Segregation within Integration: Exploring Micro-Level Segregation in Seattle's Integrated Tracts Using Spatial and Qualitative Analysis*

Timothy A. Thomas
Department of Sociology
University of Washington
Savery Hall, Box 353340
Seattle, WA 98195
Email: t77@uw.edu
Phone: 206-390-6512

Ryan Gabriel
Department of Sociology
Brigham Young University
2033 JFSB
Provo, UT 84062
Email: ryangabriel@byu.edu
Phone: 801-422-3461

* Correspondence should be addressed to Timothy A. Thomas, Department of Sociology, Savery Hall, Box 353340, University of Washington, Seattle, WA 98195; t77@uw.edu.

Segregation within Integration: Exploring Micro-Level Segregation in Seattle's Integrated Tracts Using Spatial and Qualitative Analysis

Abstract

Residential segregation has decreased in recent decades, leading to a rise in the number of integrated neighborhoods. Despite this increase in diverse neighborhoods, we know little about whether racial residential micro-segregation manifests within these areas. Using a mixed-methods approach, we investigate whether integrated neighborhoods show substantive levels of micro-segregation through physical and social buffers created by topography, the built environment, economic structures, and racial history. Utilizing block-level spatial demographic analysis of three of Seattle's integrated tracts, we find definitive micro-segregation coinciding with social, commercial, and topographic buffers—potentially impeding interaction between racial groups. We also find that contemporary segregative patterning of racial groups within these areas is associated with historical neighborhood formation and segregation. Our research has implications for studies of residential segregation, how it is measured, and highlights the impacts of historical policies and neighborhood change on residential diversity.

Segregation within Integration: Exploring Micro-Level Segregation in Seattle's Integrated Tracts Using Spatial and Qualitative Analysis

Introduction

Racial residential segregation has decreased in the United States. From 1970 to 2010, the average black/white dissimilarity lessened from 79 to 59, while the percent of whites within a typical white person's neighborhood dropped from 88% in 1980 to 75% in 2010 (Logan and Stults, 2011). Not only has segregation decreased between blacks and whites on the aggregate, there has also been a concomitant increase in the amount of integrated areas throughout the United States (Friedman, 2008). This diversification has been spurred by a large influx of Hispanic and Asian immigrants who have been integral in diversifying cities and their neighborhoods (Fasenfest et al., 2004). However, much of the extant research on integrated communities (Friedman, 2008; Reibel and Regelson, 2011) and residential segregation (Crowder, Pais, and South, 2012; Glaeser and Vigdor, 2012; Massey and Denton, 1993) utilizes census tracts as proxies for neighborhoods. While census tracts provide critical information on the ever-changing association between racial diversity and place, they may hide potentially substantive levels in black/white residential segregation at smaller levels of geography. Thus, what might appear as an integrated neighborhood at the tract-level could hide substantive ethno-racial residential segregation. This ethno-racial segregation within neighborhoods could also be associated with a spatial stratification of key resources (e.g., quality housing, parks, and medical care), ul-

timately leading to racial stratification in access to essential resources due to a lack of proximity to them.

Additionally, residential segregation between blacks and whites within integrated neighborhoods may exist due to social and structural buffers that allow racial groups to remain separate within the same neighborhood (Logan and Zhang, 2010). Buffers that potentially impede social interaction can take multiple forms such as residential zoning, street design, and topography (Grannis, 1998; 2005). These micro-level divisions between black and white residents are salient because social interactions occurring at micro-levels of geography can lead to positive cross-racial interaction (Allport, 1954). Furthermore, buffers may represent artifacts of historical segregative policies that helped form contemporary neighborhood racial compositions. Understanding these historical contexts helps inform the trajectories of integrated neighborhoods.

In this paper, we conduct an analysis of racial residential segregation within integrated neighborhoods in Seattle using 2010 US Census data and a constructed dataset of amenities, businesses, local services, and photographs. Our intention is to explicate how residential segregation might manifest in integrated neighborhoods based on social and physical buffers created by a neighborhood's topography, built environment, economic structure, and racial history. As a first analysis of the topic, we utilize a multi-method approach by combining spatial analysis and visual sociology, along with demographic and historical methodology to create an in-depth study of the stratification associated with residential segregation at the block-level within select racially diverse tracts in Seattle.

Background and Theory

The Immigration and Nationality Act of 1965 opened the borders to foreign racial and ethnic groups that disrupted the white/black centric demographic composition of the United States. The associated increase in Asian and Hispanic immigration has fostered significant growth in the number of diverse neighborhoods. For instance, Denton and Massey (1991) found that the number of all-white tracts declined from 1970 to 1980. Neighborhood integration continued to increase from 1990 to 2000, where Farrell and Lee (2011) observed that for the 100 largest metropolitan areas in the US, most neighborhoods experienced racial and ethnic diversification.

In a more recent study, Logan and Zhang (2010) utilized census data from 1980 to 2000 and discovered that white out-mobility decreased from diverse settings through a particular pathway they term "global neighborhoods." These global neighborhoods form through Hispanic and Asian migration into all-white neighborhoods first, then black residents enter once these three aforementioned groups are established. Over their study period, this specific pattern of ethno-racial in-migration precipitated somewhat temporally stable diverse neighborhood settings. Extending their research on global neighborhoods with 2010 census data, Logan and Zhang (2011) found that 60% of the neighborhoods that were global neighborhoods in 1980 still had significant amounts of whites in 2010.

To explain the durability of these global neighborhoods, Logan and Zhang theorize that these neighborhoods exist through a "buffer" that Hispanic and Asian populations provide between blacks and whites. They assert that a buffer can be a social one,

where “the presence of other groups reduces the salience of black neighbors to whites, even when they live on the same block” (Logan and Zhang, 2010). Buffers can also be physical, where Hispanics and Asians live between blacks in physical space, separating both groups.

There are other potential buffers that can allow black and white populations to exist in the same neighborhood. For example, natural buffers can effectively separate two racial groups through topographical features such as ridges, waterways, gorges, etc. Even natural amenities (e.g. water-front views) can raise housing value, further impeding access to parts of a tract and limiting cross-race interaction. Buffers can also exist in street design. In his study of residential streets in Los Angeles and San Francisco, Grannis (1998; 2005) found that street networks in neighborhoods can create a physical barrier between racial groups. He observed that racial similarity between neighbors was more likely when they were connected by tertiary streets (i.e. small, residential streets). Alternately, when streets were not connected they were less likely to be the same race. Grannis’ study highlights that street networks in neighborhoods can create a physical barrier between racial groups.

Another buffer might occur with individuals’ perceptions of different street types. Appleyard and Lintell’s (1986) study of individuals’ perceptions of streets found that respondents thought that low-traffic residential streets helped create tight communities, whereas streets that were major thoroughfares were perceived as being filled with strangers and mainly used as brief passageways. Thus, a buffer between blacks and

whites might exist when blacks live on streets that are high-traffic corridors, separate from whites on tertiary, low-traffic residential streets. Another potential buffer can be neighborhood land use and zoning ordinances on the types of housing that can be built in particular sections of a tract. For example, cheaper multi-family housing is generally separated from single-family residences and, due to the income stratification between blacks and whites, both groups are kept apart spatially and possibly socially (Rothwell and Massey, 2009).

The buffer hypothesis suggests that micro-level variations in the structure of a neighborhood can be utilized as barriers of separation between blacks and whites. Tract-level analysis requires the assumption that the population is evenly distributed within its borders (Lee et al., 2008). However, social interactions occur at the block-face (Kirk and Laub, 2010) where differences in resources associated with various sections of neighborhoods can be highly correlated with the spatial location of these groups. Meaning that even when blacks and whites share the same neighborhoods, they may not interact with each other in their daily rounds. Hence, what may appear as racial and ethnic progress at the tract-level evidenced by groups sharing the same neighborhoods, black and white residents may be worlds apart.

Moreover, integrated neighborhoods are frequently lauded as beacons of racial progress, however, we have yet to grapple if whether these neighborhoods bestow similar benefits to each racial group residing in them. While, Logan and Zhang (2011) clearly demonstrate that integrated neighborhoods are increasing in number and many are tempo-

rally stable, it is unclear whether blacks in these neighborhoods reside in areas of similar quality as whites. Are areas with high concentrations of black residents in integrated neighborhoods closer to major throughways and commercial districts, and further away from high-quality food and pleasing aesthetic areas such as public parks and views of nature? This is important to investigate because of the inimical effects of exposure to areas of varied quality has major life course consequences. For instance, noise pollution has been associated with headaches, anxiety, lower quality sleep, and even higher blood pressure (Stansfeld and Matheson, 2003). In addition to noise pollution, previous scholars have observed that poor access to supermarkets is associated with individuals choosing "empty calorie" foods available at convenient stores and fast food establishments (Walker, Keane, and Burke, 2010). It is unequivocal that "empty calorie" foods are high in fat, sodium, and sugar and are linked to detrimental health outcomes (Lewis et al., 2005). Particularly pernicious is that access to supermarkets is strongly differentiated by race, where racially integrated neighborhoods have fewer food outlets than predominantly white areas (Moore and Roux, 2006). Given the harmful consequences of differential exposure and access to desirable and useful resources, it is vital to investigate segregation within integrated neighborhoods.

Why Seattle?

Seattle is a highly effective location to explore how segregation might occur in integrated neighborhoods due to the city's economic growth, racial history, and unique geography. Seattle is known to appreciate ethno-racially diverse areas that concentrate along the

south end of the city (Gordon, Locke and Ulberg, 1996), in spite of its large white population. The recent tech boom brought rapid population growth and, coinciding with construction and zoning constraints, led to increasing housing costs. Seattle is surrounded by water, making it more difficult for urban sprawl and white flight to occur than in metropolitan areas with larger swaths of land. This scarcity and competition for space forced residents to seek affordable housing in poorer, non-white neighborhoods, potentially increasing the likelihood that whites will share neighborhoods with ethno-racial minorities. While integration should theoretically improve the local area, rapid economic growth, integration, and increasing housing costs have coincided with excessively high levels of homelessness and significant declines in Seattle's black population in areas known, historically, as black enclaves (McGee, Jr., 2007). Therefore, what seems like socioeconomic progress across the city may be the result of the replacement of poorer populations, rather than their improvement. These contradictory elements situate Seattle as a unique city that is well-positioned to explore micro-segregation.

Data and Methods

To investigate how buffers might exist within integrated neighborhoods, we chose three distinct racially diverse Seattle tracts to conduct demographic analysis and fieldwork. With the assistance of fourteen trained researchers, we 1) investigated the demographic and historical context of each neighborhood; 2) analyzed the built environment within them; and, 3) photographed the various buffers and amenities found residing in each of the neighborhoods.

Tract selection was based on three criteria: racial diversity of the tract; the presence of both commercial and residential characteristics; and, sufficient distance between tracts to enhance geographic variation. First, for the baseline tract-to-metro comparison we searched for the census tract that most closely matched Seattle's racial distribution of black, Asian, and white residents.[1] Second, we determined the tract that had the most even proportions of blacks, Asians, and whites. This is similar to the Entropy Index, which measures the level of evenness of racial groups across neighborhoods in a metropolitan area (cf. Iceland, 2004); however, instead of using an entropy score to determine neighborhood diversity, we applied the simple and intuitive method of defining the most integrated neighborhood as the area with the most even proportion of racial groups. Finally, we defined a binary version of the previous method where we located the tract with the highest proportions of black and white residents.[2]

Next, we examined the historical context of the neighborhoods holding these tracts of differing diversity so as to understand how significant events, historical trends, and government policies assisted in creating current demographic population patterns.

---

[1] All racial groups in the analysis are non-Hispanic. Also, due to our interest in investigating the historical context of Seattle's contemporary patterns of micro-segregation of blacks, we did not include Hispanics in the analysis given their relatively small portion of the population in decades prior to 2010.

[2] In the event that two tracts were similar in racial composition we selected the neighborhood that was safest for our researchers to investigate based on Seattle crime statistics.

This strategy is motivated by previous work demonstrating that present patterns of residential segregation are highly correlated with the historical processes that created them (Massey and Denton, 1993). Investigating the role of local and national history as it relates to the population patterns of Seattle is necessary to unravel how the neighborhoods we studied came to their present state.

We also investigated the built environment of each selected tract. Research on the consequences of residential segregation frequently examine variations in income (Logan and Alba, 1993), health (Crowder and Downey, 2012), and education (Sharkey, 2008) within and across populations in neighborhoods and metropolitan areas. The prevalence and variation of these features might be found within the built environment of a neighborhood and can be analyzed as a by-product, and possible buffer for, segregation and inequality. Therefore, we employed online resources to locate residential resources under the categories of income (banks, restaurants, etc.), health (clinics, gyms, etc.), and education (schools, libraries, etc.). The aim of this phase was to determine the spatial distribution of resources of various quality that residents have ready access to in their immediate environments.

Lastly, we sent researchers trained in photographic methodology into the preselected diverse neighborhoods to photograph the built environment. For each tract, we selected four blocks for our trained observers to visit: a commercial and residential block with higher concentrations of whites, and a commercial and residential block with higher

black representation.[3] For each block, researchers photographed characteristics of the built environment using their GPS enabled mobile phones looking for signs of income, health, and education. They were also tasked with documenting signs of disorder such as graffiti, trash, and signs of security (e.g., bars on windows); the quality of the public works (sidewalks, parks, and roads); physical features that might divide the residents (topographical differences and road structures); social interactions, if any; the quality of the housing-stock (dilapidated or well-maintained); and the overall aesthetic of the area (beautiful or unpleasing to the eye). The overall purpose of this stage was to provide a comparison of various types of buffers that black and white residents may experience on a daily basis and glean evidence of buffers that might divide blacks and whites.

Results

In this section, we demonstrate how the three Seattle neighborhoods we selected function along three components: demographics, historical context, and the built environment. We show how these three components manifest in the most northern tract in our sample in the "Greenwood" neighborhood. We continue this process, by discussing the tract in the geographically central neighborhood called the "Central District." In our third and final tract in our sample, "Columbia City," we detail how this area furthest south also functions within these three components. We observe that each tract has unique features that inform our conception of how black/white segregation can manifest in integrated neighborhoods.

---

[3] Researchers were sent in groups of two or three to improve coverage of the block-faces and provide double documentation of each street segment.

Figure 1: Seattle, WA Select Tracts - about here

Seattle's Racial & Neighborhood History

Like many cities across the US, the history of Seattle's neighborhood development and subsequent segregation is intrinsically tied to both local and national events of urban growth, transportation, and discriminatory lending and housing practices. Settled in 1851, Seattle started as a coal and lumber town that later centralized on ship-building, fishing, and trade. Transcontinental railway connections in the late 1800s and early 1900s brought more industry and diversified the population. Seattle's steep topography and confining waterways left residents with few options to live. The introduction of the railcar in 1910 allowed more residents, mostly white, to move to higher ground just outside of down-town, leading to a population boom in surrounding areas and segregation near the urban core (Taylor, 1994).

The out-migration of whites from the city center to surrounding neighborhoods was further fueled by the introduction of mortgage loans through the Federal Housing Administration (FHA) in the 1930s that opened up homeownership to a new generation of Americans. However, discriminatory loan guidelines prevented non-whites from ob-taining FHA loans, effectively limiting their upward residential mobility (Oliver and Shapiro, 2006). In addition to loan discrimination, restrictive covenants were a common tool to create and maintain racial residential segregation. Though restrictive covenants were ruled illegal in 1948, these informal restrictive practices continued (Speidel, 2005) throughout the Seattle area. Through the combination of these discriminatory policy in-

struments, blacks were relegated to neighborhoods close to downtown, constraining them to an area no larger than two-square miles (Taylor, 1995).

After the bombing of Pearl Harbor triggered US participation in WWII, Japanese Americans were forcibly removed from their homes and placed into internment camps. This process of Japanese internment opened up housing stock to black migrants coming into Seattle to work in wartime manufacturing. Upon their release, many Japanese Seattleites did not return to their former neighborhoods, but instead, settled to the south along the Rainier Valley because housing discrimination, especially in the northern neighborhoods, prevented them from residing in many other areas in Seattle.

Tract 1701 Greenwood - Most Similar to Seattle

Historical Context

Seven miles north of downtown and across the Lake Washington Ship Canal lies the Greenwood neighborhood. First platted in 1891, the neighborhood saw large population growth after the introduction of the trolley in 1910 and the opening of Aurora Bridge in 1932 (Bhatt, 2008), carrying Highway 99 closer the neighborhood. Commerce grew making the area particularly appealing to new residents, primarily whites, while racial and ethnic minorities faced extreme resistance in Greenwood. For instance, Greenwood and other northern neighborhoods had formal housing restrictions and a history of police brutality against blacks (Taylor, 1994). This practice was buttressed by the Seattle Police who enforced a “sundown” policy in the neighborhood until the 1960s, which restricted black men from occupying the neighborhood after dark (Gregory, 2007). These housing

restrictions and policing practices helped shape the current racial composition of the Greenwood neighborhood.

Demographic Assessment

In 2010, Greenwood's tract 1701 represents the tract most similar to Seattle's overall racial composition (66.3% white, 13.7% Asian, and 7.7% black,). Comparatively, the racial composition of tract 1701 consists of 67.8% white, followed by 11.3% Asian, and 5.8% black. In Figure 1.a, whites and Asians are distributed relatively evenly across tract 1701, while black residents are highly concentrated in two main blocks—the southwest and southeast corner of the tract—where 50% of the tract's black residents live. This pattern of racial concentration provides our first piece of evidence of substantial residential segregation at the block-level within this integrated tract. Besides the residential segregation in this tract, racial groups are stratified by their respective levels of income. For instance, the variation in median family income sharply favors whites who earn $85,313, while black households are at a pronounced deficit at $11,694, with Asian families earning slightly more at $26,607.

Built Environment

The built environment for tract 1701 in Greenwood is distinguished by two different districts in the north and south end of the tract. The southern end is dominated by businesses and apartments, and contains the majority of black residents, while the northern section is mostly residential, is predominantly white, and has low commercial activity. Upon further inspection of the southwest and southeast corners where 50% of the black population re-

side, we found two low-income housing projects run by the Low Income Housing Institute. The mission of the Low Income Housing Institute is to "operate housing for the benefit of low-income, homeless, and formerly homeless people" (Anon., 2016b). The presence of this low-income housing provides insight on the previous demographic finding that the median family income for black residents hovers around the federal poverty level for a single individual.

Two large grocery stores are situated on the south end, Safeway and Fred Meyer, while the northern section has a small produce outlet. Down the center of tract is the throughway Greenwood Avenue, which contains a small strip of new restaurants on the south tail, such as Razzis Pizzeria specializing in vegan and gluten-free pizza. Conversely, the north side has a small neighborhood pub called The Ould Triangle. The options for healthcare are mainly on the south side, with Neighborcare Health at Greenwood, slightly outside of the tract, catering to low-income families. The educational opportunities are bundled in the south side of tract as well, with a public library just outside of the tract, a bookstore, and The School of Rock.

Visual Sociology

For the visual field work on tract 1701, we sent our trained photographers to two residential areas (one in the southwest corner where the majority of the population is black and the other near the southeast portion of the tract, which is mostly white) and two commercial areas (both neighboring each other in the south-central portion of the tract).

Figure 2: Greenwood Photo Collage about here

The general aesthetic of this tract is that of a middle-class neighborhood. Just east of the central commercial corridor are residential areas (block 2013) with higher concentrations of whites, with well-kept houses and yards, along with a clean park nearby. In contrast, the low-income housing complex 2,000 feet to the southwest (block 1017) has distinct mixed-material paneling design with cameras and thick steel gates at the entrance. This evokes a semi-institution aesthetic setting it apart from other dwellings in the neighborhood. Next door is the Have a Heart Greenwood recreational marijuana store and the high traffic Fred Meyer across the street. Some of sidewalks in the residential blocks are unpaved with dirt paths running along the side of the streets. Numerous signs of security are evident along the blocks, mostly ADT signs posted in yards, and older cars with wheel locks visible for theft deterrence. The commercial area in the south central portion of the tract (blocks 1005 and 1004) is well-maintained, with good sidewalks, multiple bars and restaurants that reside in newly redeveloped property. Despite the relative newness of the construction there is some graffiti and trash along the walkways. Toward the back of the two commercial blocks, just out of sight from the main street, are dilapidated homes with broken down fences along with empty lots and sidewalks that are a combination of dirt and mud.

Tract 8900 Central District - Nearly Even Mix of Black and White

Historical Context

Due to historical redlining and restrictive housing covenants, most of Seattle's black population was constrained to live in specific areas south and east of downtown Seattle, par-

ticularly in the Central District. Prior to WWII, there was a significant Japanese American population near the Central District until their internment in 1942 (Silva, 2009). The absence of Asians allowed black migrants seeking work and shelter to occupy the newly vacant housing, clustering black residents in a small area. After the Fair Housing Act in 1968, the Central District's black population peaked to 79% (Tu and Mayo, 2011), followed by a decline to 33% over the next 40 years (Minnesota Population Center, 2016). This demographic shift in the Central District is possibly attributable to larger metropolitan economic transformations. Shifts from manufacturing to a service and technology economy brought high-earners to Seattle and increased competition for land near downtown. The Central District was an economically and spatially opportune place for gentrification as it was conveniently located near Downtown and lake-crossing thoroughfares. The resultant increase in housing costs, taxes, substantial income divides, and cultural shifts could have led poorer black residents to relocate further south in Seattle and South King County where housing costs are notably less (McGee, Jr., 2007).

Demographic Assessment

Roughly two miles east of downtown, and along the waterfront of Lake Washington, lies tract 8900 (Figure 1.b), one of the more diverse tracts in the city. The population of tract 8900 in the Central District consists of 47.4% white, 30.9% black, and 8.4% Asian. The median family income between racial groups is highly varied with white households earning $135,250, black households making $43,914, and Asian households earning the most at $189,219.

One of the unique features of this tract is how the topography creates a distinct buffer between white and black residents. In the center of the tract is a steep ridge running north to south. The major road connecting the areas on either side of the ridge is extremely steep and windy, practically non-traversable on foot. Some of the roads along the ridge do not connect the west to the east side. To the east of the ridge are expensive homes, water views, a beautiful park with high quality trails, and a majority of the white population (55%). West of the ridge holds a mix of mostly run-down and a few newly built homes, commercial blocks, and more than three quarters of the tract's black residents (78%).

Built Environment

The elevated ridge running down the center of the tract, along with the craggy terrain, creates a significant racial divide in businesses and amenities for black and white residents. The west side of the ridge holds the majority of black residents who have access to mostly lower quality establishments as compared residents on the eastside along the water. Here, multiple convenience stores have bars on their windows, advertising lottery tickets and cigarettes. Restaurant options on the westside are primarily major fast food chains, such as Subway and Papa Murphy's Pizza. In contrast, within walking distance of the northeastern border of tract 8900, a quaint strip of fine dining restaurants and specialized markets line the streets and walking paths along Lake Washington. The high-end Leschi Food Mart advertises homemade sausage and organic roasted chicken. Two top-tier restaurants, Bluwater Bistro and Daniel's Broiler, serve entreé items in the high $60s.

As a whole, the majority of the health facilities are non-medical in nature, such as Cross-fit gyms. Educational facilities in the area are limited. On the westside is an all-girls school, a library, and a single Christian bookstore. Conversely, the east side of the tract has no schools, libraries, or bookstores. However, the lack of educational facilities on the eastside is most likely driven by the high cost of water-view property facing Lake Washington and zoning ordinances that limit business development.

Visual Sociology

Our trained photographers examined four blocks in the tract: a mixed commercial and residential block to the northwest; a residential block in the center of the tract on top of the ridge; a residential block in the south central section of the tract; and a residential block on the eastside of the ridge capturing views of the water and higher-end homes.

The commercial block to the northwest shows several signs of disorder and security: gated doors for businesses, razor wire on fences, graffiti, and ramshackle structures. Both the central and south central blocks show a few newer homes mixed with mostly run-down dwellings, neglected sidewalks with overgrown vegetation, unkempt yards, and streets disconnected from higher elevated roads on the ridge, making it difficult terrain for residents to walk. Alternately, homes on the eastside of the ridge are beautiful and clean with stunning views of the water. The streets and sidewalks in this area are in the best condition relative to the rest of the tract.

Figure 3 about here - Central District photo collage

While the tract data suggests integration, block-level analysis is different, especially due to the topographic buffer. Social interaction may be less likely to occur between white and black residents, especially between the poor and wealthy residents who only live within a few thousand feet of each other.

Tract 10300 Columbia City - Most Integrated Tract in Seattle

Historical Context

About four and a half miles southeast of downtown lies Columbia City, the most racially diverse tract in Seattle. Annexed by Seattle in 1907, Columbia City was the business center for several surrounding neighborhoods. Columbia City was demographically dominated by whites until the 1960s and 1970s where the immigration of Ethiopian, Somali, and Eritrean preceded the post-Vietnam immigration of Vietnamese, Thai, and Laotians into the area. In the late 1970s, Columbia City reached its nadir where storefronts lay empty, residents started migrating out, and crime started to rise. In efforts to save their neighborhood, several private and public revitalization efforts were conducted, advocating for historical landmark status for several buildings in the heart of Columbia City, repaving dilapidated sidewalks and streets, and converting empty storefronts into restaurants and boutiques. These revitalization efforts increased Columbia City's viability as a residential destination of choice for higher-income earners across the city and now experiences some of fastest rising housing costs in Seattle.

Demographic Assessment

Tract 10300 is situated inside one of the more diverse zip codes in the nation. The racial composition in 2010 consists of 32.8% white, 26.7% black, and 24.8% Asian. Exploring the dot map of the tract (Figure 1.c), there is distinct isolation of blacks within specific blocks, particularly the southwest corner where one block contains 25% of the black population on only 5% of the tract's land. The remaining 75% of the black population is not evenly distributed across the tract, but are clustered in several areas. There is also an uneven distribution in median family income between whites, blacks, and Asians, where whites earn $99,688, followed by blacks making $43,305, and Asian earning $65,577.

Built Environment

Similar to tract 1701, tract 10300 evinces a high concentration of black residents clustered into small areas. In particular, the block in the southwest that houses 25% of the tract's black population contains a low-income apartment complex run by Bellwether Housing with a mission to house "low-wage working people, their families, seniors, transitioning homeless families, and those with special needs" (Anon., 2016a).

The most prominent buffer in tract 10300 is the dominant throughway of Rainier Ave. running down the center of the tract. The majority of Asian and black residents live on the west side of Rainier Ave., with a majority of the white population on the eastside. The southwest side of Rainier Ave. has multiple ethnic food markets, one catering to Vietnamese patrons and the other an African market. Along the southern end of Rainier Ave. lies multiple small convenience stores that service to the rest of the African immigrant population in the tract. To the north end, near the majority of whites, lies boutique

stores and fine restaurants such as Geraldine's Counter serving items like Café Fanny Organic Granola and Vanilla Bean Yogurt, and Sweet White Corn with Havarti and Herb Scramble. Additionally, slightly towards the east of the tract is a community-owned organic grocery store embedded in a mainly white population. On the south end, there is medical clinic located in a strip mall that has a nail salon and an e-cigarette vape store. Numerous gyms are located throughout the tract offering options from gymnastics to weight training. Concerning education, there is a public library west of Rainier Ave. and several preschools throughout the tract.

Visual Sociology

Trained photographers were sent to two commercial blocks located along the north and central portions of Rainier Ave., and two residential blocks, one in the southwest corner near the previously mentioned concentration of blacks and the northeast holding mostly whites. The commercial block to the north of the tract (block 5008) is the historically landmarked, higher-income business district with several blocks of restaurants and boutiques lining the unblemished streets. Within less than a mile south, the second business block is starkly different (block 2005). Most of the businesses have gates on the front doors, bars on the windows, and minimal evidence of pedestrian traffic. The businesses appear much older and directed toward ethnic clientele. Some of the business locations had "For Lease" signs over their doors and windows. Trash and graffiti are distinctly prevalent along this area. Yet there are attempts to improve the public-works and perceptions of the neighborhood—newer bus stops with digital bus arrival signs and orange

pedestrian safety-flags hang from the poles at an intersection for pedestrians to use while crossing. Around the corner of this same block are several residential homes sharing the same signs of security and degradation as the commercial street: worn out sidewalks, bars on windows, and run-down houses.

Towards the northeast is the mostly white block (block 1007) with manicured lawns, gardens, and impressive homes. A number of the homes are either going through restoration or are fully restored. There is a mini-library stationed on the sidewalk (i.e., a large box resembling a birdhouse on a post has free books provided by, and available to, the surrounding residents) and a nearby home with an artisan chicken coop in the back-yard. Both the mini-library and poultry farm in an urban area are signs of modern innovations and hobbies popular among gentrifiers.

In the highly concentrated black residential block (block 3011), few curbs exist and sidewalks are in disrepair, even washed out in certain areas with no proper drainage for the streets and sidewalks, effectively decreasing walkability. Across the block is a park, as well as a school that appears shut down due to its poor appearance. There are several African refugee community centers stationed in converted homes. One home was severely burned in a fire, yet remained untouched in its dilapidated state. On the west side of the block, running along Martin Luther King Way, are multi-ethnic businesses in a shabby shopping center.

Figure 4: Columbia City Photo Collage - about here

Cross-Metropolitan Analysis

To understand whether buffer processes related to micro-segregation may be place-specific (i.e. a phenomenon local only to our study area), we supplement our research with an examination of integrated tracts in a city that is similarly segregated to Seattle. Using Reardon and Sullivan's (2004) measures of spatial segregation we compared black and white tract-level dissimilarity indices and entropy for all US cities with over 500,000 people. This process identifies Austin, TX as the city most similar to Seattle, WA in measures of dissimilarity and entropy (D = 0.55 and H=0.26 for both cities).

Austin's racial composition consists of 51% white, 32% Latino, 7% black, and 6% Asian. As in Seattle, we focus on the top three racial groups within Austin with a particular highlight on the black population. At the city level, both Seattle and Austin's black populations mostly reside east of the city's interstates (Figure 5). Seattle's Lake Washington Ship Canal, just north of the majority of the black residents, creates an additional buffer between southern and northern neighborhoods. Most of Seattle's former restrictive housing covenants were established north of the canal, creating lasting racial divisions even up to 2010.

Figure 5: Austin and Seattle Comparison - About here

Next, we locate the most diverse tracts within Austin using the same three diversity criteria utilized in Seattle for the three most dominant ethno-racial groups: the tract most similar to Austin's racial composition; the highest proportion of blacks and whites; and the most diverse among whites, blacks, and Hispanics. Among these tracts, we simplify our examination to the demographic distribution of white, black and Hispanic while

investigating physical buffers and environmental conditions using Google Maps and Google Streetview.

Figure 6: Austin, TX Select Tracts - About Here

The most similar tract to Austin is tract 306 (Figure 6.a), a 5-mile drive northeast of downtown and situated in the heart of the Mueller neighborhood development: a planned, pedestrian-oriented and mixed-use community. Named after the Robert Mueller Municipal Airport closed in 1999, Mueller has a racial composition of 52% white, 31% Hispanic, and 7% black. In the heart of the tract is a new, single-family housing development with stone entryways, pleasant sidewalks, an Olympic style pool, tennis courts, and a children's museum called the Thinkery. The planned community holds most of the white population and a little over one-third of the Hispanic population. The development is bordered by large, lush parks and pedestrian pathways separating the new development from the older parts of the neighborhood. To the south lies an older subdivision, with untidy yards and iron-gated doors. Next-door is the Kensington apartment complex where Google Reviews suggest it is a "*$630 a month for a roach infested studio apartment. Drugs everywhere. No guests allowed after 11 PM. If you can find some where else!*" (Jenkins, 2016). In 2010, 61% of the 199 black residents in this tract lived in these three most southerly blocks. To the east of the Mueller development is half a mile of cleared land primed for Mueller's residential expansion, and then three most easterly blocks housing 57% of the Hispanic population along with the Austin Children's Shelter and several multi-family housing complexes. Finally, to the north and northwest lies

Mueller's apartment development, the Mueller planned market district, and the Dell Children's Medical Center.

About nine miles southeast of downtown Austin lies tract 2319 (Figure 6.b), which has the highest proportion of black and white residents. This tract just so happens to be the location of the Travis County Correctional Complex.[4] The racial composition of the tract in 2010 includes 41% white, 31% black, and 27% Hispanic. The tract borders the Austin-Bergstrom International Airport. Beyond the health and social conditions related to incarceration, such proximity to a major airport is associated with an increased risk of stroke and cardiovascular disease due to increased exposure to air and noise pollution (Hansell et al., 2013).

Finally, the most diverse tract in Austin is tract 2113 (Figure 6.c) located in University Hills, about seven miles northeast of downtown. The racial composition is 32% white, 31% black, and 34% Hispanic. Upon first glance, the racial dot map suggest that the population is relatively diffuse across the tract. However, the northerly border of the tract is defined by the junction of Highway 290 and Highway 183. Recent research finds that there are major health risks to those living within 1500 feet of a highway (Lane et al., 2016). Using this buffer designation, we investigated the proportion of residents within each racial group living within 1500 feet of the centerline of the two highways. Among

---

[4] Since 1978, the US Census collects jail populations every five years for inmates being held beyond their arraignment, which includes persons awaiting trial and those serving sentences typically less than one year.

the tract's population, 48% of black residents live within 1500 feet of the highway while just over one-third of white and Hispanic residents live within the same distance.

Discussion and Conclusion

In this project, we explored how residential segregation can manifest within integrated neighborhoods. We conducted this analysis by investigating three racially diverse tracts in Seattle utilizing demographic techniques, historical analysis, the study of the built environment, and photographic methodology. We supplemented our study of Seattle with a cross-metropolitan analysis of Austin, TX—the most similarly segregated city in black and white dissimilarity and entropy.

Our mixed-methods study revealed substantive levels of racial clustering at the block-level within integrated tracts. At the micro-level in Seattle we witnessed black and white groups buffered in multiple ways: by Asian residents, topographical barriers, available housing stock, and major throughways. This buffering coincided with observable differences in the locations' aesthetic qualities and types of housing stock occupied by blacks and whites. Bolstering our findings in Seattle, our cross-metropolitan analysis of Austin also found buffering mechanisms separating blacks and whites such as, a third population (Hispanics in Austin versus Asians in Seattle), exclusionary development patterns, and highways.

These findings are important because the integrated tracts we meticulously studied in Seattle revealed that even though blacks obtained a level of spatial assimilation with whites at the tract-level, they most likely did not achieve structural assimilation with

the white majority. The lack of within-tract propinquity between these groups and low-levels of family income among black residents most likely limits meaningful cross-race interaction that lead to lasting bonds. This is punctuated by the fact that two of the neighborhoods we investigated in Seattle had low-income housing complexes containing a substantial portion of the black population. This racial clustering in Seattle also coincided with a difference in the quality of resources, such as restaurants, grocery stores, and health services. Additionally, the use of photographic methods brought to the forefront the stark differences in aesthetic qualities between areas dominated by black and white residents respectively. Portions of the neighborhoods occupied by large concentrations of black residents were generally of a lower quality, had higher traffic and noise, and marked by disorder; while those swaths of land inhabited by whites possessed higher quality amenities, aesthetically pleasing views of nature, and clean surroundings. What is most shocking, however, is these differences in residential quality between black and white residents all occur within blocks of each other.

While our investigation provides new knowledge about how segregation can exist in diverse spaces, there are some limitations. For instance, the micro-level analysis of Seattle was aspatial, in that we did not take into account contiguous tracts. It is clear that individuals travel outside of their tract boundaries to obtain resources. For that reason, future research should extend the analysis to neighboring areas. Moreover, the neighborhoods we defined are not necessarily how residents conceptualize their own neighborhood boundaries (Hwang, 2015). Black residents in tract 10300 may not consider any

area east of the ridge to be a part of their neighborhood. It is also of value to consider that the diverse neighborhoods we observed were potentially undergoing neighborhood racial change, therefore, future work should assess differences between neighborhoods experiencing stable racial diversity and those in transition.

Additional questions were raised through this analysis around the residential mobility of blacks over the past forty years. Figure 7 illustrates in 1980 the black population was strongly concentrated in southern parts of Seattle, but since then they have migrated further south, outside of the city limits, and toward traditionally whiter and more affordable townships of Renton and Kent.

Figure 7: Change in Seattle's black population over 40 years - about here

Our historical analysis, study of the built environment, along with photographic evidence suggests gentrification is occurring in these areas where an influx of new and restored homes and businesses have encroached into neighborhoods customarily possessing large concentrations of black residents. According to our analysis, evidence of stratified incomes among black and white residents, their disparate living conditions, and the spatial displacement of black residents from these neighborhoods over forty-years implies the benefits of gentrification are not translating across racial lines (McGee, Jr., 2007). Consequently, further investigation is needed to explicate how urban revitalization may affect black residents in Seattle's changing neighborhoods, how the mobility of Seattle's black population has influenced neighborhood diversity, and the overall durability of integrated neighborhoods given local historic, demographic, and socioeconomic conditions. How-

ever, what is apparent is that the study of segregation within integrated neighborhoods expands our understanding of the meaning of neighborhood diversity and its hope for facilitating racial equality.

References

Allport, Gordon W. 1954. *The Nature of Prejudice*. Cambridge, MA: Perseus Books.

Anon. 2016a. "Bellwether Housing | ABOUT US." Retrieved November 7, 2016 (http://www.bellwetherhousing.org/about-us?bc=ESLPSTW).

Anon. 2016b. "Low Income Housing Institute." Retrieved November 7, 2016 (https://li-hi.org/).

Appleyard, Donald, and Mark Lintell. 1986. "The Environmental Quality of City Streets: The Residents' Viewpoint." Pp. 93–120 in Transport Sociology: Social Aspects of Transport Planning, edited by Enne de Boer. Oxford: Pergamon.

Bhatt, Sanjay. 2008. "Greenwood Project Finds Its Footing." *The Seattle Times*. Retrieved 2/1/2014: (http://seattletimes.com/html/localnews2004177636_greenwood-bog12m.html).

Crowder, Kyle, and Liam Downey. (2012). "Inter-Neighborhood Migration, Race, and Environmental Hazards: Modeling Micro-Level Processes of Environmental Inequality." *American Journal of Sociology* 115(4): 1110–1149.

Crowder, Kyle, Jeremy Pais, and Scott J. South (2012). "Neighborhood Diversity, Metropolitan Constraints, and Household Migration." American Sociological Review. 77(3): 325-353.

Denton, Nancy and Douglas Massey. 1991. "Patterns of Neighborhood Transition in a Multiethnic World: U.S. Metropolitan Areas, 1970-1980." *Demography* 28(1): 41-63.

Farrell, Chad R. and Barrett A. Lee. 2011. "Racial Diversity and Change in Metropolitan Neighborhoods." *Social Science Research* 40(4): 1108-1123.

Fasenfest, David, Jason Booza, and Kurt Metzger. 2004. *Living Together: A New Look at Racial and Ethnic Integration in Metropolitan Neighborhoods, 1990–2000*. Living Cities Census Series. Washington, D.C.: Brookings.

Friedman, Samantha. 2008. "Do Declines in Residential Segregation Mean Stable Neighborhood Racial Integration in Metropolitan America? A Research Note." *Social Science Research* 37 (3): 920–33.

Grannis, Rick. 1998. "The Importance of Trivial Streets: Residential Streets and Residential Segregation." *American Journal of Sociology* 103(6): 1530-1564.

Grannis, Rick. 2005. "T-Communities: Pedestrian Street Networks and Residential Segregation in Chicago, Los Angeles, and New York." *City & Community* 4(3): 295-321.

Gregory, James. 2007. "Seattle Civil Rights and Labor History Project." Retrieved 9/26/14: (http://depts.washington.edu/civilr2/slides/segregation/segregation_files/frame.htm).

Glaeser, Edward and Joseph Vigdor. 2012. "The End of The Segregated Century: Racial Separation in America's Neighborhoods, 1890–2010." *Manhattan Institute*. 1-36.

Gordon, Andrew, Hubert Locke, and Cy Ulberg (1998). "Ethnic Diversity in Southeast Seattle." *Cityscape* 4(2): 197-219.

Hansell, Anna L. et al. 2014. “Aircraft Noise and Cardiovascular Disease near Heathrow Airport in London: Small Area Study.” *Bmj* 348(jun05 8):g3504–g3504.

Hwang, Jackelyn. 2015. “The Social Construction of a Gentrifying Neighborhood: Reifying and Redefining Identity and Boundaries in Inequality.” *Urban Affairs Review* 1-31.

Iceland, John. (2004). “Beyond Black and White: Metropolitan Residential Segregation in Multi-Ethnic America.” *Social Science Research* 33(2) 248-271.

Jenkins, Tabatha. 2016. “Kensington Apartments Google Maps Review.” Google Maps. Retrieved June 11, 2016 (https://www.google.com/maps/place/Kensington+Apartments/@30.2873866,-97.7035891,18z/data=!4m7!3m6!1s0x0:0xb7a236ac8fd36d25!8m2!3d30.2877777!4d-97.7025935!9m1!1b1).

Kirk, D. S., & Laub, J. H. 2010. Neighborhood Change and Crime in the Modern Metropolis. *Crime and Justice*, *39*(1), 441–502.

Lane, Kevin J. et al. 2016. “Association of Modeled Long-Term Personal Exposure to Ultrafine Particles with Inflammatory and Coagulation Biomarkers.” *Environment International* 92–93:173–82.

Lee, Barrett A., Glenn Firebaugh, Stephen A. Matthews, Sean F. Reardon, and Chad R. Farrell. 2008. “Beyond the Census Tract: Patterns and Determinants of Racial Segregation at Multiple Geographic Scales.” *American Sociological Review* 73(5): 766-791.

Lewis, Lavonna Blair, David C. Sloane, Lori Miller Nascimento, Allison L. Diamant, and

Joyce Jones Guinyard. 2005. “African Americans’ Access to Healthy Food Options in South Los Angeles Restaurants.” *American Journal of Public Health* 95(4):668–73.

Logan, John R. and Richard D. Alba. 1993. “Locational Returns to Human Capital: Minority Access to Suburban Community Resources.” *Demography* 30: 243-268.

Logan, John R. and Brian J. Stults. 2011. “The Persistence of Segregation in the Metropolis: New Findings from the 2010 Census.” *American Communities Project* 1-35.

Logan, John R. and Charles Zhang. 2010. “Global Neighborhoods: New Pathways to Diversity and Separation.” *American Journal of Sociology* 115(4): 1069-1109.

Logan, John R. and Wenquan Zhang. 2011. “Global Neighborhoods: New Evidence from Census 2010.” *US2010 Project* 1-19.

Massey, Douglas S. and Nancy A. Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press.

McGee Jr., Henry. 2007. “Gentrification, Integration or Displacement?: The Seattle Story.” *Black Past*. Retrieved 9/26/14: (http://www.blackpast.org/perspectives/gentrification-integration-or-displacement-seattle-story).

Minnesota Population Center. 2016. “National Historical Geographic Information System.” Retrieved (https://www.nhgis.org/).

Moore, Latetia V and Ana V.Diez Roux. 2006. “Associations of Neighborhood Character-

istics With the Location and Type of Food Stores." *American Journal of Public Health* 96(2):325–31.

Oliver, Melvin L. and Thomas M. Shapiro. 2006. Black Wealth/White Wealth. 2nd ed. New York: Routledge.

Reardon, Sean F. and David O'Sullivan. 2004. "Measure of Spatial Segregation." *Sociological Methodology* 34(1):121–62.

Reibel, Michael and Moira Regelson. 2011. "Neighborhood Racial and Ethnic Change: The Time Dimension in Segregation." *Urban Geography* 32:360–82.

Rothwell, Jonathan and Douglas S. Massey. 2009. "The Effect of Density Zoning on Racial Segregation in." *Urban Affairs Review* 44(6):779–806.

Speidel, Jennifer. 2005. "After Internment: Seattle's Debate Over Japanese American's Rights to Return Home." *Seattle Civil Rights & Labor Project*. Retrieved 9/26/14: (http://depts.washington.edu/civilr/after_internment.htm).

Sharkey, Patrick. 2008. "The Intergenerational Transmission of Context." *American Journal of Sociology* 113(4): 931-969.

Stansfeld, Stephen A. and Mark P. Matheson. 2003. "Noise Pollution: Non-Auditory Effects on Health." *British Medical Bulletin* 68:243–57.

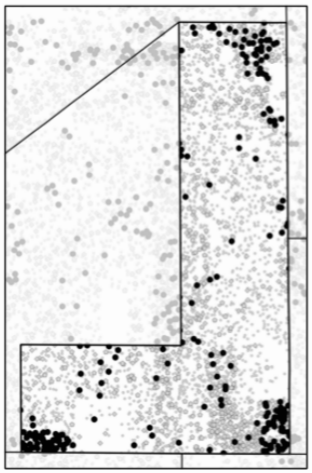
Silva, Catherine. 2009. "Racial Restrictive Covenants: Enforcing Neighborhood Segregation in Seattle." Seattle Civil Rights & Labor History Project. Retrieved February 14, 2014 (https://depts.washington.edu/civilr/covenants_report.htm).

Taylor, Quintard. 1994. *The Forging of a Black Community: Seattle's Central District from 1870 through the Civil Rights Era*. Seattle, WA: University of Washington Press.

Walker, Renee E., Christopher R. Keane, and Jessica G. Burke. 2010. "Health & Place Disparities and Access to Healthy Food in the United States : A Review of Food Deserts Literature." *Health & Place* 16(5):876–84.

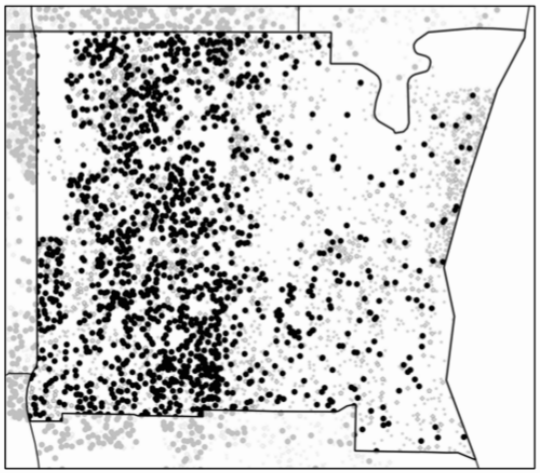
Figure 1: Seattle, WA Select Tracts

(a) Tract 1701
Greenwood



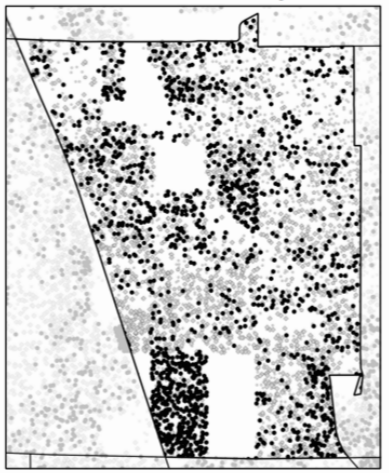
Greenwood: Tract most similar to Seattle's racial composition (67.8% White, 5.8% black, 11.3% Asian, 15.1% other). Over 50% of the black population resides in two blocks with public housing, located on the South East and South West corners of the tract.

(b) Tract 8900
Central District



Central District: Tract with highest proportions of black and white residents (47.4% white, 30.9% black, 8.4% Asian, 13.3% other). A steep ridge divides the tract in half where over 78% of black residents and 45% of the white residents live on the West side of the tract. The East side has multi-million dollar homes and quality views of Lake Washington. Some of the roads on the ridge do not connect the two sides.

(c) Tract 10300
Columbia City



Columbia City: Most Integrated tract (32.8% white, 26.7% black, 24.8% Asian, 15.7% other). In the southwest corner of the tract, 25% of tracts black population lives on 5% of the tract's land.

2010 US Census Tracts ● Black/African American ● Hispanic/Latino ◆ Asian ● White

Figure 2: Greenwood Photo Collage

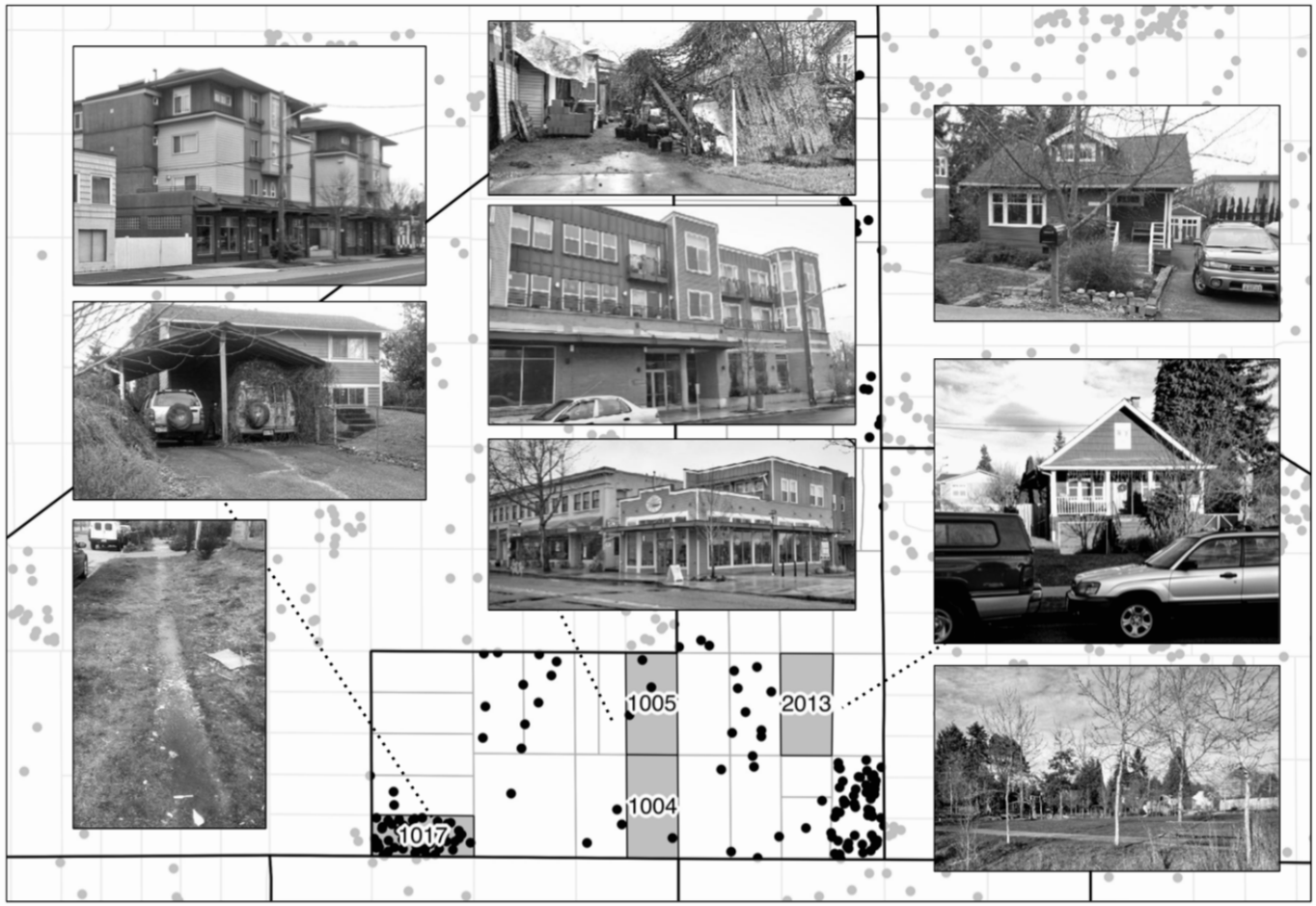


Figure 3: Central District Photo Collage

Figure 4: Columbia City Photo Collage

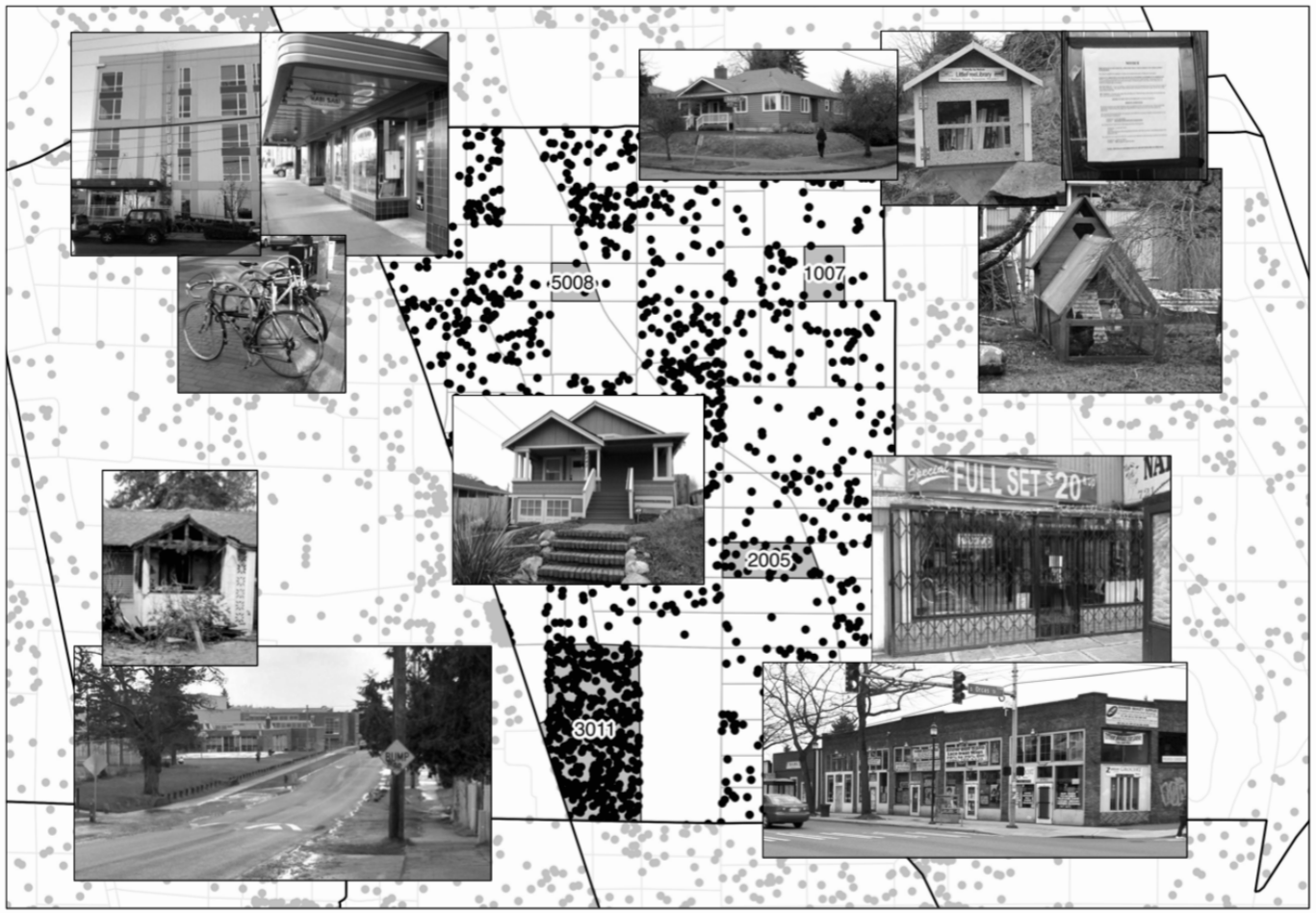


Figure 5: Austin and Seattle Comparison

Austin, TX

	Dissimilarity (*D*)		Entropy (*H*)	
	Tract	Block	Tract	Block
White/Black	*0.55*	0.63	*0.26*	0.38
White/Asian	0.35	0.50	0.10	0.23
White/Hispanic	0.48	0.54	0.23	0.32

Seattle, WA

	Dissimilarity (*D*)		Entropy (*H*)	
	Tract	Block	Tract	Block
White/Black	*0.55*	0.67	*0.26*	0.42
White/Asian	0.42	0.51	0.19	0.29
White/Hispanic	0.32	0.46	0.09	0.23

Figure 6: Austin, TX Select Tracts

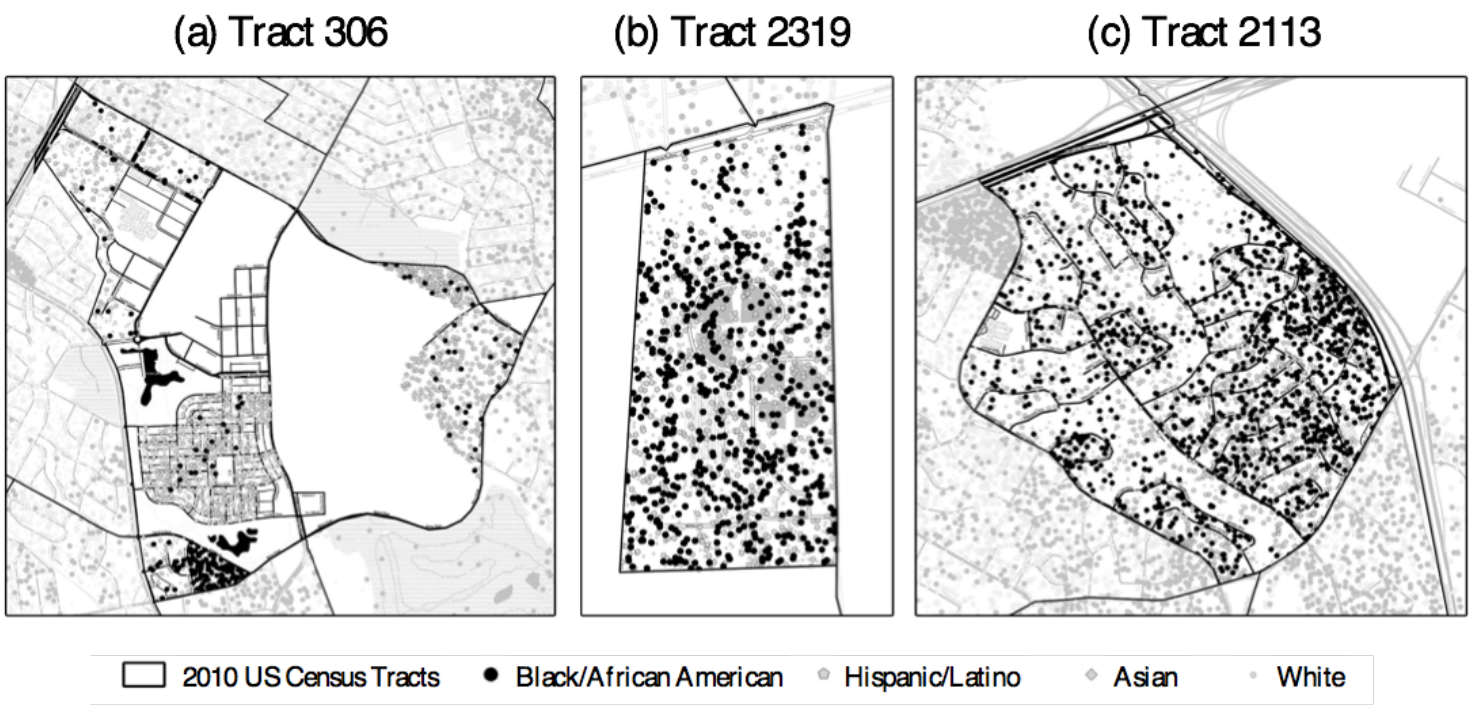
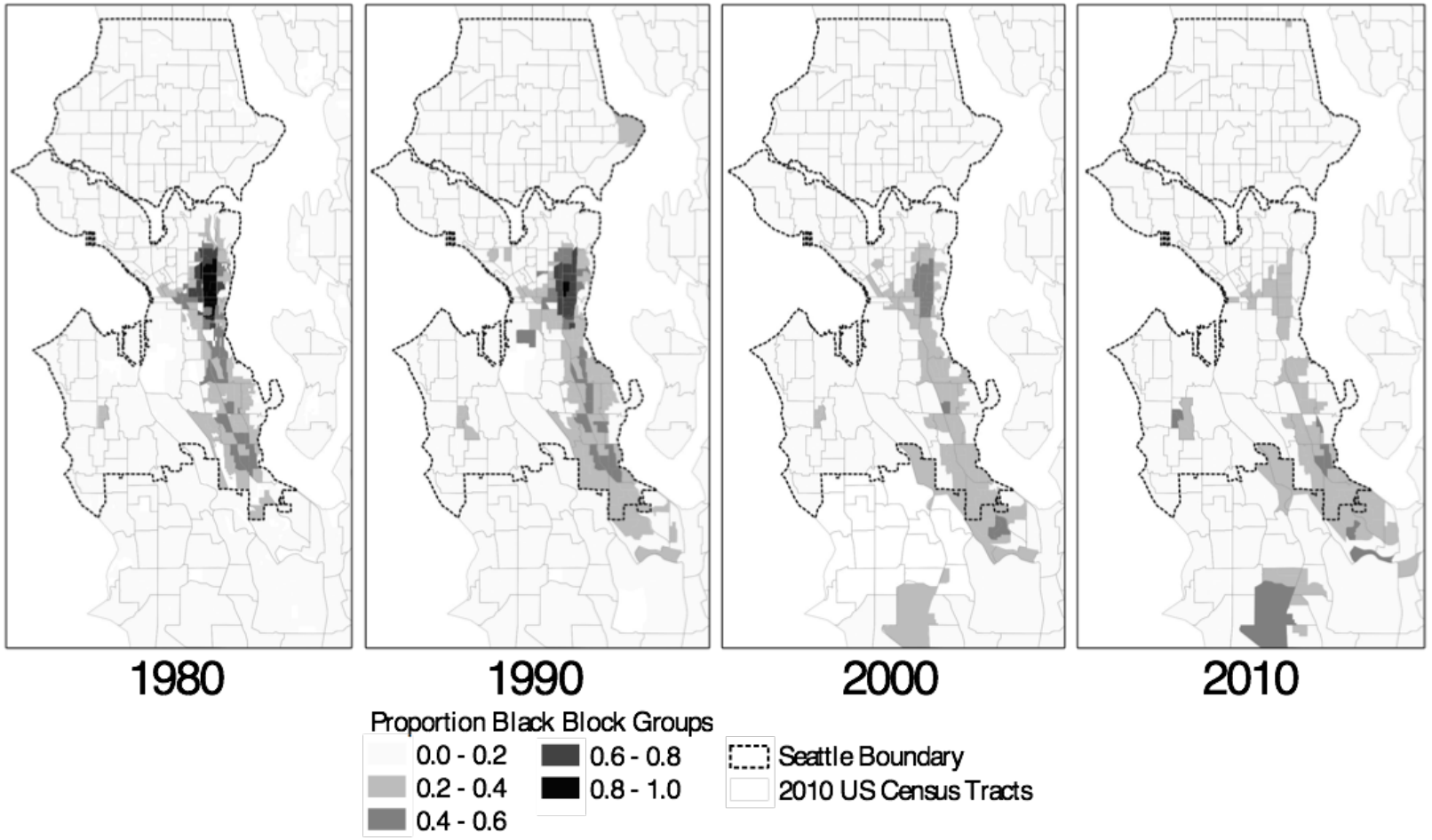



Figure 7: Change in Seattle's Black Population Over 40 Years.