shows that the patterns remain stable across all four gated block group definitions; two, the first definition is in a way the most “liberal” definition and the differentiation between gated and non-gated block groups only increases when the more conservative measures are used.

Demographic and Socio-Economic Patterns

The demographic patterns between gated and non-gated neighborhoods are shown in Table 2. As in traditional suburban neighborhoods, the average age of a gated householder is higher compared to a non-gated householder. In Las Vegas the median age in GCs is 38.6 years, while in non-gated communities it is 35.9; in Phoenix the median age in GCs is 40.1 while in non-gated it is 35; in Seattle the two numbers are fairly close 36.9 and 36.5. This age distinction is reproduced again in Phoenix and Las Vegas when we look at specific age groups. For both metropolitan areas the proportion of gated households is higher for all age groups in the category 35–44 and above, compared to non-gated households.

As in traditional suburban neighborhoods, a lower proportion of single and a higher proportion of married householders are found in gated neighborhoods compared to non-gated neighborhoods in all three metropolitan areas; in Las Vegas the percent married in gated vs. non-gated communities is 55 vs. 46, in Phoenix it is 64 vs. 49 and in Seattle, it is 59 vs. 50. The foreign-born also have lower representation in gated neighborhoods than in non-gated ones. Finally, gated neighborhoods contain a higher proportion of recent movers compared to non-gated ones. At the same time it has to be noted that the percent of households that have moved to a different house in the 5 years prior to the Census data collection is quite high for all households, particularly in Phoenix and Las Vegas. The two metropolitan areas are among the top in the United States in population and housing growth (Katz and Lang, 2003).

The socio-economic patterns, shown in Table 3, for all three metropolitan areas also show that on average gated neighborhoods are more affluent compared to non-gated neighborhoods. First of all, the level of homeownership is higher in gated neighborhoods compared to non-gated ones; in Las Vegas and Phoenix the differences are quite large. In Las Vegas GCs comprise of 70 percent homeowners, while the non-gated communities – of 54 percent; in Phoenix GCs contain 81 percent homeowners, while the non-gated communities – 65 percent. The median house value, the median rent and the median income

are all substantially higher in gated neighborhoods compared to non-gated areas. In Phoenix the differences in house value are the most dramatic: the median house value in GCs is over \$208,000, while in non-gated communities it is about half of that, \$109,000. The differences in median rent are again the largest in Phoenix; the median rent in gated enclaves is \$777, whereas in non-gated areas it is \$606. The distinctions in house price and rent also corresponds to distinctions in median income; in Phoenix one more time, we have the largest disparity, median income within GCs is \$73,000, while in non-gated it is a little above \$48,000.

The disparities in income are replicated when we look at the specific income categories. On average, the gated neighborhoods in all three metropolitan regions contain a higher proportion of residents in the income categories from \$50,000 and above compared to the non-gated neighborhoods. For example, in Las Vegas the income composition of GCs shows that close to a third of residents are in the category \$50,000–74,999, followed by 15.7 percent in the category \$75,000–99,999, 8.3 percent in the category \$100,000–124,999 and 12 percent in the category \$125,000 and above. That is, in Las Vegas, fully two-thirds of gated residents (67.2 percent) have incomes of \$50,000 and above, whereas in non-gated areas only half of the residents have the same income (51.6). In Phoenix, 72 percent of gated residents have incomes higher than \$50,000, while 54 percent non-gated ones belong in the same category.

Furthermore, gated areas contain a higher proportion of educated residents than the non-gated areas. In Las Vegas people with some college education and higher constitute 64 percent of GCs, while the percent for non-gated areas is 44; in Phoenix the disparity is 72 vs. 56. Finally, the gated neighborhoods contain a significantly higher proportion of whites in all three areas compared to the non-gated neighborhoods, as well as lower proportions of minorities compared to non-gated areas. The higher levels of income and racial/ethnic homogeneity become particularly clear when we discuss segregation indices next.

Racial Residential Segregation

The dissimilarity indices are calculated for each metropolitan area, then separately for gated block groups and non-gated block groups within each metropolitan area (shown in Table 4). The indices are also constructed following all four definitions of a “gated block group.” The analyses reveal that all four definitions lead to similar results; there are differences but overall the differences across the four definitions are not large. Moreover, almost all dissimilarity indices (in 70 pairs out of 72 total) for the gated block groups in all four definitions are lower compared to the indices for non-gated block groups. In one pair of indices (gated compared to non-gated), in Phoenix, measuring the segregation of Whites vs. Asians, according to Gated2 definition the dissimilarity index is the same for gated and non-gated areas. In the second exception out of 72, in Seattle, the segregation of Latinos from Whites in gated block groups according to the first definition, is slightly higher (39.7 percent) compared to the segregation within non-gated block groups (38.4). In all other cases, the segregation within non-gated block groups is higher compared to gated block groups.

For example, the black-white segregation in Seattle metropolitan region is the highest among the three regions, 55.3 percent. The level of segregation in gated block groups varies nine percentage points, from 42 to 51 percent, and is lower compared to the level of segregation in non-gated block groups, which varies even less, from 55.7 to 55.9 percent. In addition, the level of segregation for the gated block groups is much lower than the overall index for the metropolitan area.

Therefore, we conclude that the results in white-black segregation in all three urban regions closely resemble the traditional division between central city and suburbs, where dissimilarity indices are usually lower in the suburbs and higher in the central city, and where dissimilarity indices in suburban areas are lower than the overall index for any metropolitan area in the U.S.

In Phoenix, where Latinos are most concentrated, the overall level of white-Latinos segregation is 54.7 percent. The segregation within the gated block groups is again significantly lower, ranging from 39.8 to 43.5, while in non-gated block groups the dissimilarity index ranges from 53.9 to 54.2. The ethnic diversity level corresponds again to the pattern of segregation: Latinos constitute about 13 percent in gated block groups while the percent more than doubles for the non-gated block groups: 27.

The pattern of white-Latino segregation and ethnic composition in Phoenix is reproduced in Las Vegas. The most numerous minority in Las Vegas is also that of Latinos. The levels of diversity as well as segregation are much lower in gated block groups compared to non-gated block groups. The differences between the three cities notwithstanding, it seems to us that the patterns exposed in Phoenix and Las Vegas are most symbolic of the new gating patterns in urban areas in the south and west regions of the United States. At the same time, Seattle is in an earlier stage in the proliferation of GCs and the patterns there are not quite as pronounced as in Las Vegas and Phoenix.

Economic Residential Segregation

The income class composition of gated and non-gated block groups in Las Vegas, Phoenix, and Seattle is shown in Table 5. Overall, in all three metropolitan areas the upper and affluent (upper, upper) classes are overrepresented in gated block groups compared to non-gated block groups. In Las Vegas, the upper income class constitutes 24 percent of gated households, and only 17 percent of non-gated households; in Phoenix the gated block groups contain even higher proportion of upper class, 26 percent, whereas the non-gated block groups contain only 18 percent; lastly, in Seattle the percentages are much closer, 26 vs. 25. These findings correspond to the results discussed earlier about the socio-economic differentiation between gated and non-gated communities.

The dissimilarity indices based on income class are presented in Table 6. The highest segregation scores for all areas are between the lower and affluent classes the lowest are between middle and upper classes. The overall segregation between the lower and affluent classes in Las Vegas is 58 percent; the lower-affluent class segregation in Phoenix shows the highest segregation score in the entire Table – 68 percent, while in Seattle is the second highest – 60 percent. The segregation between middle and upper income classes in each city

is less than half the percentage for lower vs. affluent in the same city; 26 percent in Seattle, 27 in Las Vegas, and 31 in Phoenix.

Similarly to racial residential segregation scores the economic segregation is lower in gated block groups compared to non-gated block groups throughout the table (in 69 pairs out of 72). This result is confirmed by applying all four classifications of gated block groups. This finding also reaffirms the results for racial segregation and speaks clearly to the fact, that the comparison between gated and non-gated areas looks very similar to the classic distinction between cities and suburbs, where suburban areas have not only been traditionally whiter, but also significantly more affluent.

The findings so far support the contention in this paper that there are important similarities between the socio-economic characteristics of GCs and the traditional suburbs. Such contention is also supported by what has been discussed in earlier research on GCs in terms of motivation of the residents: the pursuit of security from crime, the quest for property value appreciation, the desire to escape diversity, and to find a sense of community (Blakely and Snyder, 1997). The link between the increased suburban diversification and an increase in GCs is logical and conceptually follows prior research findings related to both processes, suburbanization and gating. However, whether or not suburban diversification causes an increase in GCs is a subject of further investigation and is not part of the research inquiry in this study. What is clear from previous scholarly research is also the fact that not only there are similar motivations of the residents of GCs and the residents of earlier suburbs; there are other interested parties, such as developers and local government officials, who actively participate in the building of GCs because they are a profitable enterprise. Local government officials have had the interest for a long time to attract more affluent residents (Logan and Molotch, 1987), because they contribute more to the local tax base. Gated enclaves happen to be especially lucrative, because the residents pay property taxes and at the same time, through maintenance fees, provide services for themselves relieving the government from such obligations. By providing their own security, infrastructure and services, these developments reduce public financial responsibility while generating new fiscal revenues. Thus, the gated enclaves are instrumental in transferring the cost of urban sprawl from public authorities to private developers and homeowners and are popular and efficient planning tools in fast growing areas (McKenzie, 1994; Ben-Joseph, 2004; Le Goix, 2005a; Webster et al., 2005).

A significant distinction between the traditional suburb and the GC is that GCs are concentrated in specific parts of the U.S., the southwest, and in several states: Florida, California, Arizona, and Nevada. Another difference is that the gated enclaves contain a variety of security features: gates, walls, security guards, private police, surveillance cameras and others. There are also important changes in the housing market related to the latest economic crisis, which erupted with the stock market crash in September 2008. This crisis, and particularly the sharp increase in mortgage defaults and foreclosures (Immergluck, 2009), has affected numerous communities throughout the country. There is some anecdotal evidence in the media, that foreclosures are affecting GCs as well, and may continue to affect them in the near future (Leinburger, 2008; Van Dijk, 2009; Young, 2009). Additional research has to be conducted to estimate the effects of such foreclosures on more affluent

communities, including GCs, and the effects it could have on the distinctions between gated and non-gated neighborhoods.

Spatial Analyses

Given the obvious spatial distinction between central city and suburban neighborhoods, it is necessary to look at the spatial location of gated vs. non-gated neighborhoods. Although Seattle is more of a border case, it does not have as many gated block groups as Phoenix or Las Vegas, nor is it as diverse as these two cities, we have included it in the spatial analyses. We think that it shows an earlier state in the gating process, whereas Phoenix and Las Vegas show a more advanced state of gating. Figure 1, Figure 2 and Figure 3 show the spatial distribution of gated block groups in Phoenix, Las Vegas and Seattle respectively. The variable mapped is the percent of gated streets at each block group. The categories, which are included in the map are three: the block groups colored in gray correspond to non-gated block groups; the light pink category corresponds to those block groups, where the percent of gated streets is up to one standard deviation above the metropolitan mean; and the third category, in dark red, shows those block groups where the percent gated streets exceeds one standard deviation above the mean.

Figure 1a, Figure 2a, and Figure 3a show the Moran Significance Maps for the three cities, based on the raw counts of the gated variable. Figure 1b, Figure 2b, and Figure 3b show the Moran Significance Maps, based on the standardized scores of the gated variable in each metropolitan area. The differences between Figure 1a and Figure 1b, Figure 2a and Figure 2b, and Figure 3a and Figure 3b are very minor, which further shows the stability of the results.

Each of the six Moran Significance Maps shows four types of categories: in bright red is the category, called “High-High;” in pink is the category “High-Low;” in light blue – the category “Low-Low”; and in dark blue the category “Low-High.” The most important category in our case is the “High-High” category, which shows that in each city there are several statistically significant clusters of gated block groups. What this means is that in each of these red block groups the percent of gated streets is statistically significantly higher than the metropolitan mean. The red also means that the high percent of gated streets in each block group depends on the percent of gated streets in the neighboring block groups.

Therefore, two important conclusions can be made. First, the diffusion of GCs resembles, at least to some extent, the spread of a contagious disease. The more GCs there are in one area, the more we would expect to find in close by areas. This finding is also supported by the coefficients of spatial autocorrelation in each urban region, the Moran’s I. The magnitude of the coefficients ranges from 0.239 in Phoenix, to 0.321 for Las Vegas, and to 0.151 for Seattle. In addition, all three coefficients are positive and statistically significant at $p < 0.001$, which indicates the presence of significant and positive spatial autocorrelation.³

³When the six extreme observations were excluded for Phoenix, Moran’s I increased to .304 while retaining its significance. The same procedure led to an increase in Moran’s I for Las Vegas to .429, and to .255 in Seattle, again while the coefficients retained their statistical significance.

Such a contagion effect - indeed a classical spatial diffusion of innovation - may be explained by a convergence of factors at different geographical levels that have been thoroughly discussed in the literature. In addition to the interests in sustaining the 'gating machine' (Vesselinov et al., 2007) the potential attractiveness of GCs on prospective buyers as well as the price premium generated by the gating of a neighborhood, both fuel a powerful contagion effect. At a metro level with already strongly endured segregation patterns, newer developments adopt a model that has been successful in the vicinity, and by doing so target niche markets of prospective buyers with rent-seeking strategies. To a certain extent, some nearby older neighborhoods retrofit with gates and walls in order to anticipate and avoid the negative spill-over effects over crime and property values. Regarding crime for instance, the deterrent effect of gates for residents (Atlas & Leblanc, 1994) yields a diversion of crime to other adjacent, non-gated communities (Helsley & Strange, 1999). This is a massive spill-over for non-residents and nearby communities might react by building their own gates.

The second important conclusion is that given the research findings related to racial and economic residential segregation, and the spatial patterns, it seems that GCs are producing new clusters of privilege and affluence, and also of racial and ethnic homogeneity. This could have profound effects on metropolitan areas in further increasing urban inequality and leading to more polarization and uneven development. We believe that our findings show the need to take the existence of GCs into account when the increased diversity of suburban areas is discussed. Simply comparing the racial composition of census tracts to the metropolitan composition does no longer seem sufficient in discussing the racial/ethnic and income composition of suburban (and central city areas). The findings in this paper show that there is a new layer of suburbanization, the gated areas particularly in cities in the South and West regions of the U.S., which creates islands of racial/ethnic and economic homogeneity. This new layer of suburbanization seems to reproduce the old, traditionally more affluent and homogeneous suburb of the 1940s and 1950s. Research in other metropolitan areas should determine the extent to which this is a significant trend for other cities in the U.S.

Conclusion

It is the main argument of this paper, that GCs introduce a new layer of suburbanization in the U.S.; just as the suburbanization movement of the 1940s and 1950s produced the "lily white," affluent suburb, in a similar way this new process of gating is producing the largely homogeneous secured enclave. Instead of escaping even further out from the city center, the new gated suburb provides the convenience of being constructed within already established suburban towns. There is no need to conquer new territories (although in many cases this still happens when GCs are built) or worry about extending infrastructure, when all needed is a wall around the neighborhood. Why does a gate become necessary? It is necessary because the gated enclaves are becoming the new symbol of protected suburban living; the traditional suburban areas are diversifying and it seems that many people need this new residential form to solidify their escape from diversity. New levels and types of diversity lead to a new form of escape from it.

What is remarkable in all figures for Las Vegas, Phoenix and Seattle is that the spatial location of GCs is beginning to denote a new suburban layer around each central city. Suburban areas are known to have been for a long time places of predominant white residence and also significantly more affluent places compared to central city neighborhoods. It seems that instead of correcting for this imbalance a new layer of inequality is added by the proliferation of GCs, at least in the three cities we investigate in the study.

While there have been some changes recorded in suburban areas, the presence of GCs and their impact have not been studied. As the present study shows, it appears that GCs are adding another layer of racial and economic segregation at a time when it is thought that suburban areas are diversifying by finally becoming more accepting of blacks, as well as of other minorities. Since residential segregation has been found to decline particularly in the South and West regions of the U.S., while GCs increase specifically in these two regions (Vesselinov, 2008), the findings of the current study are quite significant and at least twofold.

On the one hand, this research makes a contribution to the studies of suburbanization, which have been at the core of understanding urban dynamics. Suburban areas formed as the desire to escape from crowded and diverse central cities increased. Since suburban areas are now diversifying, gating becomes the new mechanism for escaping diversity once again. On the other hand, our findings can also have implications for the study of urban inequality; finding clusters of concentrated privilege could mean that the levels of poverty elsewhere within metropolitan areas are increasing. The concentration of affluence and resources in some neighborhoods is thought to increase poverty and segregation in the entire metropolitan region (Massey, 1996). Therefore, if the current concentration of GCs continues it is very likely that it will contribute to increased urban inequality in metropolitan regions.

This is the first study to compare gated and non-gated neighborhoods in specific metropolitan areas. While generalizations cannot be made to the entire country, the results indicate some problematic trends, which require focused scholarly attention. Further research should determine the extent to which similar trends exist in other cities with high volume of GCs. Given the current foreclosure crisis, it will also be important to estimate the effect of defaulted loans within GCs and surrounding areas. Recent analyses have pointed to Florida, California, Nevada and Arizona as the states with highest foreclosure rates (Lucy and Herlitz, 2009); these are also among the states where GCs have proliferated the most in the last couple of decades and there are some media analysis (Leinberger, 2008; Van Dijk, 2009; Young, 2009) pointing to foreclosure troubles in the gated 'paradise.' Future research should determine which GCs are most affected by the current crisis and what would the implications be for the processes of suburbanization and gating in the U.S.

Acknowledgments

The research for this paper was supported by an R03 award from NICHD to the authors, titled "Socio-Economic Impact of Gated Communities on American Cities." We would also like to thank the reviewers for their helpful comments.

REFERENCES

- Abramson AJ, Tobin MS, VanderGoot MR. The Changing Geography of Metropolitan Opportunity: The segregation of the Poor in U.S. Metropolitan Areas, 1970–1990. *Housing Policy Debate*. 1995; 6:45–72.
- Anselin, L. *Spatial Econometrics: Methods and Models*. Kluwer Academic Publishing; 1988.
- Atkinson, Rowland; John, Flint. Fortress UK? Gated Communities, The Spatial Revolt of the Elites and Time-Space Trajectories of Segregation. *Housing Studies*. 2004; 19:875–892.
- Atkinson, Rowland; Sarah, Blandy. Introduction: International Perspectives on The New Enclavism and the Rise of Gated Communities. *Housing Studies*. 2005; 20:177–186.
- Atlas R, Leblanc WG. The impact on Crime of Streets Closures and Barricades: A Florida Case Study. *Security Journal*. 1994; 5:140–145.
- Ben-Joseph E. Land Use and Design Innovations in Private Communities. 2004:16.
- Blakely, Edward J, Snyder, Mary G. *Fortress America: Gated communities in the United States*. Washington, D.C: Brookings Institution Press; 1997.
- Blakely, Edward J, Thomas, Sanchez W. Walling In or Walling Out: Gated Communities. In: Bullard, Robert D, editor. *The Black Metropolis in The Twenty-First Century: Race, Power and the Politics of Place*; 2007.
- Blandy, Sarah; Diane, Lister; Rowland, Atkinson; John, Flint. Gated Communities: A Systematic Review of the Research Evidence. CNR Paper 12: ESRC Center for Neighborhood Research. 2003
- Briggs, Xavier de Souza. *The Geography Of Opportunity: Race and Housing Choice in Metropolitan America*. Washington, D.C: Brookings Institution Press; 2005.
- Byers, Michele. Waiting at the Gate. In: Matthew, J Lindstrom; Hugh, Bartling, editors. *Suburban Sprawl: Culture, Theory, and Politics*. Oxford: England: Rowman and Littlefield; 2003. 245–256.
- Caldeira, Teresa PR. Fortified Enclaves: The New Urban Segregation. *Public Culture*. 1996; 8(2):303–323.
- Caldeira, Teresa PR. *City of Walls: Crime, Segregation and Citizenship in Sao Paulo*. Berkeley, CA: University of California Press; 2000.
- Campbell, AK, Sacks, S. *Metropolitan America: Fiscal Patterns and Governmental Systems*. New York: Free Press; 1967.
- Davis, Mike. *City of Quartz: Excavating the Future in Los Angeles*. London: Verso; 1990.
- Farley R, Schuman H, Bianchi S, Colasanto D, Hatchett S. Chocolate City, Vanilla Suburbs: Will the Trend toward Racially Separate Communities Continue? *Social Science Research*. 1978; 7
- Farley R, Fray W. Changes in the Segregation of Whites and Blacks during the 80s: Small steps toward a more integrated society? *American Sociological Review*. 2004; 59(2)
- Fischer, Mary. The Relative Importance of Income and Race in Determining Residential Outcomes in U.S. Urban Areas, 1970–2000. *Urban Affairs Review*. 2003; 38(5)
- Fischer, Claude; Gretchen, Stockmyer; Jon, Stiles; Michael, Hout. Distinguishing the Geographic Levels and Social Dimensions of U.S. Metropolitan Segregation, 1960–2000. *Demography*. 2004; 41(1)
- Foner, N. *From Ellis Island to JFK: New York's Two Great Waves of Immigration*. New Haven and New York: Yale University Press and Russell Sage Foundation; 2000.
- Frey, W. Melting Pot Suburbs: A Study of Suburban Diversity. In: Katz, B, Lang, R, editors. *Redefining Urban and Suburban America: Evidence from Census 2000*. Washington, D.C: Brookings Institution Press; 2003.
- Guest A. The Changing Racial Composition of the Suburbs. *Urban Affairs Quarterly*. 1978; 14:195–206. [PubMed: 12262812]
- Gordon, Tracy M. Moving up by Moving Out? Planned Developments and Residential Segregation in California. *Urban Studies*. 2004; 41:441–461.
- Grant, Jill; Lindsey, Mittelsteadt. Types of gated communities. *Environment and Planning B: Planning and Design*. 2004; 31:913–930.
- Helsley RW, Strange WC. Gated Communities and the Economic Geography of Crime. *Journal of Urban Economics*. 1999; 46:80–105.

- Hill E, Wolman H. City-Suburb Income Disparities and Metropolitan Area Employment. *Urban Affairs Review*. 1997; 32(4):558–582.
- Iceland, John; Rima, Wilkes. Does Socioeconomic Status Matter? Race, Class and Residential Segregation. *Social Problems*. 2006; 53(2)
- Immegluck, Dan. Ithaca and London: Cornell University Press; 2009. *Foreclosed: High-Risk Lending, Deregulation, and the Undermining of America's Mortgage Market*.
- Jackson, K. *Crabgrass Frontier: The Suburbanization of the United States*. Oxford University Press; 1985.
- Jargowsky, Paul A. Take the Money and Run: Economic Segregation in U.S. Metropolitan Areas. *American Sociological Review*. 1996; 61:984–998.
- Katz, B, Lang, R, editors. *Redefining Urban and Suburban America: Evidence from Census 2000*. Washington, D.C: Brookings Institution Press; 2003.
- Kennedy, David J. Residential Associations as State Actors: Regulating the Impact of Gated Communities on Nonmembers. *The Yale Law Journal*. 1995; 105:761–793.
- Lang, Robert; Danielsen, K. Gated Communities in America: Walling Out the World. *Housing Policy Debate*. 1997; 8:867–899.
- Le Goix, Renaud. Gated communities as predators of public resources: the outcomes of fading boundaries between private management and public authorities in southern California. In: Glasze, G, Webster, CJ, Frantz, K, editors. *Private Neighbourhoods: Global and local perspectives*. Routledge: Taylor and Francis; 2005a.
- Gated Communities: Sprawl and Social Segregation in Southern California. *Housing Studies*. 2005b; 20(2):323–344.
- LeGoix R, Webster C. Gated Communities, Sustainable Cities and a Tragedy of the Urban Commons. *Critical Planning*. 2006:13.
- Le Goix, Renaud. The impact of gated communities on property values: evidences of changes in real estate markets (Los Angeles, 1980–2000). *Cybergeo*. 2007 *European Journal of Geography* :20 p [online : <http://www.cybergeo.eu/index6225.html>]
- Gated Communities. *Geography Compass*. 2008; 2:1189–1214. DOI: 10.1111/j.1749-8198.2008.00118.x
- Leinberger CB. The Next Slum? The Subprime Crisis is Just the Tip of the Iceberg. Fundamental Changes in American Life may Turn Today's McMansions into Tomorrow's. Tenements. 2008 *The Atlantic*. March 2008. www.theatlantic.com
- Logan, John R; Mark, Schneider. Governmental Organization and Changing City-Suburban Income Inequality. *Urban Affairs Quarterly*. 1982; 17:303–318.
- Logan, John R; Mark, Schneider. Racial Segregation and Racial Change in American Suburbs, 1970–1980. *American Journal of Sociology*. 1984; 89(4):874–888.
- Logan, Molotch. *Urban Fortunes: The Political Economy of Place*. Oxford University Press; 1987.
- Logan, John R; Brian, J Stults; Reynolds, Farley. Segregation of Minorities in the Metropolis: Two Decades of Change. *Demography*. 2004; 41:1–22. [PubMed: 15074122]
- Logan, John R; Wenquan, Zhang; Richard, D Alba. Immigrant Enclaves and Ethnic Communities in New York and Los Angeles. *American Sociological Review*. 2002; 67:299–322.
- Long L, DeAre D. The Suburbanization of Blacks. *American Demographics*. 1981; 3:17–44.
- Low, Setha. *Behind the Gates: Life, Security, and the Pursuit of Happiness*. New York: Routledge: Fortress America; 2003.
- Lucy, WH, Herlitz, J. Department of Urban and Environmental Planning. University of Virginia: School of Architecture; 2009. *Foreclosures in States and Metropolitan Areas: Patterns, Forecasts, and Pricing Toxic Assets*. Retrieved on 3/29/09: http://www.virginia.edu/uvatoday/pdf/foreclosures_2009.doc
- Luymes, Donald. The Fortification of Suburbia: Investigating the Rise of Enclave Communities. *Landscape and Urban Planning*. 1997; 39:187–203.
- Manzi, Tony; Bill, Smith-Bowers. Gated Communities as Club Goods: Segregation or Social Cohesion? *Housing Studies*. 2005; 20:345–359.

- Massey, Douglas. The Age of Extremes: Concentrated Affluence and Poverty in the Twenty-first Century. *Demography*. 1996; 33:395–412. [PubMed: 8939412]
- Massey, Douglas S; Nancy, A Denton. Trends in the Residential Segregation of Blacks, Hispanics, and Asians: 1970–1980. *American Sociological Review*. 1987; 52:802–825.
- Massey, Douglas S; Nancy, A Denton. Suburbanization and Segregation in U.S. Metropolitan Areas. *American Journal of Sociology*. 1988; 94(3):592–626.
- American Apartheid: Segregation and the Making of the Underclass. Cambridge: Harvard University Press; 1993.
- McKenzie, Evan. *Privatopia: Homeowner Associations and the Rise of Residential Private Government*. New Haven, CT: Yale University Press; 1994.
- McKenzie, Evan. Common-Interest Housing in the Communities of Tomorrow. *Housing Policy Debate*. 2003; 14(1&2)
- Nielson K. Recent Suburbanization of Blacks : Who, How Much and Where. *American Planning Association Journal*. 1980; 46:287–300.
- Sanchez, Thomas W; Lang, R; Dawn, M Dhavale. Security versus Status? A First Look at the Census's Gated Community Data. *Journal of Housing Education and Research*. 2005; 24:281–291.
- Schnore L. The Socio-economic Status of Cities and Suburbs. *American Sociological Review*. 1963; 28(1):76–85.
- Spatial Structures for Social Sciences. The New Latinos: Who They Are, Where They Are. 2001 Retrieved July 31, 2006 (http://browns4.dyndns.org/cen2000_s4/HispanicPop/HspReport/HspReportPage1.html).
- Spatial Structures for Social Sciences Dimensions of Segregation: Race, Class and Nativity 2002 (http://browns4.dyndns.org/cen2000_s4/segregation/home.htm)>
- Van Dijk D. Foreclosures: New Wave Will Hit. 2009 Retrieved June 23. <http://www.zacks.com/stock/news/20358/Foreclosures:+New+Waves+Will+Hit>
- Vesselinov, Elena. Members Only: Gated Communities and Residential Segregation in Metropolitan U.S. *Sociological Forum*. 2008a; 23(3)
- Gated Communities and Latino Groups: Segregation, Integration or Fashion Choice? Manuscript Under Journal Review. 2008b
- Vesselinov, et al. Gated Communities and Spatial Inequality. *Journal of Urban Affairs*. 2007
- Webster, Chris. The Nature of the Neighbourhood. *Urban Studies*. 2003; 40(13):2591–2612.
- Webster, Chris J, Lawrence, Wai-Chung Lai. *Property Rights, Planning and Markets: Managing Spontaneous Cities*. Cheltenham UK and Northampton MA, USA: Edward Elgar; 2002.
- Webster, Chris J; Renaud, LeGoix. Planning by Commonhold. *Economic Affairs*. 2005; 25(4):19–23.
- Wilson-Doenges, Georjeanna. An Exploration of Sense of Community and Fear of Crime in Gated Communities. *Environment and Behaviour*. 2000; 32:597–611.
- Yang, Rebecca; Paul, Jargowsky. Suburban Development and Economic Segregation in the 1990s. *Journal of Urban Affairs*. 2006; 28(3)
- Young P. Looming Foreclosures Threaten Gated Communities: Chart of Day. 2009 Retrieved June 23. <http://www.bloomberg.com/apps/news?pid=20601110&sid=akZLaYrsHL9E>

Figure 1a. Moran Significance Map, Moran's $I=0.239$

Figure 1b. Moran Significance Map (standardized variable)

Figure 1.
Phoenix Metropolitan Area.

Figure 2a. Moran Significance Map, Moran's $I=0.321$

Figure 2b. Moran Significance Map (standardized variable)

Figure 2.
Las Vegas Metropolitan Area

Figure 3a. Moran Significance Map, Moran's I=151

Figure 3b. Moran Significance Map (standardized variable)

Figure 3.
Seattle Metropolitan Area.

Table 1

Gated Block Group Classifications: Number of Observations

Gated Block Groups Classifications	Metropolitan Areas					
	Las Vegas		Phoenix		Seattle	
	GBG	Non-GBG	GBG	Non-GBG	GBG	Non-GBG
Total BG	832		2,229		2,630	
Gated1	223	609	229	2,000	154	2,476
Gated2	71	761	103	2,126	65	2,565
Gated3	158	674	191	2,038	146	2,484
Gated4	69	763	90	2,139	73	2,557

Gated1. All block groups with gated roads are defined as gated block groups.

Gated 2. Gated block groups: the percent gated roads is one standard deviation above the metropolitan mean.

Gated 3. Gated block groups: the quotient (percent gated roads at BG divided by the mean) is higher than 1.

Gated 4. Gated block groups: the number of gated people is one standard deviation above the metropolitan mean.

¹ Gated block groups.

² Non-Gated block groups

³ Block groups

Table 2

Demographic Characteristics.

Gated Block Groups (GatedI)	Metropolitan Areas					
	Las Vegas		Phoenix		Seattle	
	GBG N=223	Non-GBG N=609	GBG N=229	Non-GBG N=2,000	GBG N=154	Non-GBG N=2,476
<i>Median Age</i>	38.6	35.9	40.1	35.0	36.9	36.5
<i>Age groups</i>	100.0	100.0	100.0	100.0	100.0	100.0
<i>Under 18</i>	23.6	26.4	24.4	27.3	28.0	24.2
<i>18–24</i>	7.7	9.8	6.4	10.8	8.8	9.3
<i>25–34</i>	16.5	16.1	13.2	16.2	14.8	16.0
<i>35–44</i>	16.5	15.8	16.4	15.2	17.6	17.7
<i>45–54</i>	14.0	12.5	14.2	11.5	14.0	14.5
<i>55–64</i>	10.6	8.9	11.2	7.4	7.8	8.0
<i>65 and older</i>	11.1	10.5	14.2	11.5	9.0	10.3
<i>Marital Status</i>	100.0	100.0	100.0	100.0	100.0	100.0
<i>Percent Never Married</i>	23.0	27.2	18.9	28.0	23.2	29.0
<i>Percent Married, Spouse</i>	55.1	46.0	64.2	49.1	59.0	50.1
<i>Percent Married, No Spouse</i>	3.9	7.1	2.7	5.9	3.4	4.2
<i>Percent Widowed</i>	4.8	5.6	4.9	5.7	4.3	5.0
<i>Percent Divorced</i>	13.2	14.0	9.2	11.3	10.1	11.7
<i>Percent Foreign Born</i>	12.8	20.3	8.0	15.2	8.9	13.0
<i>Among Foreign Born</i>	--	--	--	--	--	--
<i>Percent Citizen</i>	49.5	33.0	43.3	24.2	52.6	45.0
<i>Percent Entry 1990–2000</i>	36.1	46.6	38.3	55.0	39.0	47.3
<i>Percent Entry 1980–1989</i>	26.5	28.7	23.0	23.9	24.3	24.5
<i>Percent Entry Before 1980</i>	37.4	24.7	38.7	21.0	36.8	28.2
<i>Different House 5 yrs ago</i>	71.0	63.2	64.4	56.9	56.4	52.3
<i>Among Migrants: MSA/PMSA</i>	--	--	--	--	--	--

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Gated Block Groups (GatedI)	Metropolitan Areas							
	Las Vegas		Phoenix		Seattle			
	GBG N=223	Non-GBG N=609	GBG N=229	Non-GBG N=2,000	GBG N=154	Non-GBG N=2,476		
Same MSA, Central City	32.6	34.4	36.7	42.8	14.5	27.5		
Same MSA, Remainder	16.6	16.3	17.3	17.1	37.6	34.0		
Different MSA, Central City	20.4	18.9	15.0	13.3	13.9	13.4		
Different MSA, Remainder	21.5	16.5	21.7	12.4	21.2	12.2		
Not MSA	4.9	5.1	5.7	5.9	6.6	5.3		

Table 3

Socio-Economic Characteristics.

Gated Block Groups (Gated1)	Metropolitan Areas					
	Las Vegas		Phoenix		Seattle	
	GBG N=223	Non-GBG N=609	GBG N=229	Non-GBG N=2,000	GBG N=154	Non-GBG N=2,476
Percent Owners	70.0	54.4	81.5	65.3	71.4	61.3
Median House Value (\$\$)	184,450	121,418	208,181	109,585	231,658	213,783
Median Rent (\$\$)	808	691	777	606	817	745
Median Income (\$\$)	67,829	48,784	73,018	48,692	68,333	63,191
Income (Percent)	100.0	100.0	100.0	100.0	100.0	100.0
Less than \$25,000	11.9	21.4	10.5	20.6	11.7	13.6
\$25,000-\$49,999	20.9	27.0	17.7	25.6	18.8	19.8
\$50,000-\$74,999	31.3	29.2	26.8	28.6	30.4	29.7
\$75,000-\$99,999	15.7	11.8	15.7	12.3	17.0	16.5
\$100,000-\$124,999	8.3	5.2	10.0	6.0	9.5	8.9
\$125,000 and above	11.9	5.4	19.3	6.9	12.6	11.5
Education (Percent)	100.0	100.0	100.0	100.0	100.0	100.0
Less than High School	12.2	24.3	8.5	20.0	8.4	10.9
High School Diploma	27.7	30.8	19.7	24.3	24.3	22.7
Associate Degree	35.9	30.6	34.5	33.1	36.9	33.5
College Graduate	15.8	9.5	24.4	15.0	20.2	22.2
Professional Degree	8.4	4.7	12.9	7.6	10.2	10.7
Racial Composition	100.0	100.0	100.0	100.0	100.0	100.0
Percent White	72.82	59.67	80.64	63.1	81.37	76.31
Percent Black	6.57	8.95	2.23	3.7	3.63	4.57
Percent Latino	11.32	22.97	13	27.0	4.32	5.07
Percent Asian	5.64	4.53	2.01	2.2	5.75	8.9
Percent Other	3.55	3.78	2.11	3.9	4.93	5.15

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Gated Block Groups (GatedI)	Metropolitan Areas					
	Las Vegas		Phoenix		Seattle	
	GBG N=223	Non-GBG N=609	GBG N=229	Non-GBG N=2,000	GBG N=154	Non-GBG N=2,476
Total Population	407,345	964,280	505,936	2,745,940	257,681	2,786,817
Percent of Total	29.7	70.3	15.56	84.4	8.46	91.54

Indices of Dissimilarity

Table 3

Gated Block Groups Classifications	Metropolitan Areas					
	Las Vegas		Phoenix		Seattle	
	GBG	Non-GBG	GBG	Non-GBG	GBG	Non-GBG
<i>Whites vs. Blacks</i>						
Gated1	<i>D=41.9</i>		<i>D=48.5</i>		<i>D=55.3</i>	
	36.2	41.8	42.8	47.3	50.5	55.8
Gated2	34.1	41.7	40.4	48.1	42.3	55.7
Gated3	30.4	42.9	45.4	47.6	46.9	55.9
Gated4	25.7	42.7	39.0	48.0	41.6	55.9
<i>Whites vs. Latinos</i>						
Gated1	<i>D=44.0</i>		<i>D=54.7</i>		<i>D=34.7</i>	
	28.0	43.7	42.5	54.0	30.7	34.9
Gated2	32.7	43.4	41.7	54.2	27.0	34.8
Gated3	26.6	44.0	43.5	53.9	26.5	35.1
Gated4	25.9	44.0	39.8	54.1	23.4	35.0
<i>Whites vs. Asians</i>						
Gated1	<i>D=28.5</i>		<i>D=35.3</i>		<i>D=41.0</i>	
	27.0	29.3	32.2	35.8	35.4	41.4
Gated2	20.8	29.1	35.3	35.3	32.7	41.3
Gated3	25.8	29.5	31.7	35.9	36.1	41.4
Gated4	26.4	29.0	34.3	35.4	31.4	41.5
<i>Blacks vs. Latinos</i>						
Gated1	<i>D=34.3</i>		<i>D=36.8</i>		<i>D=39.2</i>	
	26.4	35.6	35.7	36.7	29.0	40.1
Gated2	25.4	34.5	33.9	36.8	29.7	39.5
Gated3	21.8	35.9	34.7	36.7	31.3	39.7
Gated4	17.5	35.4	32.4	36.8	30.8	39.5
<i>Blacks vs. Asians</i>						
Gated1	<i>D=42.7</i>		<i>D=47.8</i>		<i>D=42.2</i>	
	40.5	41.9	40.1	47.7	41.0	42.4
Gated2	35.1	42.6	33.1	47.9	32.3	42.6

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Gated Block Groups Classifications	Metropolitan Areas							
	Las Vegas		Phoenix		Seattle			
	GBG	Non-GBG	GBG	Non-GBG	GBG	Non-GBG	GBG	Non-GBG
Gated3	35.1	42.8	41.0	47.5	33.6	42.9		
Gated4	31.1	42.3	30.3	47.8	32.3	42.7		
<i>Latinos vs. Asians</i>								
	<i>D=42.1</i>		<i>D=57.1</i>		<i>D=38.6</i>			
	31.9	41.2	48.2	57.1	39.7	38.4		
	32.0	41.7	43.0	57.0	35.2	38.6		
	29.8	41.1	46.4	57.0	35.8	38.7		
	28.6	41.1	40.5	56.9	32.2	38.8		

Table 5

Income Class Composition.

Gated Block Groups (Gated1)	Metropolitan Areas					
	Las Vegas		Phoenix		Seattle	
	GBG N=223	Non-GBG N=609	GBG N=229	Non-GBG N=2,000	GBG N=154	Non-GBG N=2,476
Lower, < \$35,000	21.4	35.0	18.8	33.5	21.1	23.1
Middle \$35,000–74,999	42.7	42.6	36.2	41.3	39.8	40.0
Upper, \$75,000–124,999	24.0	16.9	25.7	18.3	26.4	25.4
Upper, upper, \$125,000+	11.9	5.5	19.3	6.9	12.6	11.5

Table 6

Index of dissimilarity (class).

Gated Block Groups Classifications	Metropolitan Areas					
	Las Vegas		Phoenix		Seattle	
	GBG	Non-GBG	GBG	Non-GBG	GBG	Non-GBG
<i>Lower vs. Middle</i>	<i>D=29.4</i>		<i>D=31.6</i>		<i>D=29.1</i>	
Gated1	22.5	29.3	25.5	31.7	27.0	29.3
Gated2	23.6	29.5	24.3	31.6	22.1	29.3
Gated3	22.9	29.1	26.5	31.6	22.8	29.5
Gated4	24.1	29.2	22.3	31.6	20.8	29.4
<i>Lower vs. Upper</i>	<i>D=47.1</i>		<i>D=53.0</i>		<i>D=44.3</i>	
Gated1	36.0	48.2	40.8	53.1	38.5	44.8
Gated2	34.6	47.3	42.3	52.9	33.5	44.7
Gated3	33.8	47.7	41.3	52.7	33.5	45.0
Gated4	35.4	47.1	38.7	52.9	32.5	44.7
<i>Lower vs. UpUpper</i>	<i>D=58.2</i>		<i>D=67.6</i>		<i>D=59.5</i>	
Gated1	47.4	57.0	56.3	66.2	56.1	59.8
Gated2	47.5	56.5	55.2	66.4	54.6	59.7
Gated3	46.4	56.7	54.9	65.9	53.4	60.0
Gated4	48.5	57.4	51.7	66.4	50.1	59.9
<i>Middle vs. Upper</i>	<i>D=26.9</i>		<i>D=31.0</i>		<i>D=26.2</i>	
Gated1	22.9	28.2	25.0	31.5	24.5	26.4
Gated2	21.7	27.0	26.5	30.9	24.8	26.3
Gated3	21.6	28.0	24.9	31.1	23.8	26.5
Gated4	20.2	27.4	25.3	31.1	23.3	26.3
<i>Middle vs. UpUpper</i>	<i>D=45.7</i>		<i>D=52.9</i>		<i>D=47.2</i>	
Gated1	42.5	44.7	48.0	50.9	48.2	47.1
Gated2	41.1	43.8	48.1	51.4	50.1	47.0

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Gated Block Groups Classifications	Metropolitan Areas					
	Las Vegas		Phoenix		Seattle	
	GBG	Non-GBG	GBG	Non-GBG	GBG	Non-GBG
Gated3	42.8	44.4	46.6	50.7	47.7	47.1
Gated4	43.6	45.3	45.5	51.6	44.6	47.3
<i>Upper vs. UpUpper</i>						
Gated1 Gated2 Gated3 Gated4	<i>D=34.6</i>		<i>D=37.1</i>		<i>D=35.1</i>	
	33.1	35.2	31.0	36.8	33.9	35.3
	34.7	33.0	27.7	36.7	33.4	35.2
	34.6	34.0	29.9	36.8	33.9	35.3
	35.5	34.3	27.3	37.1	32.7	35.3