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A Geographical Analysis of Gentrification and the Changing Foodscape in Seattle 2010-2017

Alice Tiffany
alicetiffany26@gmail.com

Michele Romolini
Loyola Marymount University, michele.romolini@lmu.edu

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A Geographical Analysis of Gentrification and the Changing Foodscape in Seattle 2010-2017

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Alice Tiffany

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Alice Tiffany

Abstract

Anguelovski defines food privilege as "the exclusive access to desirable 'natural' and fresh food thanks to one's economic, cultural, and political power" (Anguelovski 2015a). Previous studies have demonstrated that access to fresh, healthy, affordable food is correlated with socioeconomic status (LA Food Policy Council 2017; Walker et al. 2010; Alkon & Agyeman 2011; Raja et al. 2008). However, as is being increasingly noted, the introduction of environmental amenities, such as farmers markets and community gardens, can have unintended consequences and trigger environmental gentrification (Kern 2015; Pearsall 2010; Eckerd 2011; Curran & Hamilton 2012; Wolch et al. 2014; Alkon & Cadji 2018). The introduction of upscale grocery stores into areas of low socioeconomic status may signify an influx of affluence and spark business interest in what has become known as the Whole Foods Effect (Anguelovski 2015a). In the last decade, Seattle's population has undergone significant demographic shifts, as many parts of the city have become gentrified. This study will use ArcGIS to analyze the relationship between these demographic shifts and the changing foodscape, and consequently, which socioeconomic groups have gained and lost access to fresh, healthy, affordable food in Seattle between 2010 and 2017.

Introduction

Background

In the past, the environmental justice movement has limited its focus to toxic waste sites and other environmental burdens (Angueloski 2015b). However, recently, the environmental justice movement has begun to consider how environmental improvements, including increased access to healthy food options, can improve neglected neighborhoods and increase their livability (Anguelovski 2015b). However, environmental improvements, such as access to grocery stores, can also spur gentrification, resulting in the displacement of lower-income residents as the neighborhood transforms (Anguelovski 2015b). Anguelovski writes, "[f]ood caters to a specific class and to people attracted by practices related to a specific class and to people attracted by practices related to natural and organic food, and with exclusive means to purchase it. Healthy and natural food is a social and racial marker" (Anguelovski 2015b).

Food Deserts

How "food desert" is explicitly defined varies amongst different groups, however, the term is generally concerned with the type and quality of foods available as well as the number, type, and size of stores available (Los Angeles Times, N.d.). Officially, the USDA defines a food desert as "a low-income-census tract where either a substantial number or share of residents has low access to a supermarket or large grocery store."

Food deserts are a socioeconomic issue. Low-income neighborhoods with high minority populations tend to have fewer grocery stores offering affordable healthy foods and a higher number of corner and convenience stores. Nationwide 46% of people living in food deserts are

low-income (Los Angeles Food Policy Council 2017). Nationally, low-income neighborhoods were found to have nearly 30% fewer grocery stores than the more affluent areas (Walker et al. 2010).

Reports on food deserts across the United States, Canada, Britain, and Australia, have found that they disproportionately impact people of color (Agyeman & Alkon 2011). Neighborhoods with predominantly Black populations were found to have fewer grocery stores than neighborhoods with predominantly White populations. The availability of chain grocery stores in Black Neighborhoods was found to be half of that in White neighborhoods. Further, low-income neighborhoods with predominantly Black populations were found to be 1.1 miles farther from the nearest grocery store than low-income neighborhoods with predominantly White populations. Furthermore, low-income neighborhoods with predominantly Black populations were found to have 2.7 fewer grocery stores within a three-mile radius compared to low-income neighborhoods with predominantly White populations (Walker et al. 2010). Further, half of all predominantly Black neighborhoods were found to have no full-service grocery stores at all (Raja et al. 2008).

The Whole Foods Effect

The Whole Foods Effect is the concept that when a Whole Foods, or an equivalent high-end grocery retailer, opens in a neighborhood, it signifies that the neighborhood is destined for socio-economic change and peaks business interest from investors (Anguelovski 2015a). A study conducted by Zillow found that “the typical home near either Whole Foods or Trader Joe’s costs more and appreciates twice as much as the median U.S. home.” (Cohen 2018).

Beyond displacement, Whole Foods, and similar high-end chain grocery retailers often replace local grocery stores reducing local access to affordable and culturally appropriate foods (Anguelovski 2015a). Whole Foods products are standardized nationally, primarily driven by the needs of white consumers, and do not cater to the needs of the local community (Anguelovski 2015a). Grocery stores can reflect the culture of neighborhoods, and consequently, when upscale national chains replace more neighborhood-specific grocery stores, they can erase the culture of the neighborhood (Anguelovski 2015a). Food consumption is “a cultural and intimate choice and as a decision which also rests on a fundamental issues such as variety and affordability” (Anguelovski 2015a). Locally tailored grocery stores can offer a wider variety of diverse and affordable foods tailored to their consumers than upscale chain grocery stores (Anguelovski 2015a). Accessibility of not only fresh, healthy food in general, but culturally relevant fresh, healthy food must be considered (Anguelovski 2015a). Higher-end grocery stores appropriate ingredients used in specific ethnic cuisines and price them up (Anguelovski 2015b). In some areas, grocery stores can be abundant, but fresh, healthy food can still be inaccessible to people of lower socioeconomic status because the food offered is too expensive (Anguelovski 2015b). Therefore, it is essential to consider not only proximity to grocery stores in general but proximity to affordable food (Drewnowski et al. 2014).

Link between gentrification and changing foodscape

Environmental gentrification is when environmental improvement initiatives make a neighborhood or neighborhoods more desirable, attracting new developments and residents of higher socioeconomic status, increasing housing costs in the neighborhood, and pricing out less affluent established residents (Kern 2015; Pearsall 2010; Eckerd 2011; Curran & Hamilton 2012;

Wolch et al. 2014). Consequently, residents who originally stood to benefit from the environmental improvement are displaced, and the benefits are enjoyed by the wealthy (Wolch et al. 2014).

While supermarket redlining explains the tendency for grocery stores to flee communities of low socioeconomic status due to perceived low demand and limited purchasing power, supermarket greenlining explains the tendency of high end environmental and health-focused grocery stores, such as whole foods, to target gentrifying neighborhoods signifying rising environmental and economic privilege (Cohen 2018). As neighborhoods become more affluent, the number of grocery stores increases to respond to perceived market demand (Cohen 2018). However, these supermarkets may be inaccessible to established residents. High-end grocery stores often target inner-city neighborhoods for their growth potential (Anguelovski 2015b). Policies that incentivize grocery stores to open in low-income neighborhoods may increase food access, but they also run the risk of making the neighborhood more attractive for more affluent newcomers, spurring environmental gentrification (Cohen 2018). Further, as neighborhoods gentrify, existing businesses may change their prices and menus to adjust to their new clientele, consequently excluding established residents (Cohen 2018).

What's at risk – link between health, food, and SES

Researchers have found that rates of obesity and other chronic diseases are increasing due in part to the lack of access to fresh produce (Corrigan 2011). Research has found that consuming a well-balanced diet, including adequate amounts of fresh fruits and vegetables, is essential for preventing disease, and has been shown to decrease the risk of developing diabetes, cardiovascular disease, cancer, and obesity. However, low-income minority individuals were found to consume fewer fruits and vegetables than recommended (Hendrickson et al. 2006). "In the United States, higher obesity rates are associated with lower education and incomes, lower occupational status, and with lower-quality diets" (Drewnowski et al. 2014) This is in part because the inaccessibility of grocery stores results in communities that are dependent on fast food restaurants and corner and convenience stores that offer fewer healthy options. Corner and convenience stores and fast-food restaurants offer more energy-dense, or "empty calorie," food than grocery stores. Consequently, people whose access to food is limited to corner and convenience stores and fast-food restaurants often have diets higher in processed food that contain high contents of fat, sugar, and sodium (Walker et al. 2010).

Inadequacy of the Alternative Food Movement

Anguelovski defines food privilege as "the exclusive access to desirable 'natural' and fresh food thanks to one's economic, cultural, and political power" (Anguelovski 2015b). The alternative food movement has sought to address issues of unequal food access but has fallen short of addressing the systems and circumstances that generate inequality. "The groups most at risk of food insecurity, - people of color and low-income groups, - are mostly absent from within the alternative food movement" (Anguelovski 2015a). The absence of marginalized groups from the alternative food movement is primarily due to the inaccessibility of the alternative food financially and proximally (Anguelovski 2015a). Additionally, the alternative food movement has traditionally been a white space and consequently can feel alienating to people of color (Anguelovski 2015a).

Although community gardens are often founded with the goal of providing fresh, healthy produce to food-insecure low-income residents, community gardens can also have the unintentional consequence of signaling progress of a neighborhood, increasing desirability and sparking buyer interest and gentrification, resulting in displacement of the residents the garden was initially started to help (Alkon & Cadji 2018; Cohen 2018). The introduction of farmer's markets, cafes, and health food stores can have similar consequences (Alkon & Cadji 2018). Further, scholars contend that farmers' markets have become an exclusive space where affluent consumers seek an authentic interaction with growers and only recently have farmers' markets been made more accessible by enabling consumers to use their SNAP benefits at a reduced cost (Cohen 2018). The time demands of the alternative food movement also pose a barrier to many people of lower socioeconomic status who hold multiple jobs, leaving them with little to no free time to spend in a community garden or attending a farmer's market (Anguelovski 2015a).

Gentrification of Seattle

Restrictive covenants and real estate markets that legally maintained segregation persisted in Seattle until the 1970s, boundaries which have been maintained by preferences and behaviors of sellers and buyers (Morrill 2013). Housing segregation has also been maintained indirectly due to the average lower earnings of black households (Morrill 2013). In the late 1970s - 1990s, Seattle's economy shifted from manufacturing-based to finance and tech-based (Morrill 2013). This shift was facilitated by the entrance of companies like Starbucks, Microsoft, and Amazon (Morrill 2013). These industry giants attracted workers from outside the Seattle area, driving up the demand for housing in the downtown and South Lake Union neighborhoods (Morrill 2013). Simultaneously, many manufacturing jobs moved further south, drawing the working-class population with them (Morrill 2013). The Growth Management Act of 1990 further intensified gentrification by imposing urban growth boundaries, encouraging high-density redevelopment (Morrill 2013). Areas containing smaller apartment complexes housing lower-income populations were rezoned for large scale condominiums (Morrill 2013). The implementation of these growth restrictions and the redevelopment of existing housing options to accommodate more affluent residents inflated housing prices drastically, displacing lower-income populations (Morrill 2013).

More recent gentrification has been spurred by Amazon's decision in 2007 to build its new headquarters in Seattle's South Lake Union neighborhood, bringing 40,000 new jobs to the area (Rice et al. 2019). This coincided with the implementation of a new light rail, more protected bike lanes, and the construction of several LEED-certified condominiums (Rice et al. 2019). These environmentally friendly improvements, coupled with increased job prospects, increased the appeal of the area to affluent prospective residents (Rice et al. 2019). This recent wave of gentrification has been marked by the decline of the black population, increases in educational attainment, increases in median household income, and an increase in median household income (Rice et al. 2019).

Methods

Gentrification Index

Demographic data at the census tract level for the City of Seattle was acquired from the American Community Survey for 2010-2017. A gentrification index was developed based on the criteria used by the Los Angeles Index of Neighborhood Change (Pudlin 2014). Criteria

considered were average household size, percentage of the population that has attained a bachelor's degree or higher, median gross rent, median household income, and the percentage of the population that is white. Each variable was normalized and an average score for each census tract was calculated.

Food Availability
Locations of eateries were determined by obtaining records of business licenses renewed each year between 2010 and 2017 for NAICS 445110 (supermarkets and other grocery stores), 445120 (convenience stores), 722511 (full-service restaurants), and 722513 (limited service restaurants) from the City of Seattle Public Records.

Statistical Analysis
The gentrification indices and locations of eateries were mapped using ArcGIS Pro. Arc GIS spatial autocorrelation tests were run to determine the correlation between the measured socioeconomic variables and the density of eateries. Heat maps were generated to visualize shifts in the correlation between the measured socioeconomic variables and the density of grocery stores between 2010 and 2017.

Results

Average household size, educational attainment, median gross rent, and median household income increased in the city of Seattle between 2010 and 2017 (Table 1). The number of full-service restaurants in the City of Seattle increased between 2010 and 2017, while the number of supermarkets and other grocery stores and limited-service restaurants decreased (Table 2). The number of convenience stores increased between 2010 and 2016 (Table 2).

Table 1. Demographic Characterization of the City of Seattle 2010-2017.

Year	Average Household Size	Bachelor's Degree or Higher	Median Gross Rent	Median Household Income	White Population
2010	2.1	55.1%	$990	$60,212	70.5%
2011	2.11	55.8%	$1,024	$61,037	70.6%
2012	2.11	56.5%	$1,072	$64,473	70.6%
2013	2.11	57.4%	$1,172	$70,172	70.6%
2014	2.12	57.9%	$1,202	$70,975	69.9%
2015	2.13	58.9%	$1,356	$80,349	69.5%
2016	2.14	60.4%	$1,448	$83,476	69.2%
2017	2.13	61.7%	$1,555	$86,822	68.6%

Table 2. Eateries in the City of Seattle 2010-2017.

Year	Supermarkets & Other Grocery Stores	Convenience Stores	Full Service Restaurants	Limited Service Restaurants
2010	376	170	265	2,364
2011	378	176	361	2,246
2012	364	187	441	2,187
2013	364	188	511	2,076
2014	360	197	621	1,980
2015	342	200	652	1,893
2016	311	204	718	1,802
2017	339	92	779	1,721

Between 2010 and 2017, North and West Seattle became increasingly more affluent, while South Seattle remained relatively stagnant (Figure 1a-h).

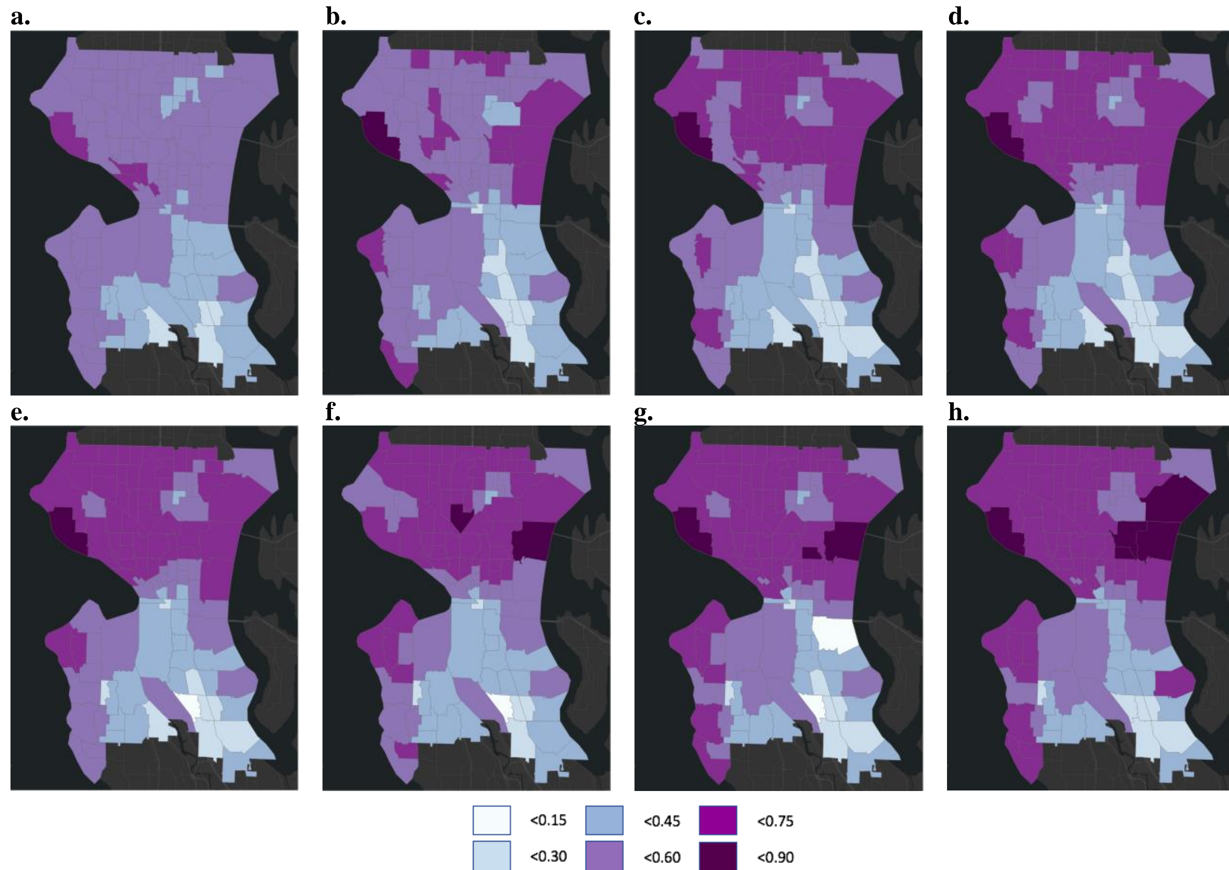

Figure 1(a-h). Change in affluence in Seattle 2010-2017.

The positive correlation between the gentrification index and the location of all eateries was found to be statistically significant. Further, a correlation was found between the gentrification index and the location of supermarkets and other grocery stores (Figure 2), full-service restaurants (Figure 3), and limited-service restaurants (Figure 4). The only food retailer classification that did not return a correlation with the gentrification index was convenience stores.

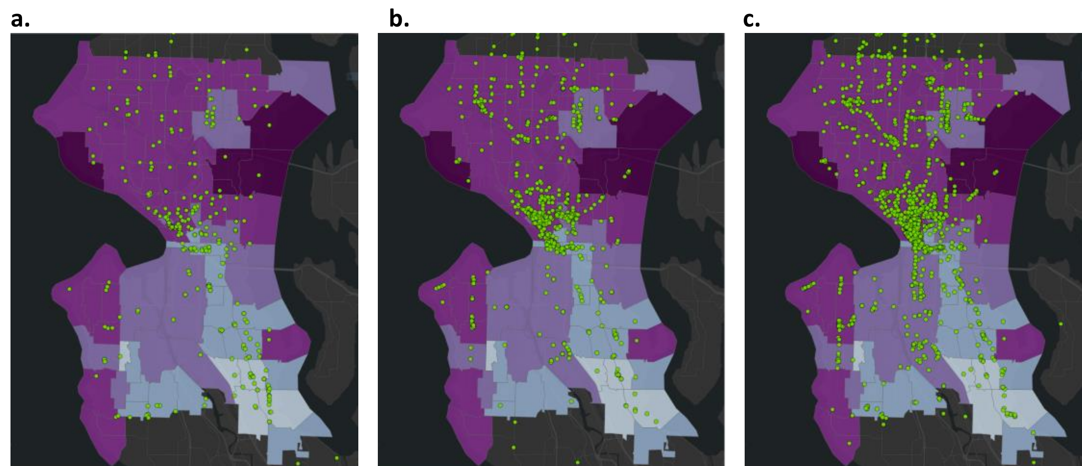

Figure 2. Eaterie locations 2017 (a) Supermarkets & Other Grocery Stores. (b) Full Service Restaurants. (c) Limited Service Restaurants.

Heat maps revealed no major shifts in the density of supermarkets and other grocery stores throughout the duration of the study period (Figure 5a-h).

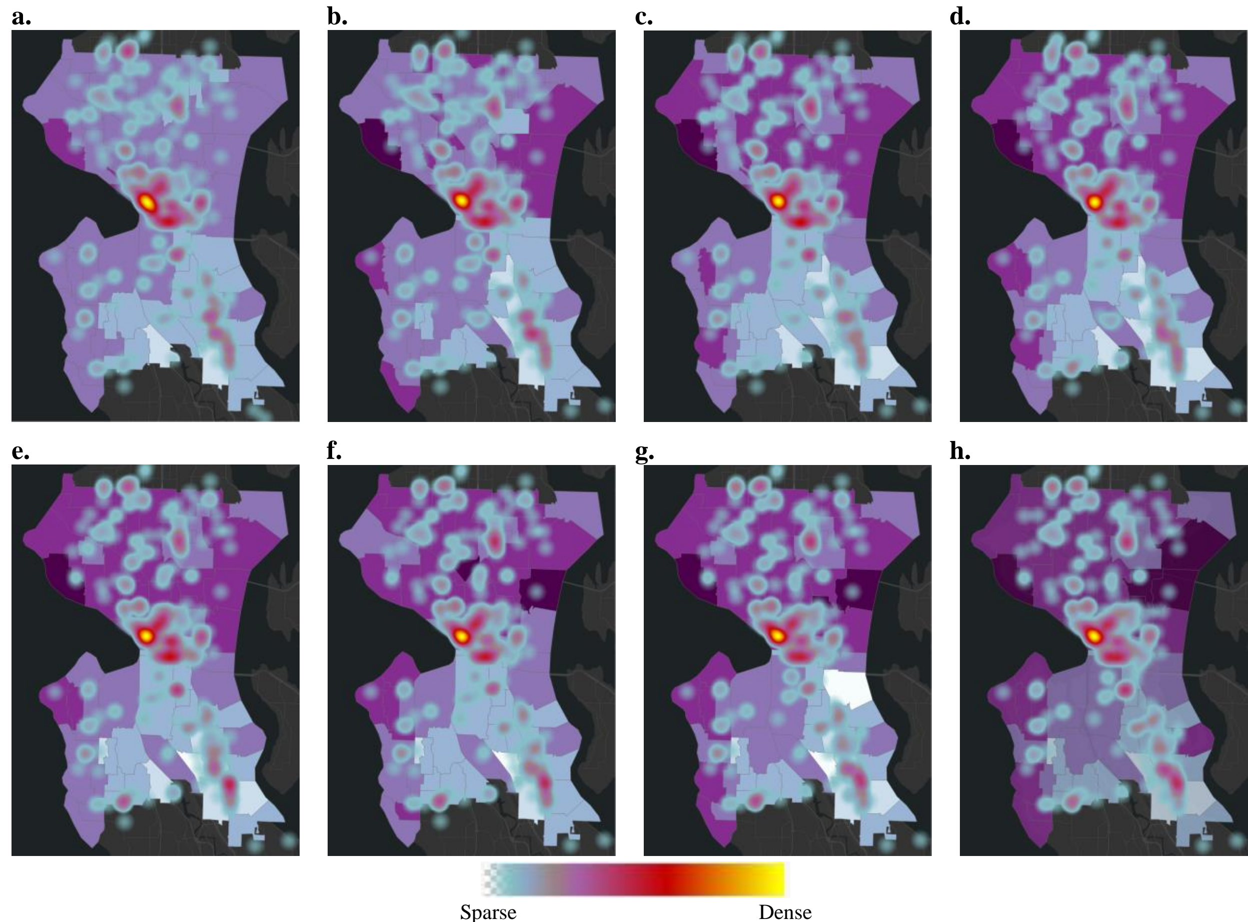

Figure 5(a-h). Heat map of supermarket & other grocery store density 2010-2017.

Discussion

Widening Socioeconomic Inequalities

Increases in average household size, educational attainment, median gross rent, and median household income in Seattle indicate increasing affluence (Table 1). However, mapping these changes in affluence for each census tract reveals that benefits have not been shared equally across the city (Figure 1). North and West Seattle have become increasingly affluent, while South Seattle has remained at a low level of affluence, demonstrating the widening of socioeconomic inequalities (Figure 1). These findings uphold the conjectures of past scholarship that point to both the ongoing gentrification of Seattle, but also the maintenance of segregation amongst Seattle neighborhoods (Morrill 2013; Rice et al. 2019).

Consequences for Food Access

The positive correlation between the gentrification index and the location of all eateries suggests that populations of higher socioeconomic status have higher access to food. Further, the positive correlation between the gentrification index and the location of supermarkets and other grocery stores specifically, suggests that populations of higher socioeconomic status have greater access to fresh, healthy food. These findings support previous scholarship that found lower densities of supermarkets and other grocery stores in low-income and black neighborhoods (Los Angeles

Food Policy Council 2017; Walker et al. 2010; Alkon & Agyeman 2011). The lack of visually apparent spatial shifts in the clustering of grocery stores despite gentrification is likely attributable to the consistent spatial distribution of affluence throughout the study period. These findings suggest that food access in Seattle continues to be a socioeconomic issue.

Study Limitations

Scholars contend that it is important to consider not just the presence or absence of fresh, healthy food, but also the practical attainability of culturally relevant and affordable food relative to the socioeconomic and cultural composition of the neighborhood (Anguelovski 2015a; Drewnowski et al. 2014). Further research is needed to spatially assess the availability of culturally appropriate and affordable food.

Conclusion

Food access continues to be a persistent socioeconomic issue within the city of Seattle. The positive correlations between the gentrification index and the location of eateries found in this study suggest that areas of higher socioeconomic status in Seattle continue to have greater access to fresh, healthy food. The inaccessibility of fresh, healthy food is an environmental justice issue that must be addressed with consideration for the structures of oppression that have created this persistent lack of food access. Further research and innovative solutions are needed to make fresh, healthy food accessible for all of Seattle.

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