

FARHAT, NABEELA, M.A. Immigrants and Dynamics of Spatial Neighborhood Change from 2000-2016: Assessment from a Lesser Known Gateway City, Greensboro, NC (2018)

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One of the overarching ambitions of urban geographers and planners is to understand the processes of neighborhood change over time and how it is shaped by race/ethnicity and economy. While there have been numerous studies on the impact of immigrants on neighborhood change, very few have focused on lesser known and newer immigrant gateway cities such as Greensboro, the third largest city in North Carolina located in the Piedmont Triad area. Traditionally, Greensboro has had a large black population due to its ties to slavery and segregation in the South, followed by significant involvement in the civil rights movement. In recent years, however, it has become a host for foreign-born population with its non-white population reaching 51.3%. Given the current political climate, in which immigrants are often viewed as less desirable to the native-born, especially within their neighborhoods, this study examines the dynamic of neighborhood change in Greensboro in terms of demographics, economics, and quality of life (QoL) from 2000-2016. Very specifically, this research intends to: (1) understand how the new immigrant population has changed the neighborhood dynamic of Greensboro over the years; (2) understand how these demographic changes have impacted the business landscape and QoL index of these neighborhoods. The NGHIS IPUMS, America Community Survey (ACS) five-year estimates summary file data of 2009 (2004-2008), 2011 (2005-2010), 2016 (2010-2015) and Reference USA business data of 2005, 2010, and 2015 are used to examine these questions. The results of the Markov Chain analysis confirm that the City of Greensboro, especially West Market Street areas of Greensboro have seen a succession of foreign-born populations from native-

born populations. While economy and QoL index fell at the initial invasion stage, an overall increase in QoL is shown within areas that have a high concentration of immigrants. The results of this study indicates that the process of economic incorporation and the inclusion of immigrants in the local economy depends on ethnic and racial diversity of the area.

**Key Words:** Immigrants, Greensboro, immigrant business-owners, dynamics of neighborhood change, Markov Chain Analysis.

IMMIGRANTS AND DYNAMICS OF SPATIAL NEIGHBORHOOD CHANGE  
FROM 2000-2016: ASSESSMENT FROM A LESSER KNOWN  
GATEWAY CITY, GREENSBORO, NC

by

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## TABLE OF CONTENTS

|  | Page |
|--|------|
| LIST OF TABLES .....   | vi   |
| LIST OF FIGURES .....  | vii  |
| CHAPTER  |      |
| I. INTRODUCTION AND RESEARCH OBJECTIVES .....                                | 1    |
| 1.1. Introduction.....   | 1    |
| 1.2. Research Objectives.....  | 3    |
| II. REVIEW OF LITERATURE .....   | 5    |
| 2.1. Gateway Cities .....  | 6    |
| 2.2. Dynamics of Neighborhood Change:<br>Ecological Perspective .....        | 8    |
| 2.3. Immigrant Neighborhoods .....   | 13   |
| 2.4. Immigrants and Entrepreneurship.....                                    | 15   |
| 2.5. Quality of Life Index .....   | 18   |
| III. STUDY AREA AND METHODS .....  | 21   |
| 3.1. Study Area: Why Greensboro is a new Gateway City?.....                  | 21   |
| 3.2. Data, Procedure and Methodology .....                                   | 26   |
| 3.2.1. Data.....   | 26   |
| 3.2.2. Demographic Data and Standardization .....                            | 27   |
| 3.2.3. Immigrants' Entrepreneurship and Business Data.....                   | 28   |
| 3.3. Methods.....  | 29   |
| 3.3.1. Markov Chain Analysis .....   | 29   |
| 3.3.2. Quality of Life Index .....   | 32   |
| IV. RESULTS .....  | 33   |
| 4.1. Dynamics of Neighborhood<br>Change Shaped by Immigrant Population ..... | 33   |
| 4.1.1. Neighborhood Change by Immigrants<br>from 2000 to 2010.....           | 33   |
| 4.1.2. Neighborhood Change by Immigrants<br>from 2010 to 2016.....           | 36   |

|  |    |
|--|----|
| 4.1.3. Neighborhood Change by Immigrants<br>from 2000 to 2016.....   | 38 |
| 4.2. Neighborhood Change and Quality of Life<br>in Greensboro and on the West Market Street Corridor ..... | 42 |
| V. DISCUSSION AND CONCLUSION .....   | 50 |
| REFERENCES .....   | 53 |

## LIST OF TABLES

|  | Page |
|--|------|
| Table 1. Race Demographic Estimates 2016 .....                     | 25   |
| Table 2. Probability Matrix.....                                   | 31   |
| Table 3. 2000-2010 Probability Matrix .....                        | 34   |
| Table 4. 2010-2016 Probability Matrix .....                        | 36   |
| Table 5. 2000-2016 Probability Matrix .....                        | 38   |
| Table 6. Quality of Life Index for Greensboro, NC .....            | 44   |
| Table 7. Quality of Life Index for West Market Census Tracts ..... | 45   |

## LIST OF FIGURES

|  | Page |
|--|------|
| Figure 1. Guilford County and the City<br>Boundary of Greensboro.....                            | 24   |
| Figure 2. Data Collection Process.....   | 26   |
| Figure 3. 2000-2010 Concentration Transition<br>based on Markov Analysis.....                    | 35   |
| Figure 4. 2010- 2016 Concentration Transition<br>based on Markov Analysis.....                   | 37   |
| Figure 5. 2000-2016 Concentration Transition<br>based on Markov Analysis (Overall Analysis)..... | 39   |
| Figure 6. Immigrant Business by Number on W. Market Corridor.....                                | 48   |
| Figure 7. Geocoded Foreign-Born Businesses on West Market.....                                   | 49   |

# CHAPTER I

## INTRODUCTION AND RESEARCH OBJECTIVES

### *1.1 Introduction*

This study examines the impacts of immigrants, also referred to as foreign-born (FB) populations, on changes to neighborhood dynamics from 2000-2016 in Greensboro, NC, in terms of demographics, economics, and quality of life (QoL). While literature on immigrants continues to grow (e.g. Piedra and Engstrom, 2009; Kaplan and Chacko, 2015; Maroto and Alysworth, 2016), very few have focused on lesser-known, new immigrant “gateway cities” such as Greensboro. Traditionally, Greensboro has had a large black population due to its ties to the segregation in the South and slavery, as well as its significant involvement in the civil rights movement (McClain et al., 2006). In recent years, however, Greensboro has become a host for a larger foreign-born population (AFSC, 2014), with its non-white population reaching 51.3% (ACS, 2017). Re-examining immigrant populations with recent and diverse datasets in cities that have not traditionally been considered “gateway cities”, which have now become “destination cities”, is a very important part in gaining a new understanding of the dynamics of neighborhood changes shaped by race and ethnicity (Frey, 2018). Hence, there is a window of opportunity to further examine how the spatial characteristics of neighborhoods change overtime (e.g. Jun, 2016) with the settlement of immigrants with new data and new study areas (e.g. Chatterji et al., 2013).

According to Massey (1995), the history of US immigration in the 20th century can be divided into three main phases. 1) a classic era, which lasted from 1901-1930, bringing in mass, European immigration; 2) a long hiatus of limited immigration from 1931-1970; 3) a new regime of non-European immigration beginning in 1970 to and continuing into the present. The latter is the most relevant to understanding this research. The new-regime immigration emerged as a result of the Immigration and Nationality Act of 1968 which abolished discriminatory national-origins quotas and ended the ban on Asian immigration (Massey 1995, 638). During this era, the percentage of Asian immigrants including Chinese, Indian, Korean, and others increased from 10% to 35%. Over the next two decades, the Asian and Latin American flow of immigrants exceeded previous years and reached record high levels with 1991 being the peak year (Massey 1995).

Throughout the 20th century, urban settings have experienced great transformations in population distribution. These changes developed from shifts in local economics, preferences of the population and the transportation needs of people (Price-Spratlen and Guest, 2002). In many metropolitan areas within the United States, patterns of population redistribution have been tied to the issue of race. African-Americans and other minorities have often dealt with racial and residential discrimination which has limited their housing opportunities based on location (Price-Spratlen and Guest, 2002). For instance, in the early 20th century, neighborhoods in cities outside the South housed mainly white populations, but when a large number of African-Americans from the South moved to the cities of the Midwest and North East, a large number of white populations

moved out to the suburbs, creating housing vacancies in many neighborhoods located in cities. With these vacancies, such neighborhoods became open to African-Americans looking to live in cities. Therefore, the effects of race and socioeconomic status are embedded within the history of neighborhood development of cities in the United States.

### *1.2. Research Objectives*

While current understanding of the dynamics of neighborhood change comes largely from the study of older “gateway cities” (e.g., NYC, LA, Chicago, San Francisco), this study, to our knowledge, is the first to examine how immigrants have changed the spatial fabric of lesser known “gateway cities” like Greensboro in the context of demographics, economics, and changes in quality of life (QoL) from 2000-2016 by integrating data from several sources (e.g., ACS, Reference USA, Greensboro Chamber of Commerce, Local Organizations, Newspaper, and in-field survey). Very specifically, this research intends to: (1) understand how the new immigrant population has changed the neighborhood dynamic of Greensboro over the years; (2) understand how these demographic changes have impacted the business landscape and QoL index of these neighborhoods. The NGHIS IPUMS, America Community Survey (ACS) five-year estimates summary file data of 2009 (2004-2008), 2011 (2005-2010), 2016 (2010-2015) and Reference USA business data from 2005, 2010, and 2015, as well as additional various sources of data used to examine these questions. This paper contributes to the emerging body of literature in two areas: (1) understanding the dynamics of

neighborhood changes that have been shaped by immigrants; (2) understanding the contributions of immigrants to the community in terms of economy and quality of life.

## CHAPTER II

### REVIEW OF LITERATURE

Neighborhood change has been a major concern of urban planners and policy makers for decades. In recent literature, the increased diversity of neighborhoods caused by foreign-born population has solely been based on larger metropolitan cities. Though there is an increasing awareness of larger gateway cities and immigrants influence on them, this line of research pertaining to minor gateways remains incomplete. The question of whether or not these minor gateway cities are shaped by immigrants in similar ways as larger gateway cities provides important insights into the influences and residential patterns of foreign-born populations within American metropolitan regions.

A common theme that emerged within the literature review is racial preferences play a role in determining the residence of a group. These preferences can impact foreign-born population's ability to integrate and use resources within a local neighborhood or community. Literature also suggest immigrants tend to have lower standard of living and negatively impact a neighborhood. Drawing from previous research in areas of immigrants, this paper evaluates the residential placements and potential economic and quality of life impacts of immigrants within a neighborhood of a minor, lesser-known, gateway city. This study hypothesizes immigrants' contribution to the local economy and neighborhood is significant and is positively related to the growth of the neighborhood.

Although current studies do suggest an increased interest in immigrant impact on neighborhood transition, existing research has focused largely on a larger metropolitan areas. Therefore, these studies within the literature review generalize the results for immigrant populations in metropolitan areas. In general, the literature on neighborhood change by immigrants provides surprisingly little information about their impact on lesser known gateway cities. The limitations of current research pertaining to neighborhood changes in smaller metropolitan cities in America by immigrants reveal that the issue has continued to be understudied.

The first sections of this literature review defines gateway cities. The second section deals with the concepts of neighborhood change. A working definition of neighborhood and neighborhood change is developed based on the classic model provided by the Chicago School. The third section discusses the topic of immigrant neighborhoods, where they tend to live and why. The fourth section recognizes immigrants as entrepreneurs and how this affects neighborhoods and local communities. Lastly, quality of life is defined and discussed in relation to foreign-born populations.

### *2.1 Gateway Cities*

Gateway cities are metropolitan areas that serve as entrance points for immigrants and host a large share of immigrant population (Singer, 2004; Corgel, 2012). Historically, immigrant populations, primarily of European origins, steadily increased in major gateway cities like New York, San Francisco, Chicago and Miami (Singer et al., 2008). Towards the end of the twentieth century, newer waves of immigrants from Asia,

Caribbean and Latin America shifted immigrant settlement patterns (Singer et al., 2008). In early 2000s, a large share of immigrant population began to move into states like North Carolina, Georgia and Nevada because of the construction, service and manufacturing jobs that were available (Singer, 2004).

Historical settlement patterns along with recent influx of foreign-born populations have created seven types of immigrant gateways: Former, Continuous, Post-World War II, Re-Emerging, major-Emerging and minor-Emerging (Singer, 2004; Singer et al., 2008,8; Singer, 2014). Former gateways are defined as cities, such as Cleveland, Buffalo and St. Louis, that attracted immigrants during the early 1900s but were followed by a rapid decline in immigrant population throughout the twentieth century. Continuous gateway cities, like New York and San Francisco, constantly saw an above-average percentage of immigrant populations from 19<sup>th</sup>-20<sup>th</sup> century. Post-World War II gateway cities, such as Los Angeles, Houston and Miami, initially had low shares of immigrants but after 1950s, saw sharp growth in its foreign-born population. Re-Emerging gateways include largely Western cities like Portland, San Jose, Denver and Seattle. These cities in the early 1900s had high percentages of foreign-born populations but saw a decline near the end of the 1970s, followed with an increase again after 1990s. Major-emerging gateways, Charlotte, Atlanta, and Austin, initially had minimal percentages of immigrant populations but saw a growth in foreign-born population higher than the national average during the last three decades. Lastly, minor-Emerging gateways consist of a number of southern cities, including Indianapolis, Durham, Raleigh, and Greensboro, had a small immigrant population but experience rapid influx of immigrants in early 2000s with the

growth being three times the national rate (Singer, 2004; Singer et al., 2008,10; Singer, 2014).

## *2.2 Dynamics of Neighborhood Change: Ecological Perspective*

Schwirian (1983) defines neighborhoods as, “a population residing in an identifiable section of a city whose members are organized into a general interaction network of formal and informal ties and express their common identification with the area in public symbols.” Two general components make up a neighborhood: the physical and the social. Neighborhoods also imitate three classical features for its residences: common socioeconomic statuses, similar stages in family life cycles and similar ethnicities (Greene and Pick, 2012). Neighborhoods tend to correlate with people’s identities, social participation, available resources, quality of life and status. For instance, neighborhoods with high crime rates and little-to-no amenities lack community participation and vice versa. These residential environments influence the lifestyle of its residents. As a sociological entity, a neighborhood is differentiated from a residential area by the degree of social organization amongst inhabitants.

Neighborhoods often follow a life cycle, beginning with an initial stage of growth, followed by a period of stability and then a decline with revitalization as a possibility. The change within neighborhoods has been measured traditionally by two major concepts, transitional in-movement, also known as “invasion,” and change in the predominant group, or “succession”.

The Chicago School, which suggested theories of invasion and succession, developed the earliest Ecological model for neighborhood change. It has been used to describe neighborhood racial and social-status transitions. The School implied that it is the, “balance of nature, a condition in which social and economic changes constantly occur between humans and landscape” which helps to define neighborhood changes (Vicino, 2008). The model perceived the city as a series of concentric circles, in which, there are different neighborhoods types that complete in this process of invasion and succession(Vicino, 2008). The Chicago School explained the process of neighborhood change whereby one societal or ethnic group relocates into, or “invades,” the residential area of another group, thus displacing and succeeding the previous group, hence the use of the term “succession” (Vicino, 2008). In short, displaced residents move outward, subsequently creating a decentralized urban population.

The process of invasion and succession can be seen as a process of suburbanization, one in which urban populations are decentralized from the urban core. Neighborhood change occurs when residents with a higher socio-economic status move out to adjacent zones, while residents with a lower socio-economic status replace the former group. This ecological model of neighborhood change can be understood through six stages of invasion and succession: (1) Pre-invasion: a stable and intact neighborhood with a racially homogenous population; (2) Invasion: a new population begins to enter the neighborhood at slow rates; (3) Early succession: new residents continue to settle in the neighborhood, constituting approximately 20% of the population; (4) Middle succession: rapid invasion and succession occurs with new residents occupying 20-60% of

the population; (5) Late succession: an entirely new population starts to become homogenous again but the new population is lower in socio-economic status than the previous population and includes minorities; (6) Consolidation: the neighborhood is transformed into a new place and the socio-economic fabric of the neighborhood is considerably transformed (Vicino, 2008).

According to Jun (2015), the classic invasion and succession theory of neighborhood change predicts that the physical housing quality of a neighborhood is usually the driving force of the neighborhood's decline and deteriorating houses attract more affluent people for renewal. Therefore, “[a] large share of newer and older housing is associated with an increase in neighborhood economic status while a large share of middle-aged housing is associated with a decline in neighborhood economic status” (Jun, 2015). Jun (2015) also states that the border model suggests different racial preferences lead to neighborhood change. This implies that blacks prefer to live in integrated neighborhoods with white populations; however, whites prefer to live in white majority neighborhoods (Jun, 2015). Therefore, within the US, many neighborhoods see a decline in housing prices because of the out-migration of whites as a response to the in-migration of middle-income minorities. While Jun’s (2015) study suggests that neighborhood change occurs based on the physical quality of housing or racial preference, the most common finding is that neighborhoods exhibit change due to income level and housing value. Urbanized populations frequently move among numerous neighborhoods in order to improve their socio-economic status.

Another important aspect of dynamic neighborhood change is gentrification: the invasion of affluent households into marginal neighborhoods, with the concomitant restoration of housing and the displacement of previous residents (Beauregard, 1989). Gentrification correlates with the change or displacement of minorities and immigrant populations in neighborhoods that experience an influx of upper-middle class white families. However, gentrification is an exemption to the Chicago School's model because it is not followed by succession.

Some of the most common factors that influence residents to leave their well-built, high status and well-located homes are: socioeconomic status, family structure, and ethnicity. Upper and middle-class individuals tend to move because technologically updated homes are preferred; this is known as functional obsolescence. Obsolescence of form is the change in family size or organization that causes a family to move to a larger or smaller residence. Locational obsolescence refers to changes in land use of surrounding locations, that cause a family to relocate to or out of an area (e.g. increased development, mass transit, or retail options). Lastly, style obsolescence is the shift in architectural and conventional preference of the individuals (Vicino, 2008). These stages observe the social dimension of spatial organization within a neighborhood. However, mobility by minorities, low-income and female-headed households are habitually constrained by socioeconomic resources. As such, when minority, low-income families move, they frequently find themselves re-entering poor neighborhoods (Brazil and Clark, 2017). Therefore, human capital, income, and household configuration are major factors that

influence whether individuals will move up or down the ladder of neighborhood poverty and quality distribution (Brazil and Clark 2017).

Neighborhoods are spatially situated. The role of space, in terms of spatial location of the city and spatial proximity of the neighborhood, affects the neighborhood's trajectory of quality of life. According to Delmelle et al. (2015) neighborhoods close to one another often have similar characteristics especially when developed around the same time period. Therefore, the proximity of the neighborhoods will cause residents of similar socioeconomic status to be attracted to the area. Similarly, the physical decline of a neighborhood will negatively affect adjacent neighborhoods, their quality of life, and vice-versa. This spatial spillover in neighborhoods significantly impacts housing value and quality of life (Delmelle et al., 2015).

Social dynamic neighborhood change is often caused by a chain of residential moves initiated by the construction of new homes for the affluent. “Filtering” of households occurs when higher-income families move out of the neighborhood and create a “vacancy chain” within the neighborhood. Vacancies are then filled by lower-income families and minorities. This continuous chain remains until it ends, at an old house in which no one wants to move into (Vicino, 2008).

The Chicago School’s Ecological perspective provides an understanding of spatial changes within neighborhoods. It assumes that over time, foreign-born populations would assimilate to the mainstream American culture as a part of the natural, ecological process. It perceives America as a ‘melting pot’, in which all races/ethnicities live together (Vicino, 2008; Brazil and Clark 2017; Collin, 2018). A limitation of the Chicago School

perspective is that it does not consider the outcome if minorities and foreign-born populations do not assimilate to the society. This problem is further discussed in the next section.

### *2.3 Immigrant Neighborhoods*

The United States has a history of institutional racial discrimination in housing markets, which has played a role in the composition of minority neighborhoods. For instance, red-lining, in which lenders refused to grant mortgage loans to certain areas of a town, was one of the greatest contributors to inner-city neighborhood decline during the 1960s and 1970s. Because of red-lining, property owners within these discriminated area were unable to sell their properties, thus resulting in a decline in property values (Jun, 2015). Policies such as the Fair Housing Act and the Equal Credit Opportunity were adopted in order to prevent racial discrimination in the housing market (Jun, 2015). Therefore, these policies, along with increased education and income, have helped decrease the negative effects of discrimination by allowing more investment into these minority neighborhoods.

Studies show (Frey, 2015; Collin, 2018) ethnic populations tend to live in demographically similar areas and use their shared identities and spatial proximity as a means to upward economic mobility. Therefore, immigrants settle in gateway cities, such as New York, Chicago and Boston, because of their ethnic and racial diversity, prosperous economies, and network of foreigners (Greene and Pick, 2012). In terms of neighborhoods, that immigrants tend to reside in neighborhoods in which other residents

have similar ethnic identities (Greene and Pick, 2012; Frey, 2015). Presence of similar ethnic groups influences local businesses, social interactions and, festivities. For instance, the Russian community in New York City has transformed the residential and local community and businesses (Greene and Pick, 2012). Russian bought out a majority of the businesses, influencing similar immigrants to reside within the area. Therefore, such areas become enclaves or “comfort zones” to like-immigrants (Frey, 2015). Traditionally, America has been called a ‘melting pot’ because with time, generations of immigrants have melted together and assimilated within the American culture. However, enclave or comfort zone areas held together by social and cultural activities by diverse groups who maintain their ethnic identity to assist each other to upward mobility, portrays America as a ‘salad bowl’ (Collin, 2018). Individuals within these neighborhoods are able to integrate within society and keep their own distinct cultural quality and do not have to merge into a single homogenous culture (Collin, 2018). This concept gives insight into how neighborhoods with minorities and immigrants are constructed and helps understand that every neighborhood does not follow the Chicago School’s ecological perspective of neighborhood change.

In order to gain an understanding of neighborhood change, the evaluation of mobility decisions of immigrants is especially important. Studies suggest a link between, significant life-course events related to human capital, income, and household formation based on the quality of a neighborhood. Understanding neighborhood changes over time can be important to urban leaders and policy makers who wish to devise local economic strategies to help improve neighborhood prospects. Coulton et al (2012) studied movers,

newcomers, and stayers within a neighborhood to understand the push-and-pull factors related to mobility decisions. Residential mobility affects the entire neighborhood, not just individual households. This affect is caused primarily because of “movers and newcomers rather than stayers” (Coulton et al., 2012). There are many push-and-pull factors that influence a household’s decision to relocate to a certain location such as, employment, family composition and enclave location. The probability of residential mobility is largely correlated with demographic characteristics, such as age, gender, race, ethnicity, and socioeconomic status (Coulton et al., 2012). In particular, a high residential turnover can contribute to the decline of social capital and can be linked to problems with crime and delinquency. However, residential turnover may also promote further mobility by changing the demographic and socioeconomic mix of a neighborhood, and create opportunities in employment and other areas for its residents (Coulton et al., 2012).

#### *2.4 Immigrants and Entrepreneurship*

Immigrants are commonly recognized as being highly entrepreneurial in the United States (Fairlie & Lofstrom, 2015). Estimates from the American Community Survey states “2.4 million immigrant business workers, representing 18.2 percent of all business owners;” while immigrants constitute roughly 16.3 percent of the U.S workforce (Fairlie & Lofstrom, 2015). This evidence implies that immigrants tend to have a higher rate of business ownership than native-born Americans (Chen et al., 2015). While immigrants make notable contributions in all areas of the workforce, the highest numbers

are seen in retail trade (22.6%), wholesale trade (20.3%), and health care and social assistance (20.0%) (Fairlie & Lofstrom, 2015).

Immigrants are able to integrate family and community resources in order to engage in entrepreneurship; therefore, social networks play a major role in their ability to achieve business ownership. Social networks, especially family networks, allow immigrant and minority entrepreneurs to amalgamate financial capital and labor. These networks can offer immigrants important “resources such as knowledge, expertise, and technology” (Chen et al., 2015). Ethnic community centers can offer immigrants training to assist with startup businesses. For instance, “skilled Chinese and Indian immigrants in Silicon Valley rely on professional and business associations to explore business opportunities” (Chen et al., 2015). Such social networks also employ the use of the internet to build communities, mobilize resources and create and maintain existing connections. The use of the internet for business opportunities is essential as it reduces the time necessary to build a business: it enables the swift gathering of information, quicker marketing and a larger social capital audience (Chen et al., 2015). A significant body of literature suggests that immigrant entrepreneurs take advantage of “ethnic market niches, forming commercial ethnic enclaves that provide needed goods and services to co-ethnics” (Chacko, 2015) which they can then use to enter local labor markets, and simultaneously, as a prospective path for upward socio-economic mobility. Qing fang and Li (2007) also suggest that social capital greatly boosts startups and continuing business success by acting as an “informal business incubator” and by supporting its physical and financial needs.

These businesses owned by minorities such as: Asians, Blacks, and Hispanics, are also known as ethnic enterprises (Liu et al., 2013). Ethnic enterprises refer to businesses owned by ethnic entrepreneurs whose group membership is tied to a common cultural background (Wang & Li, 2007). Ethnic enterprises are an important source for job creation, innovation and economic growth in the United States economy. According to Liu et al (2014), Asian-owned businesses grew by 40.7% to 1.6 million and Hispanic-owned businesses increased by 43.7% to 2.3 million, in contrast to an 18% growth rate by all businesses.

As mentioned previously, immigrants are able to integrate resources from their country of origin through social networks, especially family networks. Chen et al (2015) observes that family ties and social networks allow ethnic entrepreneurs to merge together financial capital and labor; ultimately enhancing opportunities and spur self-employment. These ties indicate why many immigrants are more likely to reside in an ethnically-similar concentrated area, especially within metropolitan cities. Literature suggest that a great number of immigrant business owners are concentrated in gateway states like California, New York, Florida, and Texas; therefore, their contribution within these states is substantially higher when compared to others and the national average. According to Fairlie and Lofstrom (2015) nearly 37% of all business within California are immigrant owned and approximately 30% of all business owners in New York, Florida and New Jersey are foreign-born. Furthermore, immigrants' influence varies based on country of origin. The largest contribution comes from immigrants from Mexico with "570,170 business owners representing nearly a quarter of all immigrant business

owners in the United States” (Fairlie & Lofstrom, 2015). Korean immigrants make up the next largest group of ownership with 5.1%, followed by Indian and Vietnamese who carry roughly 4% each. From the group, Mexican immigrants have a rate of business ownership of 8.4 % which is below the national average of 9.8%. Therefore, “the large contribution to the total number of immigrant business owners is thus being driven by the large share of Mexican immigrants in the United States and not by higher business ownership rates” (Fairlie & Lofstrom, 2015).

### *2.5 Quality of Life Index*

Scholars of various fields have attempted to define and effectively quantify their definitions of quality of life in order to make meaningful interpretations of society and to formulate ideal policy recommendations (Simmons et al., 2010). Quality of life (QoL) of a city helps understand the standards in which its citizen, foreign-born populations in this case, are residing in and it’s a way to understand the general well-being of a population (Verdugo et al., 2005).

Quality of life (QoL) follow a set of rules; therefore, they statistics are reliable, comparable across studies and replicable (Simmons et al., 2010). The Quality of Life (QoL) index measures life satisfaction through objective and subjective components (Verdugo et al. , 2005; Rapley, 2011; Williams et al. , 2015). On an individual scale, quality of life refers to the well-being, happiness, satisfaction and sense of belonging within a community (Shcuksmith et al., 2009; Gieling and Haartsen, 2016). On a neighborhood scale, QoL is used to measure the accessibility and availability of

amenities, crime rates, employment, and education level. Neighborhood QoL can be used for policy and planning purposes to help improve the communities' QoL (Mast, 2010; Williams et al., 2015; Gieling, and Haartsen, 2016). Literature (Mast, 2010; Marans and Stimson, 2011; Williams et al., 2015) suggests that quantifying neighborhood quality is fundamentally complex; therefore, a number of variables can be used to measure it.

Traditionally, neighborhood QoL indices have included data on income, race, ethnicity, poverty, education and employment (Testa and Nackley, 1994; Verdugo et al., 2005). However, in recent studies (Mast, 2010; Rapley, 2011; Williams et al., 2015; Gieling and Haartsen, 2016), other important indicators include crime rate, infant mortality, the housing market and transportation. Quality of Life indexes are most commonly measured by surveys and Likert-type rating scales (Verdugo et al., 2005; Rapley, 2011); however, such methods can often be unreliable and can cause inconsistencies in results. Some studies (Mast, 2010; Gieling and Haartsen, 2016) use a 5-point or 10-point scale system to rate the indicators and see more consistent results.

Previous studies (Jargowsky, 2009; Williams et al., 2015; Knies et al., 2016) have concluded that immigrants tend to live in lower QoL neighborhoods than native-born individuals. Knies et al. (2016) argues that life satisfaction is lower amongst immigrants because they tend to “deprive” themselves from other ethnic groups; therefore, they are deprived of the support and resources that are available for native-groups. Ethnic enclaves are often seen as nets of deprivation (Knies et al., 2016) which causes stagnation and disadvantages in the lives of immigrants (Jargowsky, 2009). On the contrary, some studies (Chen et al., 2015; Fairlie and Lofstrom, 2015) show immigrants ability to use

resources from their enclaves to achieve economic mobility. This study will use a quality of life index to examine whether foreign-born population have a positive or negative impact on the local area.

## CHAPTER III

### STUDY AREA AND METHODS

#### *3.1 Study Area: Why Greensboro is a new Gateway City?*

North Carolina (NC) has been experiencing an immigrant population boom (Sultana and Miller, 2005). Across North Carolina, immigrants “represent 1 in 10 workers and 1 in 10 business owners, and they account for over 8% or close to \$11 billion of the state’s yearly economic output (AFSC, 2014). The city of Greensboro, known as emerging gateway city, located in Guilford County, and the third largest city in NC, has been selected for understanding the impacts of immigrants on neighborhood change (Figure 1). Greensboro has had a large black population (41.8%) given its historical ties with slavery, segregation, and civil right movement (McClain et al., 2006; ACS, 2017). In recent years, however, Greensboro has become host to a large foreign-born population, 9.9%, and with its non-white population reaching 51.3% (ACS, 2017) (Table 1) and falls within the category of new Emerging gateway city (Singer, 2014). With the increase in immigrant populations, there has been an increase in the number of restaurants serving international cuisine, the majority of which are owned by immigrants (“Growth & Development Trends”, 2018). These restaurants have contributed to the local economy by increasing employment within the industry by 50.3% from 2010-2016 (“Growth & Development Trends”, 2018).

While there is no scholarly research that explain why Greensboro is an attractive city for immigrants, there are strong presence of local community programs and services, such as the Center for New North Carolinas (<https://cnnc.uncg.edu>), North Carolina African Service Coalition (<https://ascafrica.org>), and Churches such as Faith Action (<https://faithaction.org>) and Church World Services (<https://cwsglobal.org>) immigrants. These services play a significant role for immigrant population becoming accustomed to the local area and generate economic network and benefits. Networks provide foreign-born populations with ethnic goods, religious services, employment opportunities, and makes the region more attractive (Nowotny and Pennerstorfer, 2017). In fact, the growth of immigrants' own businesses gives an indication that there are possibilities of networks within Greensboro to help and attract the increasing numbers of immigrants.

Additionally, Charlotte and Winston-Salem, metropolitan areas located within North Carolina, are also Emerging gateway cities (Singer, 2014). Studies show (Capello, 2009; Kemeny and Cooke, 2018) a positive relationship between individuals and movement to neighboring regions in search of opportunities. Therefore, there is a likelihood, regional spatial spillover is a component in the increase of immigrant population within Greensboro. Although the influx of immigrants into Greensboro has received much attention in the news over the years ("Growth & Development Trends", 2018), little scholarly research has focused on how this phenomenon has affected the dynamics of neighborhood change in terms of socioeconomics and the quality of life index. Until recently, much of our understanding of the impacts immigrants have on neighborhood changes come from studying the process in major cities such as New York,

Los Angeles, and Miami (Massey, 1995; Price-Spratlen and Guest, 2002; Jun, 2015). Studying these major gateway cities may not adequately explain the impact of immigrants in smaller, lesser-known gateway cities. That is why this study intend to investigate whether the smaller gateway cities show similar patterns as larger gateway city or whether differences exist.

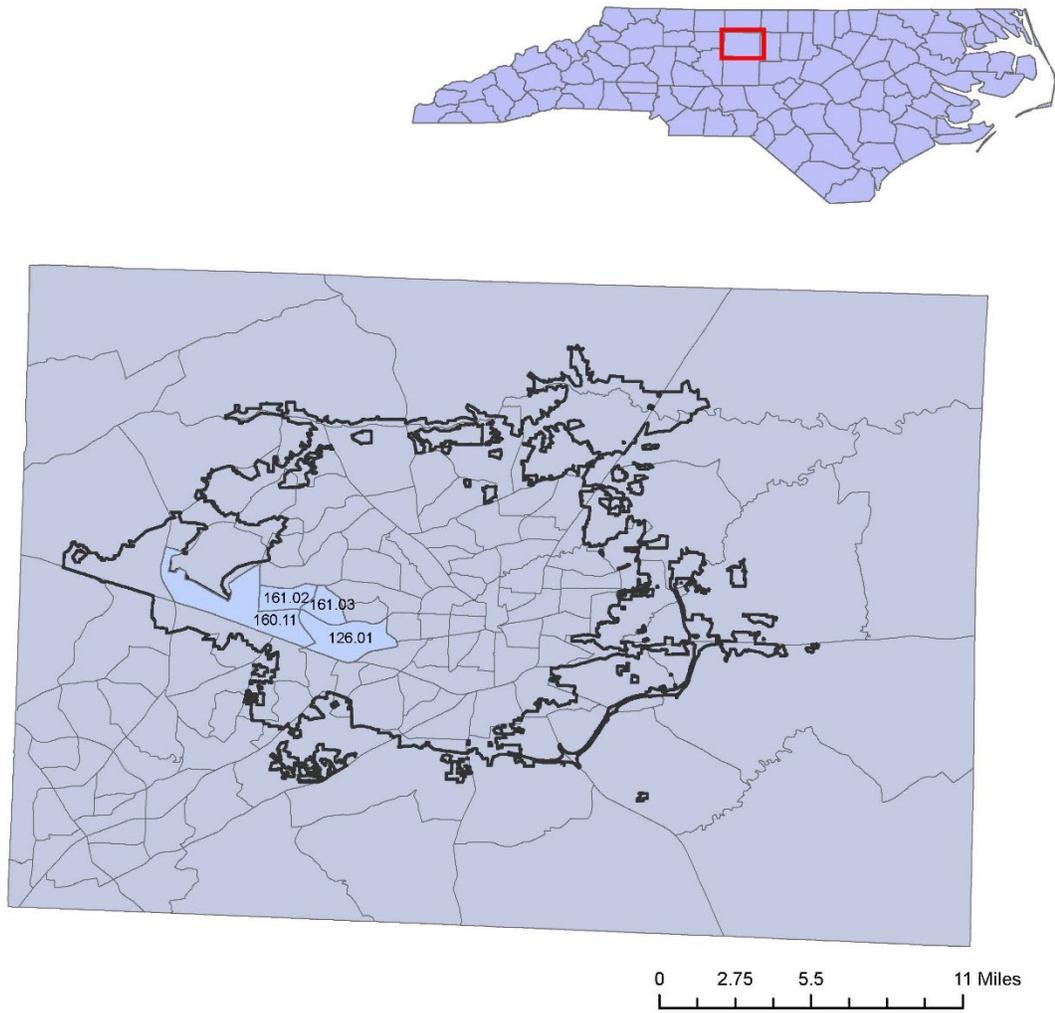


Figure 1. Guilford County and the City Boundary of Greensboro

Table 1. Race Demographics Estimates 2016

| <b>Subject</b>                    | <b>North Carolina</b> |                | <b>Guilford County</b> |                | <b>Greensboro</b> |                |
|-----------------------------------|-----------------------|----------------|------------------------|----------------|-------------------|----------------|
|                                   | <i>Estimate</i>       | <i>Percent</i> | <i>Estimate</i>        | <i>Percent</i> | <i>Estimate</i>   | <i>Percent</i> |
| One Race                          | 9,940,828             | 97.6%          | 500,438                | 97.8%          | 262,586           | 97.4%          |
| White                             | 6,882,915             | 69.2%          | 288,612                | 56.4%          | 135,861           | 48.1%          |
| Black/African American            | 2,137,131             | 21.5%          | 171,837                | 33.6%          | 118,079           | 41.8%          |
| American Indian/Alaskan Native    | 117,479               | 1.2%           | 2,297                  | 0.4%           | 1,085             | 0.4%           |
| Asian                             | 254,550               | 2.6%           | 23,395                 | 4.6%           | 12,250            | 4.3%           |
| Asian Indian                      | 76,306                | 0.8%           | 3,054                  | 0.7%           | 2,101             | 0.7%           |
| Chinese                           | 44,040                | 0.4%           | 2,666                  | 0.5%           | 1,301             | 0.5%           |
| Filipino                          | 21,303                | 0.2%           | 1,155                  | 0.2%           | 509               | 0.2%           |
| Japanese                          | 6,225                 | 0.1%           | 241                    | 0.0%           | 78                | 0.0%           |
| Korean                            | 19,736                | 0.2%           | 1,711                  | 0.3%           | 626               | 0.2%           |
| Vietnamese                        | 33,214                | 0.3%           | 6,299                  | 1.2%           | 4,840             | 1.7%           |
| Native Hawaiian/Pacific Islanders | 6,558                 | 0.1%           | 336                    | 0.1%           | 228               | 0.1%           |
| Hispanic                          | 800,120               | 8.4%           | 34,826                 | 7.1%           | 20,336            | 7.5%           |
| Mexican                           | 486,960               | 5.1%           | 10,317                 | 64.5%          | 12,293            | 4.6%           |
| Puerto Rico                       | 71,800                | 0.8%           | 1,274                  | 8.0%           | 1,872             | 0.7%           |
| Other Hispanic or Latino          | 223,281               | 2.3%           | 3,817                  | 23.9%          | 5,651             | 2.1%           |
| Some other Races                  | 289,795               | 3.0%           | 13,961                 | 2.7%           | 8,240             | 2.9%           |
| Two or more                       | 243,370               | 2.4%           | 11,377                 | 2.2%           | 6,434             | 2.3%           |
| White and Black/African American  | 87,287                | 0.9%           | 4,079                  | 0.8%           | 2,801             | 1.0%           |
| White and Asian                   | 35,376                | 0.4%           | 1,318                  | 0.3%           | 654               | 0.2%           |

Source: ACS Demographic Estimates 2012-2016 American Community Survey 5-Year Estimates

### 3.2 Data, Procedure and Methodology

#### 3.2.1 Data

Various sources of data have been collected (Figure 2) for this thesis to understand the dynamics of neighborhood change over time, as shaped by immigrant populations.

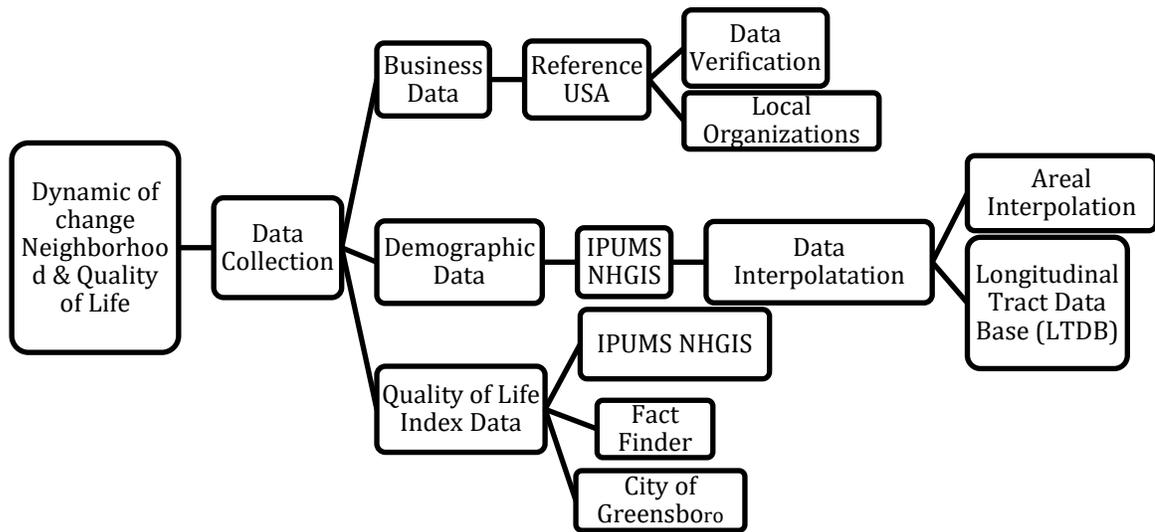


Figure 2. Data Collection Process

### 3.2.2 Demographic Data and Standardization

IPUMS NHGIS (National Historical Geographic Information System) provided ACS (American Community Survey) five year estimate data of 2009 (2004-2008), 2011 (2005-2010) and 2016 (2011-2015) under the race by nativity category for Guilford County at the census tracts level (*IPUMS NHGIS*, <https://www.nhgis.org/>). Census tract level is utilized for this research because the population category of “foreign born” was unavailable under block groups level data. Geographic boundaries for census tracts are collected from TIGER/line shape files 2000, 2010, and 2016. Census tracts are important enumeration units, but many Census tracts do not maintain the same boundaries between these three years. Therefore, 2000 data could not be directly transferred to the 2010 and 2016 Census tracts zones for comparison; and hence, data standardization for the year 2000 census tract was required.

Data standardization for 2000 demographics census tracts data was completed in two methods: (1) Longitudinal Tract Data Base (LTDB) and (2) GIS areal interpolation. Longitudinal Tract Data Base (LTDB) is an online database that uses National Historical Geographic Information System (NHGIS) as a source to help estimate changes in boundaries. LTDB allows researchers to normalize the data from previous years (1970-2000) to 2010 census tract boundaries (“Census Geography: Bridging data for census tract across time”). The LTDB data, which is downloadable, includes GISJoin ID for joining the layer in GIS, the year, state, county, tract number, and demographics data. The data from LTDB was used to interpolate 2000's race demographics data to 2010 boundaries. The LTDB is an access database that allows researchers to input aggregated

census tract data into the program, and results in the output of interpolated results of the census tract files. The data results from the LTDB program were then confirmed by using GIS areal interpolation.

In GIS areal interpolation, the data is used to tabulate the intersection between two layers; in this case, the year 2000 tracts and 2010 tracts. Values are then applied from one layer (2000) to the other layer (2010) based on the percentage of overlap. For instance, if 2000 tract A has 100 people, and it intersects 2010 tracts-X and tract-Y, with 75% of its area in tract X and 25% of its area in tract Y; then the 100 people would be interpolated such that 75 are assigned to tract X and 25 are assigned to tract Y. The results yielded from the LTDB analysis were similar to those from the GIS areal interpolation.

### *3.2.3 Immigrants' Entrepreneurship and Business Data*

Both the historic and current foreign-born business data for this study is compiled from various sources. Given the time-consuming and tedious process involved in collecting this data from one of the corridors with the most immigrant residents, West Market Street, was chosen for analyzing the changes in business. Although this analysis is based upon one corridor, the research should not be undermined as this particular area has seen the most change in Greensboro in terms of immigrants and businesses. The name of the business, year of ownership, name of the owner, gender of owner, address, SIC codes and contact information were downloaded from Reference USA, which was published on February 2018 (Devlin, 2017). Additional business data that is missing from

Reference USA is gathered by utilizing local resources like the Greensboro Chamber of Commerce and the Church World Service which is a local grassroots organization. All active businesses owned by immigrants are verified by an in-person visit with the owner's acknowledgment, from local newspapers, yellow book pages and from information given from local sources. With the exception of Reference USA, all other sources of data only provided the business name, year, and address. Therefore, gender was not an applicable category for analysis in this study. Additionally, the collected business data started in 2005 and continued to 2016. Business data for the year of 2000 was difficult to attain because there was no database available for local businesses in Guilford County, the Greensboro Chamber of Commerce or any other organization. Exclusion of immigrant-owned businesses is a possibility. The entire processes of data collection including filtering and editing took approximately 3 months.

### *3.3.Methods*

#### *3.3.1. Markov Chain Analysis*

In this research, the Markov Chain Analysis is designed to determine the probability of any tract moving through different classes of immigrant concentration in Guilford County between the years of 2000-2010, 2010-2016 and 2000-2016. Markov Chain Analysis is a probability process which can be used to study the movements of units through time (Clark, 1965; Rikkinen, 1971, 7). In Markov Chain Analysis, there is a given set of states (e.g.,  $S_1$ ,  $S_2$ ,  $S_3$ ). This process can be applied to only one of these states (or classes) at a given time. Movement from one state to another is called a step. The

probability that the process moves from one state to another depends only on the state S1 that it occupied before the step. In other words, Markov Chain's process assumes dependency on the previous year's data. In this case, population data for both native-borns and for immigrants, shows changes over time in a given geographic area. For instance, the population of 2011 in a census tract is a function of the 2010 population in that census tract; therefore, the population of 2011 is dependent upon the population of 2010. Also an initial starting state is specified at the time in which the process is assumed to begin (Clark, 1965; Rikkinen, 1971, 7), for this study, the 2000 population data.

For Markov Chain Analysis, the percentage of the foreign-born population for each census tract was calculated first by classifying the neighborhoods or census tracts of Guilford County into categories or “states” of immigrant occupied neighborhoods. The three threshold states are: low (L), medium (M) and high (H) and are divided as follows: L (0-4.99 percent), M (5-16.9 percent), and H (17-37 percent). There is debate between scholars on the separation of these thresholds, as changes to class breaks can lead to differing results (Magrini, 1999). The discretization procedure by Magrini (1999) practices continuous kernel density plots; however, Gallo and Chasco (2008) explain this method can be unreliable as only a few observations are contained at the tails of distribution. Therefore, the selection of these “state” thresholds were based on the observation that; there are equal amounts of census tracts in the lower, middle and upper range (Greene and Pick, 2012).

Next, an examination is made of every two-state combination (e.g. low-to-low foreign born census tracts) for each transition period (e.g., from 2000 census to 2010

census). As a result, a total of 9 two- state combinations for each transition period are converted into an example probability matrix as seen below (Table 2). Each cell entry in the matrix is calculated by the relative frequency definition of probability. The transition probability  $P_{ij}$ , which gives us the probability that the process will move from  $S_1$  to  $S_2$ , is given for every ordered pair of states (Clark, 1965). The  $P_{ij}$  signifies the probability of a neighborhood moving from one level of status to another level of status with the changes of immigrant population. The  $f_{ij}$  is the perceived number of transitions from state  $i$  to  $j$ ; while the 3 is the number of states.

$$P_{ij} = \frac{f_{ij}}{\sum_{j=1}^3 f_{ij}}$$

Table 2. Probability Matrix

|                            |            | (Year) State of Percent FB |            |          |
|----------------------------|------------|----------------------------|------------|----------|
|                            |            | Low (A)                    | Medium (B) | High (C) |
| (Year) State of Percent FB | Low (A)    | $P_{AA}$                   | $P_{AB}$   | $P_{AC}$ |
|                            | Medium (B) | $P_{BA}$                   | $P_{BB}$   | $P_{BC}$ |
|                            | High (C)   | $P_{CA}$                   | $P_{CB}$   | $P_{CC}$ |

This entire process for the Markov Chain Analysis is set up within an Excel spreadsheet which contains data columns consisting of total population data, foreign-born population data, percentage of the foreign-born population, and the transitions between the years for each of the time periods. This data is then transferred to a shape file within ArcGIS to visualize the transition within the area over the periods.

### 3.3.2. *Quality of Life Index*

The quality of life indexes were created for the years of 2000, 2005, 2010 and 2016 by using a simple ranking system (Mast, 2010; Gieling and Haartsen, 2016) based on 0 to 5 points. The data analysis removed the units from each variable and averaged the scores. Mean and standard deviation was calculated for each variable in order to calculate the z-score for each year. After calculations, each variable's z-score is compared within the index and is given a point based on the following information: 0 points were given for insufficient information, 1 point was given for the lowest score, 3 points given for an average score, and 5 points were given to the best score. Then, the points were totaled for each year and compared to determine the change in QoL over the time period. The best quality of life was represented by the highest score.

## CHAPTER IV

### RESULTS

#### *4.1. Dynamics of Neighborhood Change Shaped by Immigrant Population*

In this section, I will seek to answer the question of how the immigrant composition of neighborhoods has transitioned through time, from 2000-2010, 2010-2016 and 2000-2016. To answer this question, the Markov Chain Analysis is designed to determine the probability of any tract moving through different classes of immigrant concentration between the years, for the entirety of Guilford County. The Markov Chain Analysis indicates that there are many census tracts in Guilford County that have made a transition from a low to a high concentration of immigrant populations (Figure 3, 4, 5).

##### *4.1.1. Neighborhood Change by Immigrants from 2000 to 2010*

Estimates of the 2000-2010 transition probabilities shows the transition for foreign-born populations in Table 3. The resulting matrix indicates a high degree of stability of neighborhoods, as 33 Census tracts or 67%, from a total of 49, would continue to have a medium concentration of an immigrant population from 2000 to 2010. From Census 2000 to 2010, there is a 48% probability that 27 Census tracts in Guilford County stayed from low-to-low (AA) category in 2010 (Table 3). Figure 3 shows that these low concentrations of immigrants were located mainly in Census tracts on the outer northwest, northeast, and southwest areas of Guilford County (Figure 3). There is a 53%

probability that 31 Census tracts would move from low-to-medium (AB) category from 2000 to 2010 (Table 3). In 2000, only 11 Census tracts had a high concentration of immigrants. Out of 11 Census tracts, 8 had a 72% probability of maintaining the high concentration of immigrants' population (CC) (Table 3). These high concentrations of immigrants were located near the southern part of Greensboro, bordering some of the West Market corridor tracts and the Southwest area of Guilford County (High Point) (Figure 3). Figure 3 shows a new formation of immigrant concentration near the northern city boundary of Greensboro.

Table 3. 2000-2010 Probability Matrix

|                                   |                             | 2010 State of Percent FB |              |              |
|-----------------------------------|-----------------------------|--------------------------|--------------|--------------|
|                                   |                             | Low(A)                   | Medium (B)   | High (C)     |
| 2000<br>State of<br>Percent<br>FB | Low (A)<br>(Total CT: 59)   | 27 CT<br>48%             | 31 CT<br>53% | 1 CT<br>1.7% |
|                                   | Medium(B)<br>(Total CT: 49) | 8 CT<br>16%              | 33 CT<br>67% | 8 CT<br>16%  |
|                                   | High (C)<br>(Total CT: 11)  | 0 CT<br>0                | 3 CT<br>27%  | 8 CT<br>72%  |
|                                   |                             |                          |              |              |

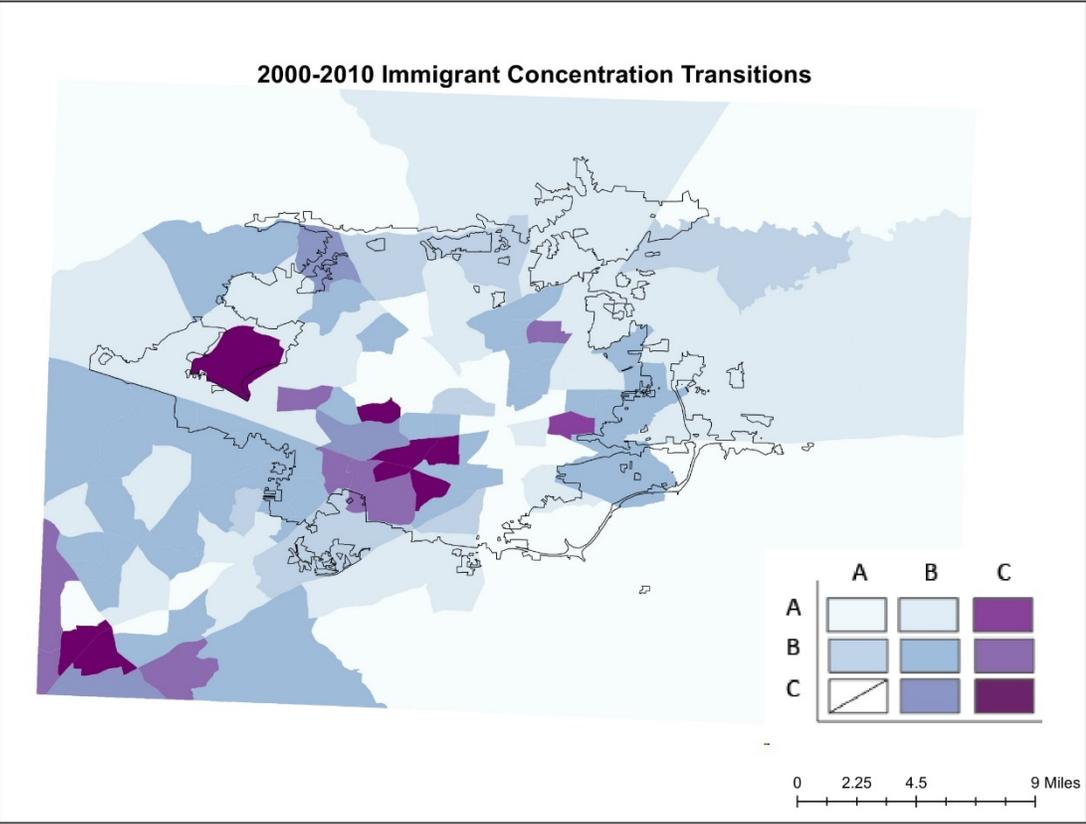


Figure 3. 2000-2010 Concentration Transition based on Markov Analysis

4.1.2. *Neighborhood Change by Immigrants from 2010 to 2016*

Table 4 shows the transition probability of foreign-born populations from 2010 to 2016. Given the assumed transition matrix, it is impossible for a Census tract of a lower concentration to transition directly to the upper class concentrations and vice versa. The 2010 to 2016 transition period showed that out of 67 Census tracts, 54 or 81% had a probability of remaining stable (BB) with foreign-born populations (Table 4). These Census tracts of medium concentrations of immigrants were located mainly in the western region of Guilford County, with some in the northern and eastern region of Greensboro (Figure 4). Out of 17 Census tracts, 11 or 65% would continue to have high concentration (CC) of foreign born populations (Table 4). These high concentrations of immigrants (CC) would be located in the southern and northern-eastern Greensboro area (Figure 4). Within this transition period, only 8 from 67 Census tracts had a probability of 12% of moving from a medium concentration of immigrants to a lower concentration (BA) and 5 from 67 had a 7% probability of moving into a higher concentration of an immigrant population in 2016 (Table 4).

Table 4. 2010-2016 Probability Matrix

|                          |                              | 2016 State of Percent FB |              |              |
|--------------------------|------------------------------|--------------------------|--------------|--------------|
|                          |                              | Low (A)                  | Medium (B)   | High (C)     |
| 2010 State of Percent FB | Low (A)<br>(Total CT: 35)    | 17 CT<br>49%             | 18 CT<br>51% | 0 CT<br>0    |
|                          | Medium (B)<br>(Total CT: 67) | 8 CT<br>12%              | 54 CT<br>81% | 5 CT<br>7%   |
|                          | High (C)<br>(Total CT: 17)   | 0 CT<br>0                | 6 CT<br>35%  | 11 CT<br>65% |
|                          |                              |                          |              |              |

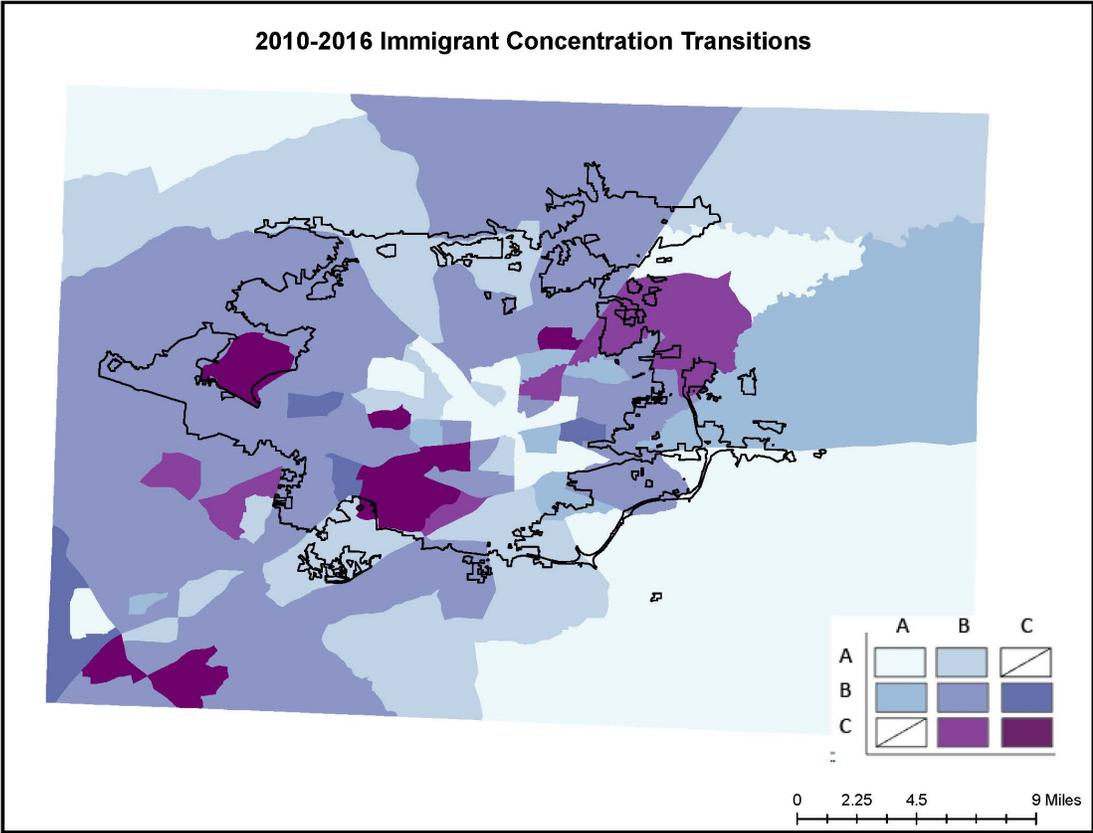


Figure 4. 2010-2016 Concentration Transition based on Markov Analysis

#### 4.1.3. Neighborhood Change by Immigrants from 2000 to 2016

The years of 2000-2016 shared commonalities with short-term transition periods when observing immigrant population transition throughout Guilford County (Figure 5). From 2000, there was a 69% probability that 43 Census tracts would move from a low (A) concentration of immigrants to a medium (B) concentration in 2016 (Table 5). From 2000, 28 Census tracts had a 64% probability of remaining stable with immigrant concentration (BB) while there was a 20% probability that Census tracts would move to a medium to high concentration (BC) of immigrant population by 2016 (Table 5). Figure 5 shows that these high concentrations of immigrant populations are located in the Southern portion of Greensboro as highlighted in the short-term analysis (Figure 3 and 4).

Table 5. 2000-2016 Probability Matrix

|                          |                              | 2016 State of Percent FB |              |              |
|--------------------------|------------------------------|--------------------------|--------------|--------------|
|                          |                              | Low (A)                  | Medium (B)   | High (C)     |
| 2000 State of Percent FB | Low (A)<br>(Total CT: 62)    | 18 CT<br>29%             | 43 CT<br>69% | 1 CT<br>1.6% |
|                          | Medium (B)<br>(Total CT: 44) | 7 CT<br>16%              | 28 CT<br>64% | 9 CT<br>20%  |
|                          | High (C)<br>(Total CT: 13)   | 0 CT<br>0                | 7 CT<br>54%  | 6 CT<br>46%  |
|                          |                              |                          |              |              |

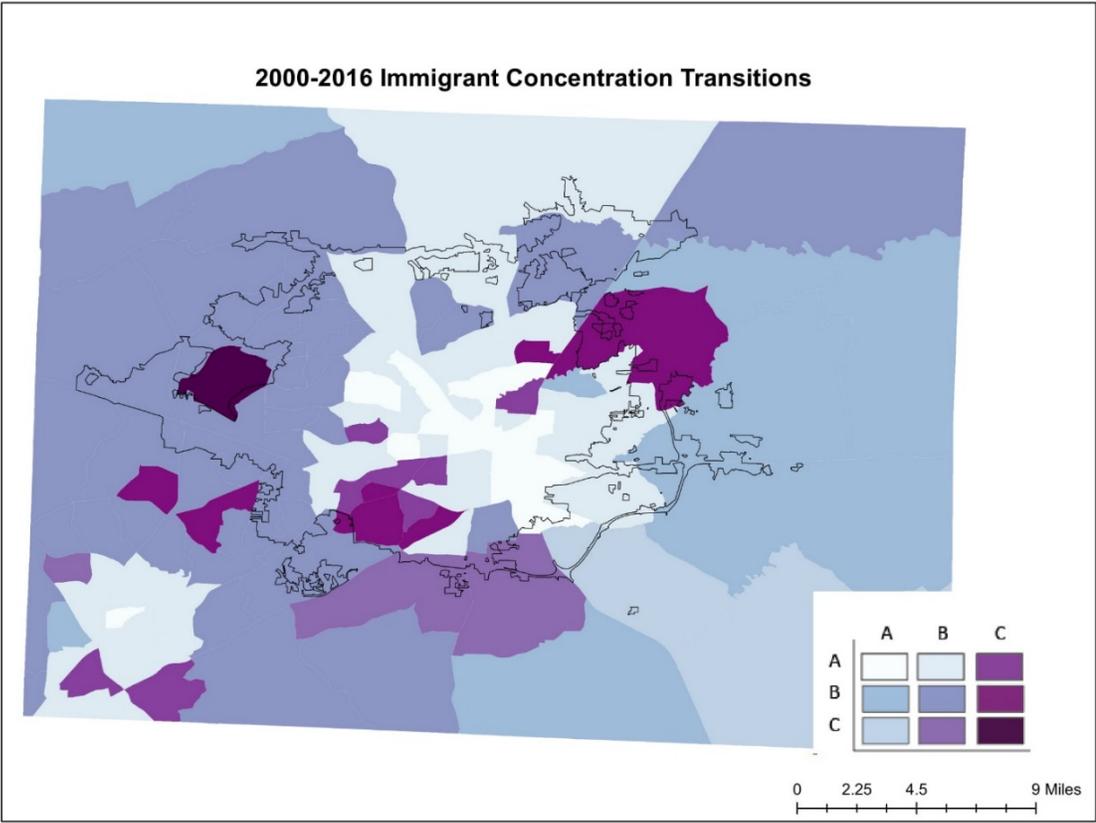


Figure 5. 2000-2016 Concentration Transition based on Markov Analysis (Overall Analysis)

Within the analysis, there is an outlier, Census tract 9801 located just outside the western region of Greensboro boundary. The tract appears to be moving from high to high (CC) percentage of immigrant population from 2000 to 2016; however, this particular tract was the only tract that lacked data. Therefore, when calculating Markov Chain analysis, Census tract 9801 was automatically classified under the 'C' category of high percentage of change as it moved from 0 population in 2000 to approximately 250 population in 2010 and 2016.

The results show an interesting pattern of immigrant concentration in Greensboro. The probability model indicates that during 2000, there may have been low concentration of immigrant populations in the inner-city area of Greensboro. The trend from 2000 to 2016 shows an increase in immigrant concentrations towards the southern and northern-eastern boundary Greensboro. This results indicates that unlike larger gateway cities which have seen an increase in foreign-born population within the inner city, immigrant groups are concentrating towards the peripheral boundaries of the Greensboro. Immigrants, in prior studies, have been shown to reside in areas of high poverty; however, within Greensboro, the concentration of foreign-born populations is not residing in poverty zone areas, which is the eastern area of Greensboro. One possible explanation is the large number of ethnic businesses and community groups present within the southern Greensboro area are allowing diverse groups to maintain their ethnic identity within this area and attracting more immigrants. Therefore, Greensboro, with its diverse population located within particular areas (southern and northern), represents a salad bowl gateway cities, rather than melting pot, as many larger gateway cities.

Additionally, the results indicate spatial spillover plays a major role in determining the transition in immigrant population from one another to another. Census tracts with lower concentrations of foreign-born populations had a greater probability of transitioning to a medium or high concentration of a foreign-born population if it was adjacent to a tract with a high foreign-born population concentration. This suggests, that although medium and low concentration foreign-born tracts have a low probability of making the transition to the high concentration group, they are much more likely of doing so if they are adjacent to a Census tract with a high concentration foreign born population.

The results also suggest that in the near future, the West Market region of Greensboro, or the southern portion, will experience an active tipping point, or a succession of immigrants; as the concentration of immigrants in the southern region of the city increases, the proportion of natives decrease, and the population tips in the direction of a majority foreign-born population. This analysis indicates the possibility of the formation of an enclave of an immigrant populations in the southern Greensboro. As the results show (Figure 3, 4, 5), there is a low concentration of immigrants on the outskirts of Greensboro and Guilford County; therefore, it can be assumed that the native-born population is moving to the suburbs of cities.

#### *4.2. Neighborhood Change and Quality of Life in Greensboro and on the West Market Street Corridor*

To understand the change in quality of life (QoL) over the timespan of 2000 to 2016, this part of the research focuses on census tracts around West Market Street, a corridor with a high concentration of immigrants and immigrant owned businesses. Given the time involved in collecting business data and other variables associated with developing the QoL index, including of all the streets in Greensboro where immigrants have owned businesses and immigrants are concentrated was not possible. Although this analysis is based on one immigrant-concentrated corridor, this research should not be undermined as this particular area has seen the most dynamic changes amongst the Greensboro area (see Figure 5). Two indexes were created: the first index was for the city of Greensboro as a whole and the second index was created for the four Census tracts that touch Market Street or ones that are immediately adjacent to it. Both indexes included the following variables: median income, education attainment, median housing value, poverty rate, unemployment rate, crime rate, infant mortality rate, civilian labor force (16+), and transportation (daily vehicle miles). The West Market index for the year of 2000 excludes the two variables of civilian labor force and transportation, as the data was not available. The Greensboro and W. Market QoL indexes measures the contributions of native-born and foreign-born populations to the region. In regards to how the QoL index, was created, refer to the methodology section (3.3.2).

The quality of life index suggests that Greensboro, overall, has witnessed an increase in the quality of life of its citizens (Table 6). Overall, Greensboro in 2016 scored

highest on the quality of life index with a final score of 35; Greensboro ranked at 26 in 2010; 27 in 2005 and lastly, in 2000 saw the lowest QoL score of 21 (Table 6). The year 2000 had the lowest unemployment rate while 2010 had the highest. The 2010 score was highly impacted by the recession that began in 2007. It is noted that Greensboro is attempting to shift from its traditional manufacturing economy based on textiles, tobacco and furniture, to a more skilled based economy focusing on technology, education and the global logistics workforce. Results also show a dramatic change in employment industries from manufacturing to service jobs. Consequently, Greensboro saw a decrease of unemployment from 10% to 5 % in 2016. Although, the unemployment in Greensboro, overall, saw a decline, but there is still a high poverty rate. There are many factors that contribute to poverty, and poverty and unemployment do not affect everyone equally. For instance, low-quality education, lack of adequate food and healthcare but most importantly, geographic location. Poverty levels are higher on eastern region of Greensboro, as higher numbers of African American population occupy that area (“Growth & Development Trends”, 2018 this is negatively affecting overall quality of life scores. Another factor that may be contributing to the increase of poverty is lack of education which has only increased by 2% since 2010 (Table 6). As Greensboro attempts to move towards service-based economy, people lacking necessary education may be struggling to attain a job to support themselves. Nevertheless, compared to previous years in Greensboro, 2016 led on income, housing values, and low crime rate (Table 6).

Table 6. Quality of Life Index for Greensboro, NC

| <i>Indicators</i>                            | 2000      |      | 2005      |      | 2010      |      | 2016      |      |
|--|-----------|------|-----------|------|-----------|------|-----------|------|
|  | Raw Score | Rank |
| <i>Median Income (nonfamily household)\$</i> | \$22281   | 1    | \$25171   | 3    | \$23953   | 1    | \$27086   | 5    |
| <i>% of Person (HS or higher education)</i>  | 84.30%    | 1    | 87.00%    | 3    | 86.80%    | 3    | 89.20%    | 5    |
| <i>Median Housing Value</i>                  | \$116,900 | 1    | \$140000  | 3    | \$157900  | 4    | \$160,900 | 5    |
| <i>Persons in 125% Poverty</i>               | 12.3%     | 5    | 17.30%    | 3    | 20%       | 1    | 22.80%    | 1    |
| <i>Unemployment</i>                          | 3.40%     | 5    | 5.10%     | 3    | 10%       | 1    | 5.40%     | 5    |
| <i>Total Violent Crime</i>                   | 845       | 3    | 853       | 1    | 579       | 5    | 667       | 5    |
| <i>In civilian labor force, 16+</i>          | N/A       | 0    | 69.40%    | 5    | 66.50%    | 5    | 64.10%    | 3    |
| <i>Infant Mortality Rate</i>                 | 7%        | 5    | 9.50%     | 3    | 9.5       | 3    | 8.50%     | 5    |
| <i>Transportation : Daily Vehicle Miles</i>  | N/A       | 0    | 29.5      | 3    | 29.1      | 3    | 30.7      | 1    |
| <b><i>Total QoL Score</i></b>                | <b>21</b> |      | <b>27</b> |      | <b>26</b> |      | <b>35</b> |      |

Table 7. Quality of Life Index for West Market Census Tracts

|   | Census Tract<br>161.02 |           |           | Census Tract<br>161.03 |           |           | Census Tract<br>160.11 |           |           | Census Tract<br>126.01 |           |           |
|---|------------------------|-----------|-----------|------------------------|-----------|-----------|------------------------|-----------|-----------|------------------------|-----------|-----------|
|   | 2000                   | 2010      | 2016      | 2000                   | 2010      | 2016      | 2000                   | 2010      | 2016      | 2000                   | 2010      | 2016      |
| <i>Year</i>                                 |                        |           |           |                        |           |           |                        |           |           |                        |           |           |
| <i>Median Income</i>                        | 1                      | 3         | 5         | 0                      | 5         | 3         | 0                      | 3         | 5         | 3                      | 3         | 1         |
| <i>% of Person (HS or higher education)</i> | 3                      | 1         | 5         | 0                      | 5         | 3         | 0                      | 5         | 3         | 3                      | 5         | 5         |
| <i>Median Housing Value</i>                 | 1                      | 5         | 3         | 0                      | 5         | 3         | 0                      | 5         | 3         | 5                      | 3         | 1         |
| <i>Persons in 125% Poverty</i>              | 0                      | 5         | 3         | 0                      | 0         | 5         | 0                      | 0         | 5         | 0                      | 5         | 3         |
| <i>Unemployment</i>                         | 0                      | 1         | 5         | 0                      | 3         | 5         | 0                      | 1         | 3         | 0                      | 1         | 1         |
| <i>In civilian labor force, 16+</i>         | 5                      | 1         | 3         | 0                      | 3         | 5         | 0                      | 3         | 5         | 5                      | 1         | 3         |
| <i>Transportation: Daily Vehicle Miles</i>  | 3                      | 4         | 3         | 0                      | 5         | 3         | 0                      | 1         | 3         | 3                      | 5         | 1         |
| <b><i>Total QoL Score</i></b>               | <b>13</b>              | <b>20</b> | <b>27</b> | <b>0</b>               | <b>26</b> | <b>27</b> | <b>0</b>               | <b>18</b> | <b>27</b> | <b>19</b>              | <b>23</b> | <b>15</b> |

West Market QoL index shows 3 of the 4 Census tracts, 161.02, 160.11 and 161.03, saw an increase in quality of life from 2000 to 2016, while one tract (126.01) saw a decrease in QoL (Table 7). The index indicates that the Census tracts, 161.02, 160.11 and 161.03, saw an increase in income, percentage of person earning higher education and housing values (Table 7).

Census tracts 160.02, 160.11 and 161.03 moved from low quality of life to a higher quality of life. When compared to the Markov analysis, these neighborhoods during 2000-2010 were gaining new immigrant populations. By 2016, these neighborhood has a stability within its foreign-born population as they moved from invasion and succession to consolidation phrase. Markov analysis results suggest that once the neighborhood become occupied with majority foreign-born population, these Census tract neighborhoods saw a higher quality of life.

The Census tracts, 160.11 and 126.01, experienced interesting patterns of neighborhood change. From 2010 to 2016, the Census tract 160.11 experienced an increase in median income, decrease in unemployment and poverty, but saw a decrease in housing values and educational attainment. Markov Chain results (Figure 3, 4, 5) indicate this Census tract had a relatively high probability of moving from a low-to-medium concentration of immigrants from 2000 to 2016. This change might suggest that when the native-born population moved out, a negative relationship between immigrant influx and a decline in housing prices was created. This could have been caused by two main reasons: (1) As new immigrant groups moved into neighborhoods, it triggered a white flight of native-born residents who fear and perceive that immigrants may engage in criminal activity and worsen the standards of the neighborhood (Vicino, 2008); (2) or the white flight was not racially motivated, rather it was caused by a change in the cost of living, amenities and lifestyle preferences (Frey, 2018).

Census tract 126.01 was the only tract that saw a decrease in the quality of life from previous years. It saw a decrease in median income and stagnation in education

attainment, poverty level and unemployment since 2010 (Table 6). In 2000, this neighborhood had a low-medium concentration of immigrants, but it is transitioning up to a higher concentration (Figure 5). This neighborhood was an established immigrant neighborhood as it started out with a medium concentration of the immigrant population. Prior studies (Price-Spratlen and Guest, 2002), found that established neighborhoods of a population (foreign-born in this case) are more likely to experience dramatic decline in population as the neighborhoods around them start to evolve. Therefore, the decline in QoL may be associated with the increased mobility of the population within the Census tract. Immigrant business trends, as seen in Figure 7, indicate that this census tract saw the most increase of immigrant businesses; therefore, the mobility of population may be due to shift from a current residential neighborhood to a business center area consequently, causing a decline in QoL.

For each of the West Market tracts, unemployment and poverty rates were lower in 2016 than they were in 2010. There appears to be a consistent relationship between the growth of foreign-born populations and the number of new businesses, as seen in the Reference USA business trends (Figure 7). The results show that in 2005, there were only 37 immigrant businesses within the West Market corridor (Figure 6). By 2010, such businesses nearly doubled to 68. Then in 2016, the West Market area alone had 90 immigrant owned businesses. Of the 38 businesses in 2005, only 11 were still in business in 2016. Of the 68 businesses in 2010, only 19 continued to stay in business in 2016. Therefore, the majority of the businesses in 2016 were owned by new immigrants (Refer to Figure 6 and 7). Figure 7 shows businesses in 2005 were more scattered but by 2016

seem to be clustering within one Census tract, 126.01. This may indicate a formation of enclave by a particular ethnic group. Although our research does not look at specific foreign-born groups located within this area, Table 1 (Refer to Chapter 3: Study Area), estimates show a large presence of Hispanic and Asian population within Greensboro. Census tract 126.01 may also be a home to many different races, which has resulted in a variety of foreign-born businesses, confirming the idea that Greensboro represents the salad bowl analogy of assimilation. Business trends along with Markov analysis clearly indicates that with the increase of the immigrant population, West Market area saw increases in immigrant-owned businesses.

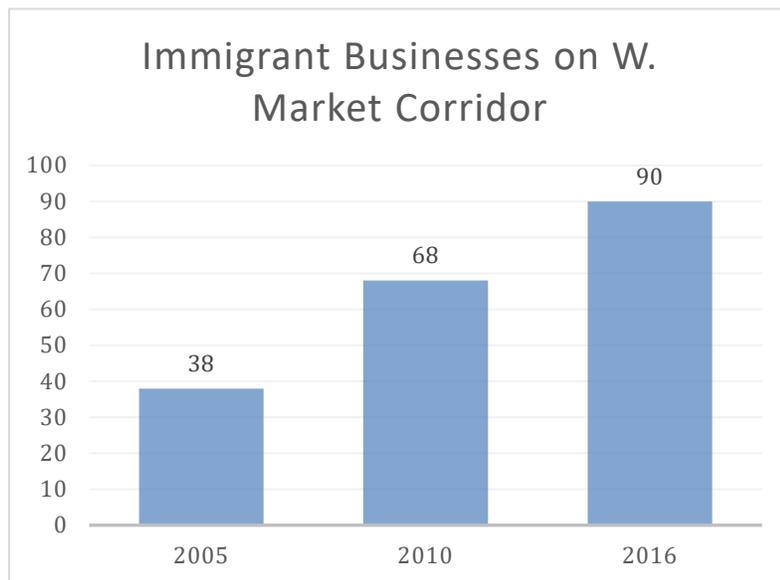


Figure 6. Immigrant Business by Number on W. Market Corridor

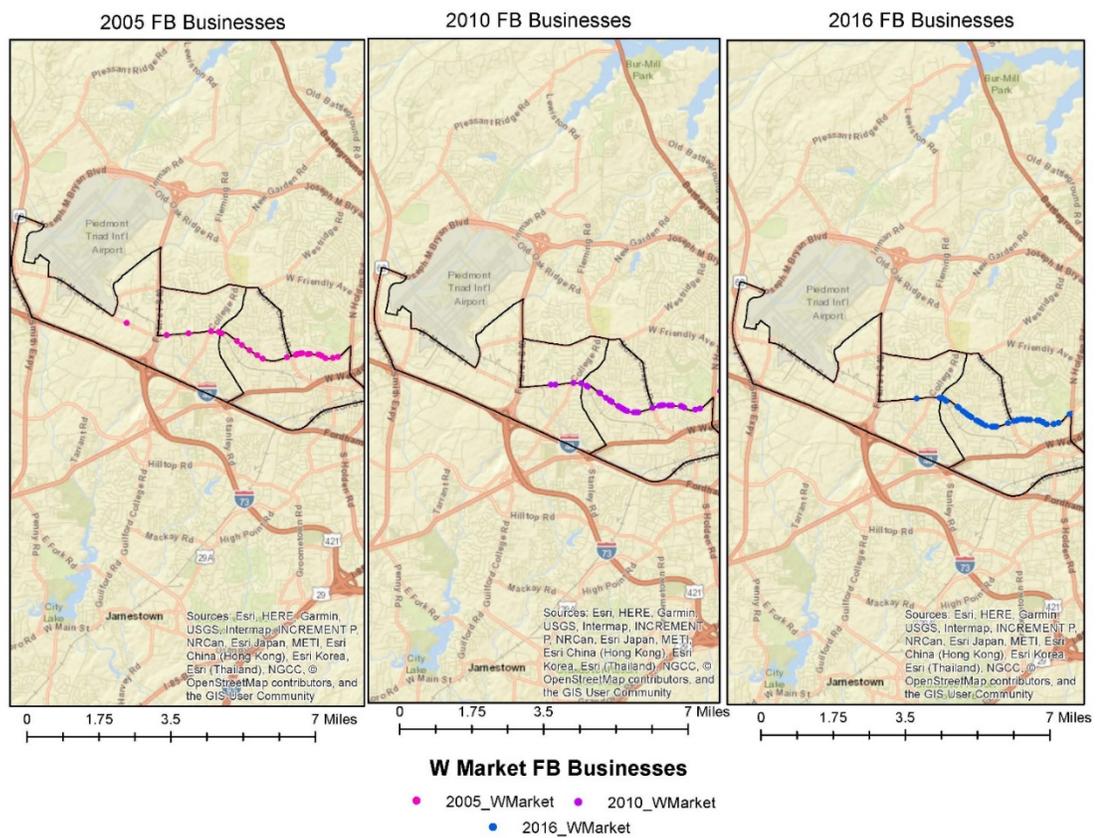


Figure 7. Geocoded Foreign-Born Businesses on West Market

## CHAPTER V

### DISCUSSION AND CONCLUSION

This study investigates the impact of immigrant populations on neighborhood dynamics in Greensboro from 2000-2016, particularly around the areas of West Market Street with a Markov Chain analysis and QoL index. The results of the Markov Chain analysis reveal that immigrant populations have a high probability of increasing within peripheral areas of Greensboro, and in the southern outer-portion of High Point, while the outskirts of Guilford County will experience a decrease in the immigrant population. These findings highlight a number of interesting features of the dynamics of neighborhood change within Greensboro, a smaller “gateway city.” Greensboro, unlike major “gateway cities” such as L.A and NYC (e.g., Brazil and Clark, 2017), has not seen a trend of immigrants moving to the inner-city, rather, immigrants are concentrating near city boundaries and peripheral areas. The Markov Chain analysis and QoL results indicate that the process of change within a neighborhood is not spatially independent; the condition of the surrounding neighborhoods impacts the probability of transitioning populations and the increase, or decrease, of quality of life. For instance, if a medium or high concentration of an immigrant population surrounds a neighborhood, it is more likely to remain within that class-structure or transition to a higher concentration of the immigrant population. Therefore, the results indicate that as immigrant populations’

increase within Greensboro, the likelihood of a transition to a majority non-white city over the next decade increases.

This study further confirms previous immigrant studies (Delmelle et al., 2015; Jun, 2015) which suggest that the processes of neighborhood spillover impact surrounding neighborhoods and changes them spatially and demographically, and impacts quality of life. Areas with high concentrations of immigrants initially saw a decline in quality of life in the invasion and succession phases, in the consolidation phase, the neighborhood moved to a higher quality of life. Similarly, in the West Market corridor, as the foreign-born population increases, so have foreign-born businesses. West Market Street represents an ethnic enterprise within Greensboro which has increased the economic gain in the area. Therefore, a positive trend is set between increased entrepreneurship and the increase in the foreign-born population. This increase of businesses leads to a higher QoL within the area over time, as immigrants tend to provide a support system for one another in order to accomplish upward mobility. The study suggests that the process of economic incorporation of immigrants in the local economy depends significantly on the ethnic and racial diversity of the area.

This research is not without limitations. First, the businesses and index variable data from 2000 was greatly limited and there was no way to confirm the data; therefore, some important variables may have been omitted. Secondly, the drawbacks to Markov analysis concern the decision on where to draw break points for the state thresholds which can impact the interpretation of the results. Lastly, the size of the geographic unit used to measure the changes may have affected the analysis of integration. The level of

integration can be much less at a block group level than at the census tract level; therefore, it variations could be present if analysis was done at block group level. Although, block group level would have been more specific in detail. Future research can be implemented by applying this research to specific groups of immigrants for a more detailed analysis; for instance, focusing on Asian immigrants. Looking at how intersectionality and networks plays a role in business attainment for genders within Guilford County would also be interesting.

From a public policy perspective, findings from this analysis will help guide place-based community development efforts. Initiatives targeting individual neighborhoods may work best if directed towards highly concentrated immigrant populations living in low QoL neighborhoods, as the positive spatial spillover effects will strengthen these efforts and resources. Community development needs to be coordinated between multiple neighboring areas for outcomes to be more effective. City planners and urban geographers can use this research to create better strategic development, help increase livability, decrease crime, rates and increase revenues. Such local policy can help build tolerance for integration within neighborhoods. In addition, economic policies geared towards foreign-born people would greatly increase the economic mobility within neighborhoods with large compositions of the foreign-born. Knowing the composition of neighborhoods could greatly influence how colleges and universities could help reduce the skill gap by offering flexible education for the working population.

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