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# Housing Choice Vouchers and Neighborhood Effects: A Case Study of Allentown

Siyuan Liu
*Lehigh University*, 499281257@qq.com

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by

Siyuan Liu

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Housing Choice Vouchers and Neighborhood Effects: A Case Study of Allentown
Siyuan Liu

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Date Approved

_____

Karen Beck Pooley (Thesis Director)

_____

Anthony DiMaggio (Reader)

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Vera Fennell (Reader)

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**Abstract**

In order to research the changing geography of the Housing Choice Vouchers (HCV) program and the neighborhood environments voucher-users experience, this paper analyzes the spatial distribution of Allentown's minority and low-income voucher-holders from 2000 to 2016, using ArcMap and z-score as tools. I find that the concentration of voucher-holders in the city center significantly declined after 2008, replaced by new concentrations on the eastern side of the city. This article then compares the neighborhood conditions, both the socioeconomic status and characteristics of the built environment, in the city center and the eastern region. I find that the city's eastern neighborhoods offered voucher-holders access to better environments and more opportunities.

**Introduction**

Disadvantaged and isolated neighborhoods have negative impacts on people's lives and development. In the United States, racial segregation and poverty concentration still exists, which promotes the emergence of underclass and deteriorating negative neighborhood effects. The government sought to explore housing policies to address these issues and promulgated the U.S. Department of Housing and Urban Development's (HUD's) Housing Choice Voucher Program as a rental subsidy policy in 1970s, which provides low-income families access to stable and safe houses in the private market.

Scholars found that the socioeconomic status and built environment of neighborhoods have multiple impacts on residents' well-being and upward mobility opportunities (Evans, 2003; Sellström, 2006; Moore et al, 2008; Meijer et al., 2012; Chetty et al., 2018). Due to the long-standing racial and income residential segregation, minority and low-income groups are more likely to live in neighborhoods with fewer opportunities. Serval projects, such as Gautreaux program and the Moving to Opportunity program, have demonstrated that moving these disadvantaged voucher-users to more integrated and affluent neighborhoods will improve the mental health and economic outcome of the residents (Kling, 2005; Greg & Zuberi, 2006; Nguyen et al., 2016).

Therefore, this article uses Allentown, Pennsylvania as the case study, trying to figure out the spatial distribution of Housing Choice Vouchers recipients in Allentown from 2000 to 2016 and the neighborhood conditions of voucher clusters using census tract quantitative analysis and z-score analysis. It also presents maps of city's geographic characteristics and voucher's spatial distribution trend created by ArcMap. Finally, based on the comparison of the neighborhoods, the conclusion will be drawn, and future research recommendations are expected.

The findings show Allentown's high-density housing voucher clusters moved from the center of city to the eastern part of the city from 2000 to 2016. Eastern has lower poverty and minority rate compared to the center-city, as well as better neighborhood socioeconomic and built environment. The result suggests that Allentown's voucher recipients moved to the neighborhood with more opportunities.

**Literature Review**

In the United States today, racially segregated and concentrated high poverty-concentration neighborhoods are prevalent across the country. According William H. Frey's analysis of the 1990 to 2000 Censuses, the average index of dissimilarity (which indicates the degree to which minorities are distributed differently than whites) for Blacks versus Whites of U.S. metropolitan areas in 2000 was 58.7 (Frey & Myers, 2005). This number declined to 55 in 2010, according to the Population Studies Center, but there were still 7 large metropolitan areas with an index of dissimilarity over 70, which means 70% of blacks in those areas need to move to distribute evenly with whites (PSC., n.d.). From 2005 to 2009, about one in four U.S. places (cities, suburbs, and small towns) had more than a 20% poverty rate, and roughly 30% of poor people resided in poor places; poverty was concentrated especially among persons of color, in the U.S., comparing to 12.2% of total whites and 26.1% of poor white population, 49.2% of African Americans and 33% of Hispanics lived in high-poverty places with poverty rates exceeding 20 percent in 2005 through 2009 (Lichter et al., 2012). Cortright and Mahmoudi found that poor people living in high-poverty urban neighborhoods in the United Stated have doubled from 1970 to 2010 and only about 9 percent of the census tracts that were high-poverty in 1970 escaped poverty status in 2010 (Cortright & Mahmoudi, 2014). These

conditions seriously affect residents' upward mobility and access to opportunities. Chetty with his team found that the intergenerational income mobility of U.S. children is higher in metropolitan neighborhoods with lower levels of income segregation (Chetty et al., 2014). Andrews and his team, based on the article of Chetty's, found racial segregation in 1800s is correlated with lower contemporary economic mobility for children born in early 1980s, which suggested that segregation would affect intergenerational mobility in a long run (Andrews et al., 2017).

Various housing policies and programs have sought to lessen racial and economic isolation, but the results have been mixed. The federal Housing Choice Voucher (HCV) program, administered by the U.S. Department of Housing and Urban Development (HUD) is one of them. Two experimental programs utilizing vouchers to deconcentrate poverty and desegregate households, the Gautreaux program and the "Moving to Opportunity" program, demonstrated the power of moving residents to lower-poverty and less segregated neighborhoods. Low-income families participating in both programs registered both short-and long-term gains, such as improvements in their mental health (Ludwig et al., 2013; Kling et al., 2004), and economic and educational performance (Greg & Zuberi, 2006). Other studies, which I also review, come to different conclusions on whether voucher programs and "poverty deconcentration" is effective in combating poverty.

In the following pages, this paper reviews the state of the current research on the effects of voucher programs on residents of neighborhoods, particularly in high poverty and racially segregated neighborhoods, while discussing the reasons for and current levels of segregation in the U.S. To start the paper, I introduce the history of public housing policies, and how the federal government has tried to use these policies and the

Housing Choice Voucher (HCV) program to address poverty and economic segregation, and to increase residents' mobility to higher-quality neighborhoods. After that, the possibilities and shortcomings of HCVs are discussed. In the final section, I explore the efforts of HCV-related mobile programs, including the Gautreaux program, "Moving to Opportunity," and the Baltimore Housing Mobility Program, to move low-income families to better neighborhoods and their results.

**Neighborhood Effects**

"Poverty deconcentration" advocates claim that moving individuals out of poor neighborhoods will provide them with more opportunities for success. This claim is not surprising given the broader research on the important role neighborhood conditions play in shaping residents' degree of upward mobility and overall quality of life. In 1987, William Julius Wilson published *The Truly Disadvantaged*, a book about urban poverty, in which he suggested that the social isolation and concentrated poverty within segregated neighborhoods contributed to the emergence of the black underclass, whose members are "outside the mainstream of the American occupational system but share the same social milieu" (Wilson, 1987). The underclass described in the book included individuals with marginal economic positions or a weak attachment to the labor force (Wilson, 1987).

Wilson's book prompted other scholars to look at "neighborhood effects," or how individuals' health, economic mobility, and social networks may be affected by the social, culture, economic, and demographic conditions of their neighborhoods (Wilson, 1987), Of particular importance here is individuals' neighborhoods and their degree of racial and economic segregation. Delbert Elliott, in his article *"The Effects of Neighborhood Disadvantage on Adolescent Development,"* found that disadvantaged

neighborhoods affected adolescent developmental outcomes (Elliott et al., 1996). Neighborhood disadvantage was also found to cause higher levels of violence, especially for girls (Karriker & Ennett, 2011).

Neighborhood conditions can be measured by two categories. One is socioeconomic environment, and the other is the built environment. A study finds that socioeconomic and built environment are both predictors of obesity (R, 2018). The built environment is often associated with the walkability of neighborhoods (Saelens & Handy, 2008); this relates to the physical parts of the neighborhood, including buildings, streets, open spaces and infrastructure (National Center for Environmental Health, 2011). Evans finds that the built environment has direct and indirect effects on residents' mental health (Evans, 2003). For example, poor housing quality with such as hazards and bad maintenance and high-density housing will greater residents' psychological distress. Moreover, he pointed out that neighborhoods of poor environmental conditions tend to concentrate among poor and minority groups (Evans, 2003). Housing quality is also associated with chronic diseases, infectious diseases, injuries and poor nutrition. For example, damp and cold housing is associated with asthma; lack of affordable housing is linked to inadequate nutrition among children (Krieger & Higgins, 2002).

Socioeconomic status, according to Walker, is comprised of occupational status, educational attainment and income or poverty status (Walker, 2016). The socioeconomic status and social climate of neighborhoods, according to several studies, have a range of impacts on residents.  One study documents their effect on child health outcomes as related to behavioral problems and child maltreatment (Sellström, 2006). Inhabitants living in areas with lower socioeconomic status (those with lower educational

achievement, lower income, and less well-paying occupations), also have a significantly higher mortality rate (Meijer et al., 2012).

In the United States, minorities are more likely to live in neighborhoods with poor quality and poor residents. Fox found that people with the same income level, but of different races, tend to live in very different neighborhoods, with the typical white resident living in a neighborhood with a median income 40% higher than the typical black resident (Fox, 2016). Larsen finds that block groups (which are the geographical statistical divisions of Census tracts, a block group usually has a population of 600 to 3,000 people) with lower socioeconomic status and high minority rate are less likely to have recreational facilities (Larsen et al., 2006). According to a survey by Moore, although the disproportionately minority and low-income neighborhoods are more likely not to have recreational facilities, the distribution of public parks was relatively more equitable (Moore et al, 2008). The impact of segregation is significant, as a 2018 study of economic opportunity by race uncovers a meaningful black-white men income gap of adulthood due to racial segregation in childhood and adolescence (Chetty et al., 2018). In 99 percent of Census tracts in the United States, black boys have less income in adulthood than white, even after statistically controlling for parental income (Chetty et al., 2018).

Chetty and his co-authors suggest that the black-white disparities can be changed by improving the environmental factors for black children, such as moving to low-poverty and high-father-presence (defined as being claimed as a child dependent by a male on tax forms) neighborhoods (Chetty et al., 2018). Cashin, however, suggests that neighborhood disparities and the isolation of minorities in non-white neighborhoods is due to the prevalence of overwhelmingly white areas that are less affordable to minorities

(Cashin, 2004). Voucher programs seek to combat the negative environmental effects of living in poor neighborhoods, in addition to addressing poor Americans' struggles with affording housing in more affluent neighborhoods. As a result, voucher programs could end up not only reducing residential segregation, but also have a profound influence on the development of the public and society.

**Segregation**

The disparities of neighborhood conditions by race are commonly observed in the United States. Throughout U.S. history, inequality racial and class-based inequality have been defining societal traits. Intellectuals have been discussing the importance of segregation in American cities since at least the early twentieth century. By the late 1960s, the Kerner Report (the culmination of deliberations by the National Advisory Commission on Civil Disorders, convened following the urban riots of 1967) concluded that "Our Nation Is Moving Toward Two Societies, One Black, One White—Separate and Unequal" (Johnson, 1967), with blacks condemned to live in high poverty areas with less opportunities.

Robert Sampson, in his book *Great American City*, suggests that segregation and the "poverty trap" greatly worsen negative neighborhood effects (Sampson, 2013). In the U.S., compared to whites with similar demographic backgrounds, blacks are more likely to live in a neighborhood with less opportunities and higher poverty rates, which denies them numerous opportunities for upward mobility (Massey et.al., 1987). Heightened racial segregation is a strong predictor of higher levels of black urban violence in major U.S. cities (Shihadeh & Flynn, 1996), and such isolation may also contribute to overweight and obesity among African American adults due to the paucity of recreational

facilities and limited options of healthy food (Corral et.al., 2011).

In 1994, Douglas Massey and Nancy Denton measured segregation in American cities along five dimensions: isolation, clustering, centralization, concentration and unevenness. Isolation occurs when blacks rarely share a neighborhood with whites. Clustering measures whether largely black neighborhoods are grouped together or scattered about in a checkerboard fashion. Centralization is when largely black neighborhoods are located in metropolitan areas, entirely in the center of cities, or spread throughout the city and its suburbs. Concentration considers whether or not largely black neighborhoods are concentrated within a small area. Finally, unevenness (or dissimilarity) shows whether or not black residents are appropriately represented in neighborhoods across a larger area and reflects what portion of black residents would have to move so that each neighborhood shares the same demographic breakdown compared to surrounding areas (Massey & Denton, 1994).

According to Massey & Denton, metropolitan areas in which at least four of these dimensions of segregation received a score of 60 or above were considered to be "hyper-segregated" (Massey & Denton, 1994). As of 2010, about one-third of all black residents living in metropolitan areas of the U.S. were located in hyper-segregated areas (Massey & Tannen, 2015). Such segregation and economic isolation further stifles residents' ability to move up the income ladder, since the social mobility and spatial mobility always link with each other. For example, when socioeconomic status improved, people would relocate to places with better opportunities and resources. And once they acquired benefits through residential mobility, people tend to seek for higher class position for themselves and their children. Therefore, according to Massy and Denton, "barriers to spatial mobility are barriers to spatial mobility" (Massey & Denton, 1994).

Many factors contribute to high levels of segregation. According to Cashin, personal preferences and discrimination play big roles (Cashin, 2004). Surveys about attitudes on race consistently show that whites still harbor a degree of distrust toward black neighbors. In 1990, the National Opinion Research Center's survey showed that almost half of whites were strongly opposed to living in neighborhoods with populations at least 50% African American or Hispanic (Yinger, 1995). In 2014, the same survey showed that almost 20% of whites still opposed living in such neighborhoods, and 28% of whites said they would vote for a law that allows homeowners to discriminate based on race (Badger, 2015). The racial threat hypothesis suggests that when the population of minority race increases, the majority race (in the case of the U.S., the majority race refers to white) perceives a threat to their security because of the competition on economic resources; the fear that minorities would enhance their political power and the threat feeling on minorities' criminal behaviors (Blalock, 1967). To control the growth of minorities, the majority group would encourage criminal law and social control against non-white, wherefore the racial segregation is operated (Wang & Todak, 2016).

According to a model introduced by the scholar Thomas Schelling, racist residential living preferences are one of the reasons for the formation and maintenance of segregation. Schelling's model assumes that, on average, if everyone wants at least 30% of their neighbors to have similar backgrounds, and if there are over 30% of one's neighbors with different racial backgrounds, or too few neighbors with the same background, then one will choose to migrate (Schelling, 1978). Racial segregation, therefore, will be formed because of these individual decisions.

In opinion polls, although overwhelmingly of Americans claim that they would support the racial integration, similar majorities also prefer to live in a neighborhood in

which their own race is a majority (Cashin, 2004). According to research by W. Clark, whites usually have quite limited tolerance for residential racial mixing. That is, even if whites might not discriminate against blacks and be willing to accept black neighbors, they usually have a lower tolerance level for minority neighbors when compared to blacks, who tend (on average) to become more comfortable as neighborhoods diversify (Smelser, Wilson, and Mitchell, 2001; Clark, 1991). Another study finds that whites, compared to non-whites, are willing to pay 13 percent more to live in all-white neighborhood (Cashin, 2004). Therefore, even if an individual claims to have racial tolerance and no tendency toward racial discrimination, his/her personal neighborhood preferences will encourage segregation when added up with others' actions.

Racialized opinions about who constitute desirable or acceptable neighbors impact both individuals' housing choices and also real estate agents and companies' practices, as they assist individuals in finding housing. Through the process of renting or purchasing houses, a housing discrimination study by HUD in 2012 found, blacks were three percentage points more likely than whites to receive comments or questions about their credit standing, and whites were nine percentage points more likely to be told about more available units (Turner, 2013). Moreover, black residents are more likely to be targeted for predatory loans, a study of Baltimore found that black borrowers were charged higher rates and were disadvantaged in every stage of the transactions compared with comparably white customers (The Editorial Board, 2018). Even more common is the practice of "racial steering," in which the real estate agents direct clients of different racial backgrounds to different neighborhoods based on their skin color. According to Galster, at least one-half of the six real estate firms in his study showed white customers more houses in predominantly white areas than in other racially mixed areas, while black

auditors were shown significantly more homes in mixed and mostly black areas than predominantly white areas unless they requested them (Galster, 1990).

The earliest legal action against the housing discrimination in the U.S. was in 1948, when the Supreme Court decided to prohibit the enforcement of racially restrictive private contracts in Shelley v. Kraemer case. In 1968, The Fair Housing Act of 1968 officially outlawed discriminating when selling, renting, or financing housing. Yet this practice did not end. One study found that in 2000, 12 to 15 percent of real estate agents still encouraged white buyers to choose neighborhoods with more whites and less poor residents (Galster & Godfrey, 2007). Another study done in 2012 in Allentown (Lash, 2012) found evidence in 73 percent of all cases that agents directed white buyers to suburban neighborhoods and minority buyers to the city proper.

**Public Housing History**

In addition to its efforts to limit housing discrimination, the federal government has also sought to expand housing opportunities and increase housing affordability by either providing or financing housing for income-qualified residents directly. One way that the federal government does so is through public housing. The history of public housing can be traced back roughly eighty years. In 1937, during the New Deal period, the public housing program was officially adopted by the government. The Housing Act of 1937 authorized building publicly subsidized housing. The act's main purpose was to "improve the current unsafe and unsanitary housing conditions and reduce acute shortage of decent, safe and sanitary dwellings for families of low income" (United States, 1938).

Aside from developing public housing, increasing homeownership was another key goal of the federal government after a spike in foreclosures during the Great Depression of the 1930s. After World War II, the Housing Act of 1949 was passed for

"the realization as soon as feasible of the goal of a decent home and suitable living environment for every American family." This act made homeownership possible for middle-and working-class people, not just for elites, by dramatically increasing the Federal Housing Administration's mortgage insure program. However, minority households were explicitly excluded from these programs because of housing discrimination and restrictive covenants in the neighborhoods where homeownership funding was directed. As a result, their homeownership rates did not improve as much as whites did in the next two decades (Martinez, 2000).

Slum Clearance (later known as Urban Renewal) was another initiative that was undertaken under the Housing Act of 1949. It provided funding for cities to demolish all buildings in areas identified as "blighted," to completely rebuild these areas for residential and other purposes. In all, about $1 billion in loan funds and $500 million in capital grants were provided by the federal government to local public agencies for acquiring, clearing or preparing this land for resale (Forest, 1985). Among its failings, this program became known as "negro removal" since it displaced many poor minority families. And as Hoffman points out, the program did not provide housing or rehousing for those displaced low-income families. Instead, it just led to the spread of slums into new areas (Hoffman, 2000).

While the original intention was to couple urban renewal with public housing construction (to clear problematic housing in distressed neighborhoods and replace it with new, higher-quality public housing), such efforts represented a minority of all urban renewal projects. Moreover, although slum clearance intended to relieve a housing shortage, more units were demolished in American cities because of it than were built (Lang & Sohmer, 2000). By 1955, the federal government had not reached its goal of

building 810,000 units of new public housing (Caro, 1974) across the nation.

Where urban renewal was combined with the construction of public housing, these programs created modernist public housing towers on cleared sites in largely black city neighborhoods, reinforcing racial segregation by preventing minorities from moving out of segregated geographic spaces (Hoffman, 2012). In Hirsch's study of Chicago, there was a ghetto emerged in the World War I in the South Side of the city known as "the Black Belt" where blacks are highly segregated. The city's urban renewal program, catering to the interests of white, ultimately created Chicago's second ghetto in the West Side black colony (Hirsch, 2000).

Conditions became so problematic at many of the nation's larger public housing sites that, in 1993, the federal government passed the HOPE VI program to transform those distressed public housing complexes and lessen the concentrations of poverty in these areas. The Hope VI also supports the development of mixed-income housing, which is the housing development that contains mixed housing units in different levels of affordability (typically market-rate housing and housing below market-rate for low-income occupants), as a replacement for tradition public housing. However, Hope VI itself has been criticized as just another slum clearance program for poor minority neighborhoods, that "never had the intention of relocating the vast majority of the former public housing residents in the new, more affluent 'mixed income' sites" (DiMaggio, 2010).

During the 1970s, as criticisms of urban renewal and public housing mounted, the Housing and Urban Development Act 1974 dramatically changed the federal government's approach to subsidized housing. The Act created the Community Development Block Grant (CDBG) program to offer local governments flexible

community development dollars. Moreover, it created the Housing Choice Voucher

program (HCV), also known as Section 8 Vouchers, which provide tenant-based

assistance to low-income households, enabling them to afford housing on the private

market and to move out of public housing. If a household earns less than 50 percent of

the "Area Median Income," that household is allowed to apply for a voucher and may be

selected from a waiting list for relocation. Households with vouchers only pay 30 percent

of their adjusted gross income on rent and utilities; the rest is paid by the government

directly to the landlord. Today, vouchers are the largest federal housing subsidy program

for low-income households. In 2000, vouchers helped pay for housing in 83 percent of all

census tracts in the 50 largest metropolitan statistical areas (MSAs) (Galvez, 2010), and

by 2012, more than 2.3 million households received vouchers (Schwartz et al., 2016).

**Possibilities of the Housing Choice Vouchers Program**

The Housing Choice Voucher program offers many benefits that traditional public

housing, mostly located in poor and minority neighborhoods, cannot. Most importantly,

vouchers give assisted families the chance to live in lower-poverty and racially mixed

areas. Studies have shown that, compared to public housing residents, voucher users are

more likely to live in low-poverty and less segregated neighborhoods (Turner & Wilson,

1998). As Winnick argues, vouchers can reduce landlord's concern about a dependable

rental income (Winnick, 1995). Another study (Anderson et al., 2003) finds that the HCV

program improves residents' neighborhood safety and reduces residents' exposure to

violence, social disorder and crime. Vouchers also may have a positive effect on the

employment status of low-income families by enabling voucher-holders to move to

higher opportunity neighborhoods (Carlson et al. 2012).

Despite all of the potential of vouchers to benefit recipients in various ways,

scholars still find that does not commonly happen. First of all, according to Turner, one of the problems with HCVs is that the success rates of using vouchers to find and lease qualifying units among voucher recipients has been declining since the 1980s from 81% to 69% (Finkel & Buron, 2001), since many suburban jurisdictions have limited the development of rental housing via restrictive local zoning rules (Turner, 2003). This both limits the supply of moderately priced rental housing and means that those units that do exist are largely concentrated in the center-city, where neighborhoods typically have older houses and have historically offered fewer opportunities for upward mobility (Turner, 2003). According to a study by McClure, one of the reasons that HCVs have failed to solve concentrated poverty and residential segregation is that there are too few non-poor and non-segregated neighborhoods available to the voucher users. That is, households need to compete for merely 11 to 12 percent of the affordable rental units available in low-poverty neighborhoods (McClure, 2010).

Racial and ethnic discrimination, tight market conditions, landlords who are unwilling to participate, and ineffective local administration are all reasons that prevent voucher-recipients from finding suitable housing (Turner, 2003). According to Graves, discrimination based both on income and race still exists in the private housing market to prevent low-income minority residents from moving into new neighborhoods (Graves, 2016). DeLuca and Garboden find that voucher holders are not actually "choosing" their units, since they are forced to overcome the difficulties of finding landlords who will even accept their vouchers, and often run out of time when choosing where to live because of the inadequate information offered by local housing authorities (DeLuca, Garboden, and Rosenblatt, 2012). The authors conclude that unless the voucher holders can overcome these structural barriers, vouchers are unlikely to become a lever to reduce

residential segregation and concentrated neighborhood poverty (DeLuca, Garboden, and Rosenblatt, 2013).

These realities, and the way voucher programs tend to be administered to offer limited help in finding suitable housing units, mean that HCVs are actually not a ticket out of poverty. Instead, new concentrations of vouchers have the potential to create new areas of poverty (Anderson et al., 2003), although there is still disagreement about whether voucher relocations contribute to growing crime rates (Lens, 2013). Galvez finds about 10 percent of voucher recipients in the 50 largest MSAs in the U.S. are living in extreme poverty neighborhoods (with poverty rates over 40 percent). Nearly one-third (30 percent) of voucher users who live in central cities live in neighborhoods with poverty rates above 30 percent (Galvez, 2010). Many case studies further show that tenant-based vouchers do not help to get rid of the spatial concentration of poverty. According to a case study of New York City, even after accounting for racial segregation, vouchers have a stronger link to local poverty rates than all other types of federal low-income housing assistance (Wyly & Defilippis, 2010). In Wang and Varady's study, the proportion of voucher-holders living in high-poverty and high-minority census block groups in Hamilton County, Ohio remained stable during the 2000s (Wang and Varady, 2005).

Several other studies point out that this likely stems from the fact that the HCV program has not promoted neighborhood mobility across the nation. In fact, voucher holders tend to use their subsidy to rent houses near where they used to live. Recent research suggests that some voucher users do not move away from their original neighborhoods when they are in the HCV program because of social attachments, limited information alternative options and challenges during the search process (Galvez, 2010).

**Other Programs**

Turner suggests that mobility counseling and aggressive landlord outreach could make voucher programs work better (Turner, 2003). The Gautreaux program is one model for addressing racial segregation by addressing the structural barriers faced by voucher holders, it offers mobility counseling services and provides information of neighborhoods with lower poverty rate and lower black rate to the residents before they choose the new houses.

In the 1960s, Chicago had some of the most segregated public housing in the U.S. (Stoloff, 2004). In response to rising frustrations of those living in Chicago's public housing, the Gautreaux program, a mobility assistance program, was initiated by a U.S. Supreme Court order in 1976. The program relocated families in public housing and on the waiting lists waiting for relocation to majority-white neighborhoods either in suburban or central city Chicago. Until 1998, when the program ended, over half of the 7,100 assisted families moved to majority-white neighborhoods and cut their neighborhood poverty by more than half, which can be seen as a great success in combating poverty and racial and economic segregation (Greg & Zuberi, 2006). Nevertheless, Greg and Zuberi's survey also suggests that changing one's neighborhood does not completely improve an individual's economic and educational performance or quality of life (Greg & Zuberi, 2006). Many additional efforts, such as the New Hope program, which offers benefits like an earning supplement and subsidized health insurance to low income people who work full time, are also necessary.

In addition, according to the Gautreaux Two program, which was launched in 2002, although poverty may be decentralized in the short term, assisted families' subsequent moves could negate some of these gains. One study found that, on average,

the Gautreaux Two families relocated from neighborhoods that were 80% African American to those that were just 11% African American. However, later on, many moved back and, ultimately lived in neighborhoods averaging 61 percent black residents (Greg & Zuberi, 2006). The reasons behind secondary moves included households' social isolation, landlord issues, poor unit quality, and distance from relatives (Boyd et al., 2010).

The Moving to Opportunity (MTO) for Fair Housing program hoped to replicate Gautreaux's success. Starting in 1992, it effectively expanding the Gautreaux Program to five cities, including Baltimore, Boston, Chicago, Los Angeles, and New York. In the MTO project, households were divided into three groups: 1. An experimental group of voucher users who could only choose units in neighborhoods with poverty rates less than 10 percent, who had to live there for one year, and who would also receive counseling services; 2. A second group receiving vouchers without any geographic limitation or counseling services; 3. A control group of households who received neither vouchers nor counseling.

In assessing the outcomes of this experiment, researchers found positive social and economic outcomes for households in group 1 (Nguyen et al., 2016). In the short run, the arrests among youth for violence acts declined (Kling, 2005). In particular, mental health and subjective well-being in adults significantly improved in the long-term (10 to 15 years out), after individuals moved to lower-poverty neighborhood (Ludwig et al., 2013; Kling et al., 2004).

However, Knaap found that the MTO program only showed a short-term location intervention, since, as time passed, people started to return to lower-opportunity neighborhoods, just as the Gautreaux families had (Knaap, n.d.). A more durable

program, Baltimore Housing Mobility Program (BHMP), is a model that successfully prevented such returns to higher-poverty neighborhoods, thereby preventing any neighborhood "advantages" from fading over time. Launched in 2003, it aimed to relocate low-income residents in Baltimore to neighborhoods with better opportunities. It offered a full package of one-on-one counseling services both in the pre-move period and after families had resettled. Moreover, it had a more specific definition of better-opportunities-neighborhoods, which included strong schools, low crime rates, and ample job opportunities. A 2009 report on the program found that 62 percent of the BHMP recipients were still in their new unit, even after the program's requirements to remain had ended, and those who moved mostly went to better areas (Misra, 2016).

However, some scholars believe those approaches to creating mix-income housing, where different income classes live together, might have some problems. Chaskin and Joseph, for example, found that the social interaction between high-income neighborhood residents and those relocating from public housing is limited (Chaskin & Joseph, 2017). Dukmasova describes these new "mixed-income" housing environments as a "well-outfitted prison" in which some residents feel isolated because they can't coalesce into the community (Dukmasova, 2014). Therefore, whether voucher-holders feel fully integrated into neighborhoods with different classes and races following forced placements there remains an open question.

In summary, according to the literature I have reviewed, it seems clear that an adverse neighborhood environment tends to have a negative impact on people's social performance and development, while racial segregation deepens negative neighborhood effects to blacks and contribute to the formation of an underclass in America. A series of housing policies implemented by the federal government attempted to provide public

housing or tenant-based subsidies through the Housing Choice Vouchers program, but have not addressed racial segregation and poverty concentration. Through the experience of the Gautreaux program and the Moving to Opportunity program, we see that, depending on how a program is implemented, moving low-income families to less segregated and lower poverty neighborhoods can benefit their health and economic well-being, for both current and future generations.

Given the success of these relocation programs, we should continue to assess how vouchers being used in various locations to potentially benefit recipients, in relation to relocations from lower-poverty to higher-opportunity neighborhoods. Using Allentown, Pennsylvania as a case study, I researched the geographic mobility of local voucher-users within the city and analyzed whether or not residents were able to move to neighborhoods with more opportunities. This study utilized data from the Decennial Census, American Community Survey, and the U.S. Department of Housing and Urban Development (HUD) to describe where Housing Choice Vouchers recipients live in Allentown, and how the neighborhoods where voucher holders live has changed over time. Specifically, I assess whether vouchers are now more or less prevalent in better neighborhoods with lower poverty rates and more opportunities.

## Methodology

This section explains the research methods and approaches, as well as the sources of data used in this study, to answer the following questions:

- Where do the City of Allentown's Housing Choice Voucher recipients live?

- How has this changed over time?

- What do these geographic developments mean for voucher holders' access to low-poverty or opportunity-rich neighborhoods?

This study used an in-depth case study approach that incorporated time-series analysis and quantitative methods. It also used ArcMap (a geographic information system that is able to create maps with information) to spatially analyze conditions and trends as related to residential movement under the voucher program. The focus of this case study, as previously mentioned, was Allentown, Pennsylvania. Allentown is a city in Lehigh County, which has the third largest urban population in Pennsylvania. It was settled in 1700s, and in the city, whites have historically accounted for the majority of residents. According to Census 2016, Allentown had a population of 119,624, which included 77,339 whites, 16,794 blacks and 119,624 Hispanics and Latinos. Allentown – Bethlehem – Easton is known as the Lehigh Valley metropolitan area.

*Graph 1.* Allentown Census Areas and Subareas
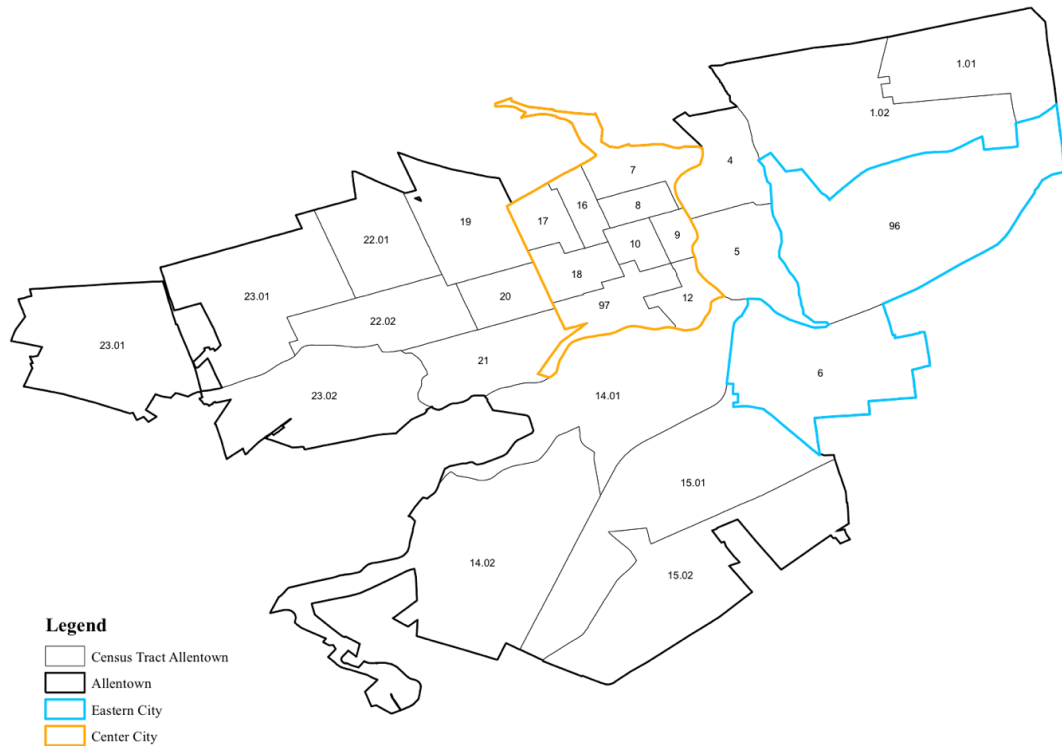


*Data Source:* Bureau of Census, Census 2010

Graph 1 shows the subareas this study examined, which include Allentown's

neighborhoods as defined by Census tracts.  Census tracts are a common proxy for

neighborhoods in policy research (Foster & Hipp, 2011; Theodos et al., 2015; Sampson

& Raudenbush, 1999). Graph 1 also displays the two larger subareas, or groups of

neighborhoods, in yellow and blue. These neighborhood groupings, the reason for them

and their characteristics, will be discussed in detail in this paper. In all, Allentown

included 26 Census tract areas according to the 2010 U.S. Census. The labels in the

legend represent the encoded names of each Census tract.

*Table 1*. Census Tracts Adjustment

| Census Tract 2000 | Census Tracts ID 2000 | Census Tract 2010 | Census Tracts ID 2010 |
|---|---|---|---|
| Census Tract 1 | 42077000100 | Census Tract 1.01 | 42077000101 |
| Census Tract 1 | 42077000100 | Census Tract 1.02 | 42077000102 |
| Census Tract 2 | 42077000200 | Census Tract 96 | 42077009600 |
| Census Tract 3 | 42077000300 | Census Tract 96 | 42077009600 |
| Census Tract 11 | 42077001100 | Census Tract 97 | 42077009700 |
| Census Tract 13 | 42077001300 | Census Tract 97 | 42077009700 |

*Data Source*: Bureau of the Census, Census 2010; Neighborhood Change Database
1970-2010

One challenge for any time-series analysis of Census tract conditions and trends is

that these boundaries may change with each decennial Census. Table 1 shows the Census

tract code and ID change from 2000 to 2010. The Census tract 2010 in the table match

with the area codes in Graph 1. This was the case with a few Allentown tracts between

2000 and 2010: two regions (Census Tract 1.01, 1.02) were split in 2010 (after having

been a single tract in 2000 (Census Tract 1); and four areas (Census Tract 2, 3, 11, 13)

were merged (Census Tract 96, 97) after 2010. To facilitate statistics and fit all data in a

time period analysis, the HUD's HCV data during 2000-2010 has been normalized, all

the unmatched Census tract IDs of 2000 (shown in Table 1) have been transferred to the

2010 version. All maps in the following text use the Census tract of 2010 U.S. Census as the boundary of the neighborhood as well, including all the graphs of Lehigh County.

First of all, this analysis sought to illustrate the geographic distribution of Allentown's Housing Choice Vouchers recipients, overall as well as for minority and very low-income recipients. To do this, I relied on data from 2000-2017 website (https://www.huduser.gov/portal/datasets/assthsg.html) in the Census tract level. It is a dataset of all HUD-subsidized housing programs that assist low-income tenants. Sinai and Waldfogel used this dataset to study the relationship between low-income housing subsidies and housing stock (Sinai & Waldfogel, 2002). Cutter also selected this dataset for the analysis of the linkage between the spatial patterning of environmental risks and federally assisted public housing (Cutter et al., 2001). One of programs included in this dataset is the Housing Choice Voucher, which provides low-income families with housing subsidies to pay the rent for their homes in the private rental market. In the program, the tenants only pay a portion of their adjusted monthly income (around 30%), and the rest of the rent is paid directly to the landlords by local housing authorities. The datasets before 2010 provided by HUD are based on 2000 U.S. Census tracts.

Next, my paper will examine the socioeconomic and built environments of Allentown's neighborhoods in order to understand their specific traits. Data was picked from the U.S. Census and the 2016 American Community Survey 5-Year Estimates for Census tracts from the U.S. Census Bureau's American FactFinder online data portal (http:// factfinder.census.gov/), and from the Neighborhood Change Dataset, which includes historical data (extending back to the 1970 Census) for current Census tract boundaries, to show the changes in Allentown neighborhoods between 1990 and 2016. Each neighborhood's socioeconomic status was measured using poverty rates, income

levels, unemployment rates, health and educational attainment and demographic characteristics, which included measures for race and ethnicity. For housing, this study reviewed tenure, vacancy and abandonment, sales prices and house values. Certain indicators – race, poverty and vacancy – were also collected for Census tracts throughout Lehigh County to compare city neighborhoods and suburban ones. The sales price data was from Lehigh County Assessor's Office (https://www.lehighcounty.org/Departments/Assessment-Home) assesses the value of properties in Lehigh County's parcels from 2013 and integrates the assessment into Census tract level. The data on health outcomes is retrieved from "500 Cities: Local Data for Better Health," a dataset released in 2017 on the online portal (https://www.cdc.gov/500Cities/) that is provided by the Center for Disease Control and Prevention. It is a dataset that records the health outcomes, disease prevention conditions, and people's unhealthy behaviors by city in Census tracts level.

Lastly, this study grouped Allentown Census tracts according to their scale, and broke downtrends in vouchers-holders into two subareas – Center city and Eastern city (shown in Graph 1). My study compares two sub-areas that are divided according to the change of the voucher distribution over time, as I assess whether or not voucher users have migrated to neighborhoods with more opportunities. The data used here is still derived from the Census 2016.

**Neighborhood Condition**

One question this paper seeks to answer is whether voucher-holders have more access to opportunities after relocating to their new neighborhoods. In previous studies, the variables that measure neighborhood effects or opportunities of neighborhood in the Gautreaux program and the Moving to Opportunities Program included local educational

attainment, incomes, level of safety, residents' employment and poverty, school quality, etc. (Mendenhall et al., 2006; Basolo, 2013; Deluca & Rosenblatt, 2010). This paper draws from this existing research to analyze neighborhood condition.

My analysis of the neighborhood condition looks at two types of indicators. The first type is socioeconomic condition. It includes the demographic characteristics, specifically the race and ethnicity of local residents. Since the city of Allentown has a small African-American population, this paper used minority rate, which is the portion of race/ethnicity other than non-Hispanic white, instead of black rate to quantify racial segregation. (This same measure was calculated for voucher recipients as well.) A high minority rate in a particular Census tract, well above the county's overall minority rate, suggests lower racial integration in the region (Powell et al, 2006; Sampson, 1997; Leventhal & Brooks-Gunn, 2004). Some studies of the Housing Choice Vouchers program and residential mobility have used this indicator as well (Hartung & Henig, 1997; Varady & Walker, 2003; Turner & Briggs, 2008).

The socioeconomic condition also includes neighborhood poverty rates, income levels, and rates of education attainment. A large number of studies have chosen to analyze the poverty rate when assessing neighborhood conditions. Boardman and Robert used poverty rate as an indicator when studying the relationship between neighborhoods' socioeconomic status and individual's self-efficiency (defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performance") ((Boardman & Robert, 2000); Santiago found living in neighborhoods with persistently high poverty causes multiple psychological problems; Krieger also used poverty rate to measure the socioeconomic condition of neighborhoods (Santiago et al., 2011; Krieger et al., 2003; Harris, 1999). I define poverty rates over 20

percent as "high poverty" and rates over 40 percent as "extreme poverty." These are the lines drawn by the U.S. Census (Bureau of the Census, 1970). Paul Jargowsky also used 20 percent and 40 percent as the boundaries of measuring the poverty rate in his book *Poverty and Place*. According to Jargowsky, a neighborhood with a 20 percent to 40 percent poverty rate is quite different in look and feel with one that is over a 40 percent poverty rate. The former, although distressed, has less litter and fewer vacant units than the latter (Jargowsky, 1998). Areas with high poverty rates tend to amplify poor residents' economic insecurity.

Other measures of socioeconomic status included each Census tract's median family income, also often used to measure neighborhood socioeconomic composition (Reardon & Townsend, 2015). I also used neighborhoods' unemployment rate, relying on another popular indicator (Boardman & Robert, 2000), and education attainment, measured by the portion of people over 25 years of age with less than a high school degree, as others have as well (Pearl et al., 2001). Additionally, the indicators of unemployment rates and education (less than high school) are also measured to reflect how many people in the region are jobless and how many people do not have high school diploma.

Occupancy rate and rental rate were used to help understand what portion of units in each neighborhood were inhabited, and what portion of these units were renter-occupied. These two indicators appeared in other papers quantifying neighborhood condition (Galster & Cortes, 2000; Rohe & McCarthy, 2001). A neighborhood's homeownership rate is often a proxy measure for residents' housing stability, and even the safety of the neighborhood, as studies have shown that in areas with higher crime rates, the homeowner rates tend to be lower (White, 2001). Since the focus of this article

is the Housing Choice Vouchers program, in which voucher recipients choose units from private rental market, this study also noted the number of low-cost units, defined as units with rent under $750, in each Census tract.

The second category of indicator includes measures of built environment, which indicate the human-made surroundings of the neighborhood, including the housing, parks and transportation system. According to the research from the Oregon Health Study in 2014, the built environment of the neighborhood will have a complex influence on residents' health. For example, people living in areas with more fast food outlets may have higher body mass index (RWJF, 2014). The median value and sales price are selected to reflect the quality of the houses; they are used to measure not only housing costs but also the quality of the neighborhood, as research shows that house prices are affected by neighborhood characteristics (Lee, 2017). Many scholars used the sales price or house value to study neighborhood effects: Schuetz and Ellen used sales price as the dependent variable to study the effects of foreclosure on a neighborhood; Kiel and Zabel use house sales price as one of the indicators to analyze the relationship between the discrimination on housing market and the neighborhood quality (Schuetz & Ellen, 2008; Kiel & Zabel, 1996). And the value of the home is also closely related to the socioeconomic conditions mentioned above: when neighborhood socioeconomic conditions decrease, the property values often decline as well (Metz, 2016).

Since there is currently no transportation and shopping environment dataset available for Allentown, this article is not able to show how many grocery stores or parks are in each neighborhood. However, the following section will show the satellite map of Allentown from Google Maps to reflect the green space and the natural environment of neighborhoods, since the green space is also linked to mental health of residents.

According to Beyer, a higher level of green space will mean lower possibility of mental health issues, such as depression, anxiety and stress (Beyer et al, 2014). Moreover, a less dense neighborhood with more green space will provide people with more open space to interact with each other.

**Housing Choice Vouchers**

In order to study the distribution of Allentown's households with vouchers, this paper uses Clark's method of calculating the distribution of the voucher-holders in the Moving to Opportunity program and utilizes his approach of displaying the moving direction of the voucher-holders in the form of maps (Clark, 2008). Therefore, the percentage of voucher-holders in each Census tract and the z-score of the voucher holder's ratio were calculated. The data on vouchers is from the U.S. Department of Housing and Urban Development (HUD), HUD's Picture of Subsidized Households 2000-2017.

To study the movement of Allentown's voucher recipients, this paper used z-scores, which show how far each neighborhood's value lies from the mean in terms of standard deviations. Since the proportion and quantity of voucher recipients in each Census tract are changing every year, and the total number of voucher-holders in Allentown city is also increasing or decreasing, it is inaccurate to compare the portion of voucher-users in the Census area directly over the years. Z-scores instead highlight how individual neighborhoods compare to the overall average, and which neighborhoods' portion of voucher recipients are rising or falling relative to that average. The larger the z-score is, the further away the value is from the mean; a positive value reflects something above the average value while a negative value reflects something below the

average. In this case, a positive z-score represents more vouchers in the Census tract, and the larger the z score, the more concentrated the voucher-holders are in this tract.

Because the number of vouchers changes every year in each Census tract, the z-scores of the voucher distribution is also changing. By observing the shift of z-scores, it is possible to know the concentration status of voucher-holders in the region. If the z-score in a Census area becomes larger, it means that in this Census tract, the distribution of vouchers is more concentrated than before. Conversely, if the z-score has declined, then vouchers are less concentrated in this area than before. The z-score is calculated as follows:

$$z = \frac{R - \mu}{\sigma}$$

R = sample (vouchers' distribution portion)

$\mu$ = mean

$\sigma$ = standard deviation

Unfortunately, HUD data did not indicate the specific number of minority or very low-income voucher-holders within a Census tract, but only their percentage of all voucher-holders. Therefore, the ratio of minority voucher-users and very low-income vouchers-holders in this paper was calculated as follows:

$$R = \frac{T \times P}{\sum_{n=0}^{n}(T \times P)}$$

T = Total voucher number in Census tract

P = percentage of minority/very low-income vouchers-holders

n = Allentown's Census areas = 26

*Note.* When calculating the distribution of total voucher-holders, P in the formula above will be omitted.

To measure not only point-in-time conditions but changes over time, this study assesses changes in a tract's voucher distribution ratio and relevant z-score. These are called out in tables, and also shown in maps created by ArcMap to highlight geographic patterns. Through the maps, the geographical distribution of voucher holders will be more obvious, and therefore it will be easy to divide the sub-areas for more in-depth analysis and research. Additionally, in the "Introduction to Allentown" section below, some indicators such as the proportion of whites, poverty rate and renter rate are displayed in maps to facilitate a better spatial understanding of the city.

## Findings and Discussions

### Vouchers' Distribution Change

This paper quantified the distribution and the change of total voucher recipients in Allentown, as well as minority voucher-holders and those with very low incomes. Households with very low incomes were those with incomes below 50% of the area median income, as defined by HUD and adjusted for household size (HUD, 2017). Table 2 shows the change of the number of all vouchers in each Census tract in the city from 2000 to 2016, and the z-score of its distribution. Among all Census tracts, tract 6 and 96 are the regions with the largest increase in the number of voucher and distribution ratios, especially 96. The z-score of 96 reached 2.21 in 2016, which means that the voucher distribution in this region far exceeded the average of Allentown that year. Because these two areas are close to each other, this article combines 6 and 96 into a larger subarea defined as the "eastern" part of the city.

The "center city" area indicated in the table is also marked in Graph 1. This area includes several Census tracts. According to the data in Table 2, the proportion of

vouchers in this area was higher in 2000. For example, the z-scores of 8, 18 and 97 all

exceeded 1 in 2000. However, around 2016, the z-scores of each Census tract in center-

city declined to different degrees. That is to say, while vouchers-holders once gathered in

the center-city Census tracts, by 2016 they were more concentrated elsewhere, in eastern

Allentown.

*Table 2.* Z-Score of Total Vouchers' Distribution 2000-2016

| Area | Year | | | | | | | |
|------|--------|---------|--------|---------|--------|---------|--------|---------|
|      | 2000   |         | 2008   |         | 2012   |         | 2016   |         |
| Code | Counts | Z-Score | Counts | Z-Score | Counts | Z-Score | Counts | Z-Score |
| Center City | | | | | | | | |
| 7     | 70  | 0.65  | 67  | 0.14  | 89  | 0.38  | 81  | 0.13  |
| 8     | 81  | 1.01  | 75  | 0.35  | 78  | 0.14  | 84  | 0.20  |
| 9     | 41  | -0.29 | 39  | -0.58 | 28  | -0.95 | 30  | -0.96 |
| 10    | 79  | 0.94  | 74  | 0.32  | 62  | -0.21 | 74  | -0.02 |
| 12    | 20  | -0.97 | 22  | -1.02 | 17  | -1.19 | 19  | -1.19 |
| 16    | 79  | 0.94  | 92  | 0.79  | 89  | 0.38  | 93  | 0.39  |
| 17    | 73  | 0.75  | 90  | 0.74  | 107 | 0.78  | 105 | 0.65  |
| 18    | 89  | 1.27  | 115 | 1.39  | 140 | 1.50  | 100 | 0.54  |
| 97    | 102 | 1.69  | 113 | 1.33  | 127 | 1.21  | 127 | 1.12  |
| Eastern City | | | | | | | | |
| 6     | 33  | -0.54 | 42  | -0.50 | 70  | -0.03 | 144 | 1.48  |
| 96    | 78  | 0.91  | 159 | 2.53  | 175 | 2.26  | 178 | 2.21  |
| Other Areas | | | | | | | | |
| 1.01  | 49  | -0.03 | 56  | -0.14 | 69  | -0.05 | 75  | 0.00  |
| 1.02  |     |       |     |       |     |       |     |       |
| 14.01 | 49  | -0.03 | 57  | -0.12 | 91  | 0.43  | 93  | 0.39  |
| 14.02 | 0   | -1.61 | 2   | -1.54 | 2   | -1.52 | 1   | -1.58 |
| 15.01 | 53  | 0.10  | 91  | 0.76  | 117 | 0.99  | 128 | 1.14  |
| 15.02 | 99  | 1.59  | 54  | -0.19 | 56  | -0.34 | 56  | -0.40 |
| 19    | 35  | -0.48 | 54  | -0.19 | 57  | -0.32 | 57  | -0.38 |
| 20    | 70  | 0.65  | 104 | 1.10  | 132 | 1.32  | 126 | 1.10  |
| 21    | 35  | -0.48 | 80  | 0.48  | 101 | 0.64  | 112 | 0.80  |
| 22.01 | 8   | -1.35 | 17  | -1.15 | 26  | -0.99 | 31  | -0.94 |
| 22.02 | 21  | -0.93 | 41  | -0.53 | 55  | -0.36 | 54  | -0.45 |
| 23.01 | 1   | -1.58 | 5   | -1.46 | 2   | -1.52 | 3   | -1.54 |
| 23.02 | 5   | -1.45 | 7   | -1.41 | 9   | -1.36 | 10  | -1.39 |
| 4     | 37  | -0.42 | 45  | -0.43 | 54  | -0.38 | 57  | -0.38 |
| 5     | 39  | -0.35 | 36  | -0.66 | 34  | -0.82 | 32  | -0.92 |

| Total Vouchers | 1246 | 1537 | 1787 | 1870 |

In summary, center city had been a voucher-concentrated area, but has deconcentrated in recent years. Census tracts on the eastern side of the city are the new voucher-concentrated area. This noteworthy shift is a key finding of this study, since the project sought to describe the change of voucher distribution in the city of Allentown. These patterns become even starker as one looks specifically at minority voucher-holders.

Graph 2 compares the distribution of minority voucher-holders in Allentown from 2000 to 2016 and Table 3 shows the specific distribution ratios and z-scores. In 2000, minority vouchers were clearly concentrated in the center-city. After 2012, the concentration in the core largely disappeared. Minority voucher-holders gradually spread outward and moved to the eastern part of the city. In 2016, only one Census tract with a high percentage of minority voucher-holders existed in the center-city, and each of the two Census tracts in the eastern city shared more than 7 percent of the city's minority voucher-holders. Among these two Census tracts, the one on the north side had the largest increase and has become the most concentrated area in the city since then. The largest increase time period was 2004 to 2008, in which the distribution ratio of this area rose directly from 6.03 to 11.35.

Around 2012, the proportion of minority voucher-holders in the region began to decrease and flow to tract 6 shown in Graph 1. This area is close to tract 96, but they are separated by the Lehigh River. From 2012 to 2016 the ratio of the minority voucher-holders in tract 6 increased from 3.19 to 8.33. At the same time, the ratio for tract 96 fell from 11.02 to 9.39. It can also be seen from the total vouchers' data, that between 2000 and 2008, the number of vouchers in tract 96 soared, nearly doubling. After 2012,

vouchers in tract 96 only rose by 3. However, between 2012 and 2016, the vouchers in tract 6 doubled.

*Graph 2. Allentown Minority Vouchers Distribution 2000-2016*
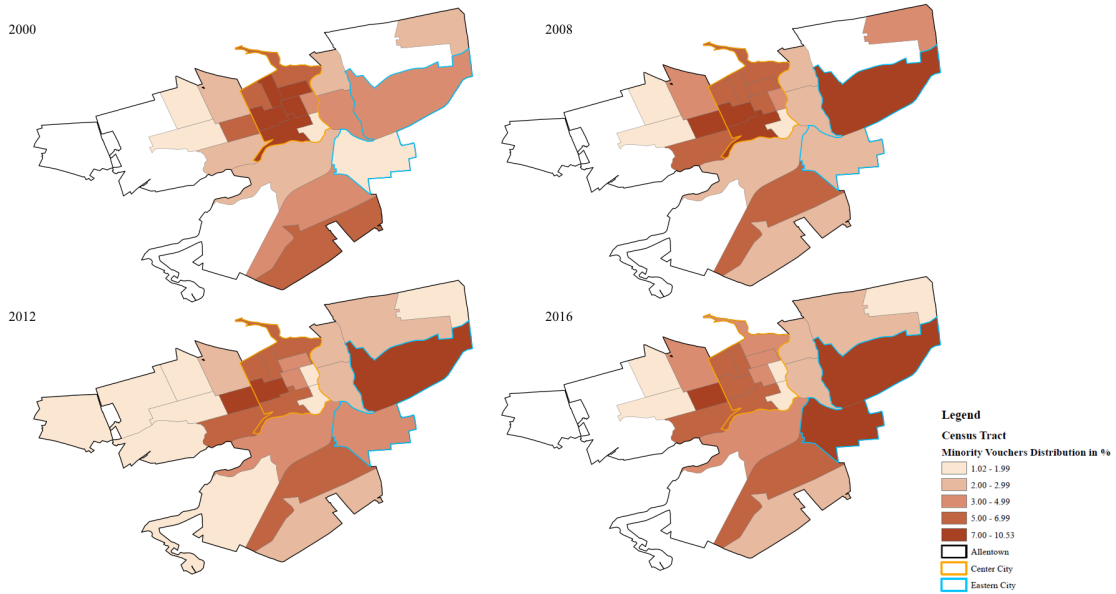


*Data Source: HUD Assisted housing: Picture of Subsidized Households 2000-2017*

Compared to the extremely concentrated phenomenon in the center city in 2000, the distribution of minority voucher in recent years has become more widespread. The center-city's distribution ratio's z-scores dropped by an average of 0.61 from 2000 to 2017, and almost all of the Census tracts' z-scores decreased from 1 or more to less than 1, while in some other areas in the city where z-scores were negative in 2000, which means that the distribution ratio is lower than the average, the z-scores are rising gradually. In other words, except for eastern region where minority voucher-holders are currently concentrated, other regions are slowly balancing their vouchers nearing the citywide average.

*Table 3.* Portion and Z-Score of Minority Vouchers' Distribution 2000-2016

| | Year | | | | | | | |
| | 2000 | | 2008 | | 2012 | | 2016 | |
| Area Code | Portion | Z-Score | Portion | Z-Score | Portion | Z-Score | Portion | Z-Score |
|---|---|---|---|---|---|---|---|---|
| Center City | | | | | | | | |
| 7 | 6.95 | 1.02 | 5.42 | 0.34 | 5.67 | 0.64 | 4.90 | 0.22 |
| 8 | 8.62 | 1.60 | 5.66 | 0.43 | 4.91 | 0.38 | 4.64 | 0.12 |
| 9 | 4.24 | 0.08 | 3.05 | -0.58 | 1.95 | -0.67 | 1.89 | -0.98 |
| 10 | 7.84 | 1.33 | 5.05 | 0.20 | 3.36 | -0.17 | 4.38 | 0.01 |
| 12 | 1.70 | -0.80 | 1.70 | -1.11 | 1.07 | -0.98 | 1.02 | -1.32 |
| 16 | 8.18 | 1.45 | 6.44 | 0.74 | 5.47 | 0.57 | 5.26 | 0.36 |
| 17 | 6.11 | 0.73 | 6.14 | 0.62 | 6.12 | 0.80 | 5.80 | 0.58 |
| 18 | 7.70 | 1.28 | 7.85 | 1.29 | 8.51 | 1.64 | 5.46 | 0.44 |
| 97 | 8.54 | 1.58 | 7.19 | 1.03 | 6.71 | 1.01 | 6.43 | 0.83 |
| Eastern City | | | | | | | | |
| 6 | 1.97 | -0.71 | 2.41 | -0.83 | 3.19 | -0.23 | 8.33 | 1.59 |
| 96 | 4.15 | 0.05 | 11.35 | 2.65 | 11.02 | 2.53 | 10.53 | 2.46 |
| Other Areas | | | | | | | | |
| 1.01 | 2.85 | -0.40 | 3.52 | -0.40 | 0.77 | -1.08 | 1.28 | -1.22 |
| 1.02 | | | | | 2.82 | -0.36 | 2.64 | -0.68 |
| 14.01 | 2.99 | -0.35 | 2.97 | -0.61 | 4.74 | 0.32 | 4.77 | 0.17 |
| 14.02 | 0.00 | | | | 0.14 | -1.30 | | |
| 15.01 | 3.38 | -0.21 | 5.07 | 0.20 | 6.01 | 0.76 | 6.31 | 0.78 |
| 15.02 | 5.90 | 0.66 | 2.42 | -0.83 | 2.15 | -0.60 | 2.21 | -0.85 |
| 19 | 2.43 | -0.54 | 3.69 | -0.33 | 2.93 | -0.32 | 3.07 | -0.51 |
| 20 | 5.86 | 0.65 | 7.47 | 1.14 | 7.74 | 1.37 | 7.46 | 1.24 |
| 21 | 2.28 | -0.60 | 5.39 | 0.33 | 6.36 | 0.89 | 5.89 | 0.61 |
| 22.01 | 0.00 | -1.39 | 0.90 | -1.42 | 1.32 | -0.89 | 1.61 | -1.09 |
| 22.02 | 1.28 | -0.94 | 1.18 | -1.31 | 1.63 | -0.78 | 1.49 | -1.14 |
| 23.01 | | | | | 0.07 | -1.33 | | |
| 23.02 | | | | | 0.49 | -1.18 | | |
| 4 | 2.68 | -0.46 | 2.34 | -0.86 | 2.54 | -0.46 | 2.59 | -0.70 |
| 5 | 4.37 | 0.13 | 2.78 | -0.69 | 2.31 | -0.54 | 2.04 | -0.92 |

*Data Source:* HUD Assisted housing: Picture of Subsidized Households 2000-2017

In 2000, the city center's minority voucher-users were more concentrated than that of total vouchers, 6 Census tracts' z-scores of the minority voucher-holders exceeded 1 in the center city, while total vouchers had only 3 Census tracts. By 2016, all z-scores of minority vouchers in the city center had dropped below 1, but as shown in Table 2, the z-

score of total voucher-holders in the 97 Census area is still at 1.12, indicating that compared to total vouchers, minority voucher-holders have a more pronounced decentralization.

*Graph 3.* Allentown Low-Income Vouchers Distribution 2000-2016

The distribution of very low-income vouchers (for incomes less than 50% of the area median income) in Graph 3 also shows a similar trend. In 2000, the very low-income voucher holders of city center were relatively concentrated. As time went by, very low-income voucher-holders gradually moved outward from the downtown area, scattered and gathered in the eastern and southern regions eventually. Table 4 shows the specific distribution ratio and z-score of each Census tract. In 2016, there are 5 Census tracts with z-score of very low-income voucher-holders higher than 1. The difference between the distribution of very low-income voucher users and the minority voucher-holders is that the z-scores of very low-income voucher users are very similar to total vouchers every

year. That is, the distribution of very-low-income voucher recipients is similar as the

overall distribution of total vouchers.

*Table 4.* Portion and Z-Score of Very-Low-Income Vouchers' Distribution 2000-2016

| | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2008 | | 2012 | | 2016 | |
| Area Code | Portion | Z-Score | Portion | Z-Score | Portion | Z-Score | Portion | Z-Score |
| Center City | | | | | | | | |
| 7 | 5.56 | 0.38 | 4.46 | -0.04 | 5.03 | 0.29 | 4.38 | 0.01 |
| 8 | 6.57 | 0.87 | 4.84 | 0.13 | 4.45 | 0.04 | 4.59 | 0.10 |
| 9 | 3.46 | -0.63 | 2.62 | -0.87 | 1.62 | -1.14 | 1.64 | -1.16 |
| 10 | 6.61 | 0.89 | 4.93 | 0.17 | 3.50 | -0.35 | 4.17 | -0.08 |
| 12 | 1.69 | -1.49 | 1.48 | -1.38 | 0.98 | -1.41 | 1.08 | -1.40 |
| 16 | 6.41 | 0.79 | 6.12 | 0.71 | 4.93 | 0.24 | 5.19 | 0.36 |
| 17 | 6.10 | 0.65 | 5.93 | 0.62 | 6.11 | 0.74 | 5.44 | 0.47 |
| 18 | 7.44 | 1.30 | 7.73 | 1.44 | 7.75 | 1.43 | 5.35 | 0.43 |
| 97 | 8.53 | 1.82 | 7.52 | 1.34 | 7.18 | 1.19 | 7.01 | 1.15 |
| Eastern City | | | | | | | | |
| 6 | 2.79 | -0.95 | 2.82 | -0.78 | 3.71 | -0.27 | 7.54 | 1.37 |
| 96 | 6.33 | 0.76 | 10.07 | 2.49 | 9.99 | 2.37 | 9.73 | 2.31 |
| Other Areas | | | | | | | | |
| 1.01 | 3.89 | -0.42 | 3.76 | -0.35 | 0.98 | -1.41 | 1.23 | -1.34 |
| 1.02 | | | | | 3.00 | -0.56 | 2.65 | -0.73 |
| 14.01 | 3.89 | -0.42 | 3.64 | -0.41 | 5.20 | 0.36 | 5.08 | 0.32 |
| 14.02 | | | | | | | | |
| 15.01 | 4.30 | -0.22 | 5.69 | 0.52 | 6.34 | 0.84 | 7.14 | 1.20 |
| 15.02 | 7.69 | 1.42 | 3.63 | -0.41 | 3.23 | -0.47 | 3.00 | -0.58 |
| 19 | 2.54 | -1.07 | 3.49 | -0.48 | 3.22 | -0.47 | 2.86 | -0.64 |
| 20 | 5.50 | 0.36 | 6.85 | 1.04 | 7.54 | 1.34 | 6.74 | 1.03 |
| 21 | 2.69 | -1.00 | 5.27 | 0.33 | 5.65 | 0.55 | 5.93 | 0.68 |
| 22.01 | | | 1.07 | -1.56 | 1.32 | -1.27 | 1.59 | -1.19 |
| 22.02 | 1.60 | -1.53 | 2.76 | -0.81 | 3.17 | -0.49 | 2.95 | -0.60 |
| 23.01 | | | | | | | | |
| 23.02 | | | | | | | | |
| 4 | 3.13 | -0.79 | 2.96 | -0.71 | 3.12 | -0.52 | 3.05 | -0.56 |
| 5 | 3.29 | -0.71 | 2.35 | -0.99 | 1.96 | -1.00 | 1.64 | -1.16 |

*Data Source*: HUD Assisted housing: Picture of Subsidized Households 2000-2017

According to the distribution variation of the voucher holders described above,

the central region (the yellow portion) is the original voucher-intensive region and is now

gradually dispersed. The eastern part (the blue portion) attracts a large number of

concentrates, whether it is the overall voucher-holders or the minority voucher recipes.

Therefore, in order to answer the question about whether the voucher-holder proposed in

the previous section has migrated to a neighborhood with more opportunities and better

living conditions, the comparison of the neighborhood condition will focus on these

densely clustered regions of vouchers in two different periods.

**Introduction to Allentown**

Before comparing the subareas of the city, it is necessary to understand the overall

situation of Allentown. Table 5 shows the demographic and housing characteristics of

Allentown in 2016 by Census tract. The minority population in Allentown is larger than

other U.S. cities. Compared to 12.3 percent of blacks, 62 percent of whites and 17.3

percent of Hispanics in the United States, Allentown is 10.7 percent of black, 35.8

percent of white and 49 percent Hispanic.

*Table 5.* General Characteristics of Allentown

|  | Percentage | Average | Total |
|---|---|---|---|
| Total population |  | 4601 | 119,624 |
| Hispanic or Latino | 49% | 2254 | 58,593 |
| White (Not Hispanic or Latino) | 36% | 1649 | 42,884 |
| Black or African American alone (Not Hispanic or Latino) | 11% | 493 | 12,830 |
| Total housing units |  | 1763 | 45,826 |
| Occupied units | 91% | 1595 | 41,474 |
| Renter-occupied units: | 55% | 878 | 22,824 |
| Median Value |  |  | $126,100 |

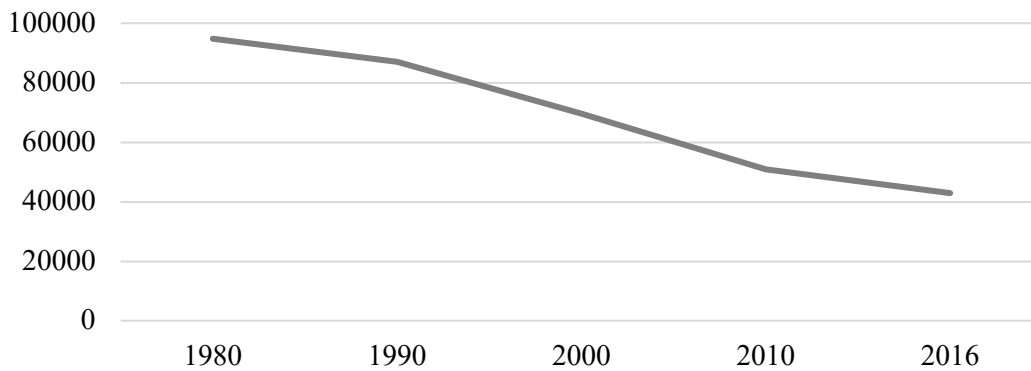*Data Source:* Bureau of the Census, Census 2016

*Graph 4.* Lehigh County Census Tract White Rate 2016
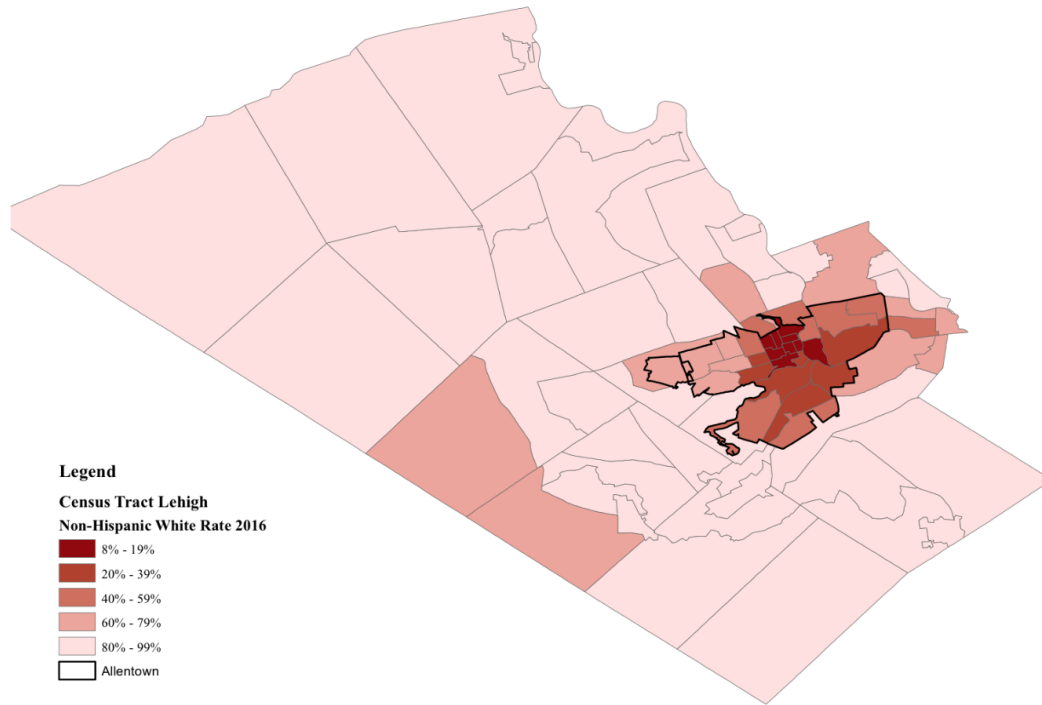


*Data Source*: Bureau of Census, Census 2016

Graph 4 shows the percent of residents who are non-Hispanic white for all Census tracts in Lehigh County in 2016. It can be seen from the map that except for the Census area that is close to the city boundary, the vast majority of suburban Census tracts are white, with the proportion of non-Hispanic whites in most out-of-city Census tracts above 80 percent. In contrast, in the center of the city, the portion of whites is less than 20 percent. In fact, this is because Allentown and Lehigh County saw a significant amount of "white flight" out of the city and into the suburbs starting in the late 20th century. Graph 5 shows the changing demographic trend for the non-Hispanic white population in Allentown from 1980 to 2016. With the white population continually declining from 1980 to 2016, the city has lost 51,898 white residents during this period.

*Graph 5.* Allentown City White Population (Non-Hispanic) Trend 1980-2016



*Data Source:* Bureau of the Census, Census 2010-2016; Neighborhood Change Database 1970-2010

Table 6 shows the change of Allentown's demographic indicators from 1990 to 2016. It can be seen from the table that the urban percentage of non-Hispanic white residents has dropped sharply from 83 percent to 36 percent. The white population in the city, from 1990 to 2016, decreased by a total of 44,090, while the Hispanics and Latinos increased by 46,786. In 2016, whites were only 16 percent of the entire population in the downtown area.

*Table 6.* Allentown Demography change 1990-2016

|  | 1990 | 2000 | 2010 | 2016 |
|---|---|---|---|---|
| Poverty Rate | 13% | 18% | 25% | 27% |
| Black | 5% | 7% | 10% | 11% |
| White | 83% | 65% | 43% | 36% |
| Hispanic/Latino | 11% | 24% | 43% | 49% |
| Tenure | 43% | 47% | 50% | 55% |
| Population | 105,419 | 106,587 | 118,032 | 119,624 |

*Data Source*: Bureau of the Census, Census 2010-2016; Neighborhood Change Database 1970-2010

The city's neighborhoods suffered from high poverty over these years as well. The overall poverty rate in Allentown rose 14 percent from 1990 to 2016 (Table 6). According to the 2016 poverty rate map (Graph 6), compared with the suburbs, most of

the city's neighborhoods are in high poverty (a poverty rate over 20 percent). Extreme poverty (a poverty rate over 40 percent) exists in the middle of the city and in the eastern area.

At the same time, the rate of renter-occupancy in the city rose by 12 percent in 26 years (Table 6). Tenants (Graph 7) started gathering in these high-isolation and poverty-stricken areas, especially in the center of the city where the rental rate is above 70 percent as of 2016. However, although the renter rate of the whole city is higher than that of the suburbs, the high renter rate is more concentrated in the middle of the urban area, and there is a certain trend of outward diffusion.

*Graph 6.* Lehigh County Census Tract Poverty Rate 2016
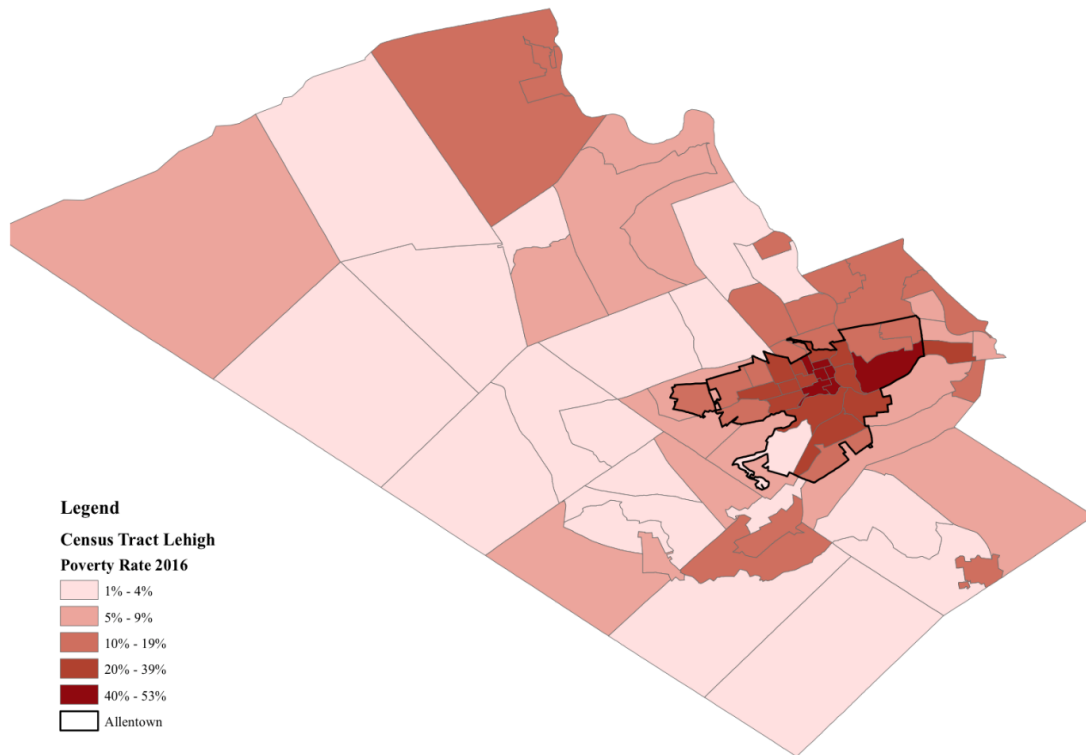


*Data Source:* Bureau of Census, Census 2016

*Graph 7.* Lehigh Valley Census Renter Occupied Units Rate 2016



Legend

**Census Tract Lehigh**

**% of Renter Occupied Units**

4% - 19%

20% - 29%

30% - 49%

50% - 69%

70% - 96%
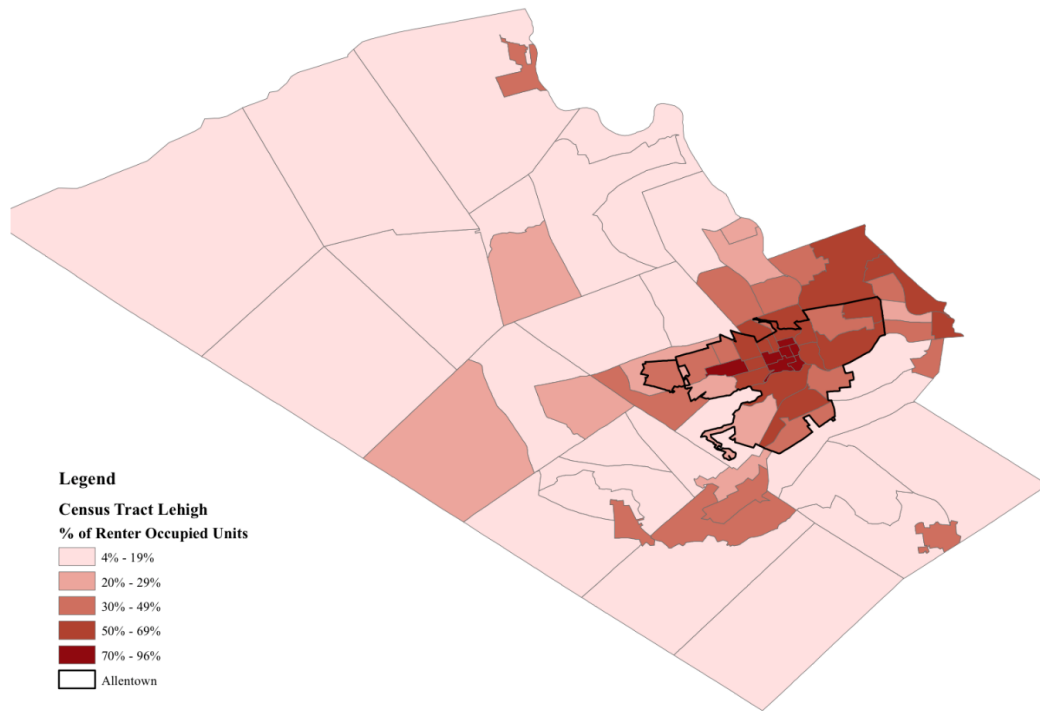
Allentown

*Data Source:* Bureau of Census, Census 2016

As the general population of Allentown has shifted, so has the number of voucher-holders of the Housing Choice Vouchers program. In the city, the number of vouchers is also increasing.  In 2000, there were 1,295 vouchers in Allentown, which comprised 37 percent of all HUD-assisted households in the city; as of 2017, the numbers had increased to 2,187 and 57 percent. This increase mirrors the growth of Housing Choice Vouchers program nation-wide during the same period. From 2000 to 2017, the total Housing Choice Vouchers households in the United State grew from 1.8 million to 2.4 million, and their ratio in the HUD-assisted households changed from 37 percent to 50 percent.

**Comparing the Regions**

From the figures above, it is clear that the concentration of Housing Choice Vouchers program users has moved from the central neighborhoods of Allentown in

recent decades and are now concentrated in the eastern part of the city. In the two areas, it can be seen in Graph 6 and 7 that the center city's minority rate and renter rate are higher. According to the literature, moving to a better neighborhood will increase residents' access to opportunity, and will also have a positive impact on the quality of life and opportunities of future generations (Kling et al., 2004; Kling, 2005; Ludwig et al., 2013; Chetty et al., 2018). In addition, one of the intentions of the HCV program is to enable low-income families to have more choices to live in a better neighborhood. Therefore, to assess whether such a shift in Allentown allows residents to move to a "better neighborhood", the detailed conditions in the center city and the eastern city are compared and tabulated in Table 7.

*Table 7.* Allentown Regional Comparison

|  | Center City | | Eastern City | |
| --- | --- | --- | --- | --- |
| Poverty Rate | | 41% | | 32% |
| Minority Rate | | 84% | | 69% |
| Renter rate | | 73% | | 48% |
| Unemployment Rate | | 21% | | 13% |
| People over 25 under high school degree | | 40% | | 35% |
| Units occupied rate | | 83% | | 90% |
| Housed built after 2000 | | 2% | | 18% |
| Family median income | US$ | 25,638 | US$ | 37,215 |
| Average sale price | US$ | 41,992 | US$ | 61,143 |
| Median value | US$ | 81,078 | US$ | 115,400 |
| Median rent | US$ | 861 | US$ | 794 |
| Mental health crude prevalence | | 18% | | 16% |
| Physical health crude prevalence | | 19% | | 17% |
| N | | 9 | | 2 |

*Data Source:* Bureau of the Census, Census 2016; 500 Cities: Local Data for Better Health

In the table, there is a markedly lower rate of poverty and minorities in the eastern region, which is to say, in the eastern city, the integration of people of different races and economic conditions is better. According to South and Crowder, concentrated poverty

has detrimental consequences for women, such as premarital childbearing (South & Crowder, 1999). According to Jargowsky's study of U.S. metropolitan neighborhoods of different poverty levels in 1990, high-poverty neighborhoods (poverty rate over 40%) have higher female-headship rate and higher children poverty rate, especially for children aged 0 to 4 years, than neighborhoods in other poverty levels or under poverty line (Jargowsky, 1997). Lee also suggests that the higher poverty rate will increase the homicide rate both for whites and blacks (Lee, 2016). Blacks who live in a wealthier neighborhood become less likely to drop out of high school (Vartanian & Gleason, 1999). Drake and Pandey believe the neighborhood poverty rate is positively associated with child maltreatment, especially child neglect (Drake & Pandey, 1996). Therefore, a lower poverty rate in the eastern Allentown could mean a better neighborhood environment for households receiving vouchers, which could in turn have better outcomes for the adults and children in these households.

Additionally, the eastern portion's occupancy is higher, and it has a 48 percent rental rate, compared to 73 percent for the city center's rental rate. According to Rohe and Stewart, a higher homeownership rate will provide greater community stability because homeowners are more willing to protect their housing investments and communities (Rohe & Stewart, 1996). Moreover, higher homeownership can make residents feel healthier and happier (Rohe et al. 2001). Graph 8 shows the map of distribution of low-cost units (Rent under $750) in the city, and the eastern and the midwest part of city have a high number. Combined with the poverty rate map (Graph 6), Census tracts with over 400 low-cost units overlap the Census tracts with poverty rate over 40 percent, which may suggest that most households in poverty may tend to or have to choose these low-cost units and then led to high poverty rates in the region. Moreover, the distribution of

low- income vouchers tend to follow the low-cost units, since Census tracts sharing more than 5 percent of the very low-income vouchers usually have a high number of low-cost units.

In Graph 8, a neighborhood called Overlook Park is marked. According to the Allentown Housing Authority, this neighborhood was redeveloped using Hope VI funds in 2006 at a total cost of $20 million dollars. The project demolished the public housing built on this site in the 1930s, called Hanover Acres and Riverview Terrace. These were two of the country's oldest public housing communities and were considered to be functionally obsolete (Pennrose, n.d.; Lash, D, 2010). The new neighborhood — Overlook Park — has added 269 new rental units as well as 53 new homeownership units – and has modern housing and community buildings. The program designed a park-like environment to let the residents enjoy the view of the nearby Lehigh River. While improving home ownership, the redevelopment project aimed to provide high quality and affordable rental housing for people earning between 20 and 80 percent of the area median income.

As part of the Hope VI program, this area has changed from the oldest community in Allentown to a new neighborhood. Yet it remains an open question whether the project enabled public housing residents to live in a more affluent area. Scholars who have studied HOPE VI sites have found that public housing residents did not end up accessing significantly more affluent neighborhoods following redevelopment (DiMaggio, 2010). Now, this area is seeing greater concentrations of voucher holders after 2008. It may be the case that the Hope VI program may have attracted voucher-holders to these new but affordable housing units.

*Graph 8.* Allentown Census Low-Cost Units 2016
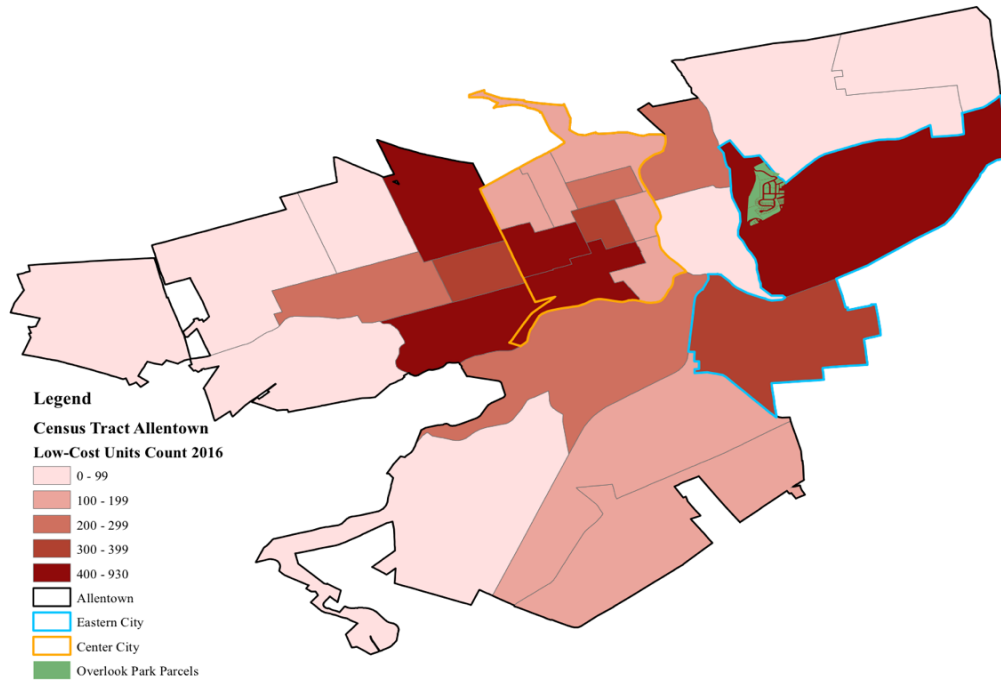


*Data Source:* Bureau of Census, Census 2016

Moreover, the eastern sales price is about $20,000 dollars higher than the center city's average sale price, and the average median value of the houses in the region is higher than the city center by nearly $35,000. At the same time, the median rent in the east is even lower, this also means that there are more affordable houses in the east. The unemployment rate in the east, and the proportion of people with lower education levels than high school are smaller, and household income is higher. The concentration of long-term unemployment rate can lead to persistent poverty (Nichols, 2013). In addition, studies have shown that Census tracts with high unemployment rate have a significantly higher probability of mental illness, such as anxiety and depression. (Kessler et al, 1988). Therefore, although there is no dataset available to prove that the voucher-recipients who moved from central city to the eastern city have improved their income or job

opportunities, the voucher program gives these voucher-holders opportunities to relocate to a less poor neighborhood and live a better life.

Wen and Cagney suggest that more affluent neighborhoods will also have an impact on residents' self-rated health (Wen & Cagney, 2003). In addition, living in areas that are less affluent and have lower levels of education can affect the health and comorbidity of older people (Gerber et al., 2008). In Table 7, health outcomes are compared as well, including the average mental health (mental health not good for >=14 days among adults aged >=18 years in 2015) and physical health (physical health not good for >=14 days among adults aged >=18 years in 2015) crude rate, which is the number of disease cases in a given time period divided by the total number of population. In general, both of the mental health and physical health average crude rate of eastern city are slightly lower than center city area.

*Graph 9.* Allentown Satellite Map
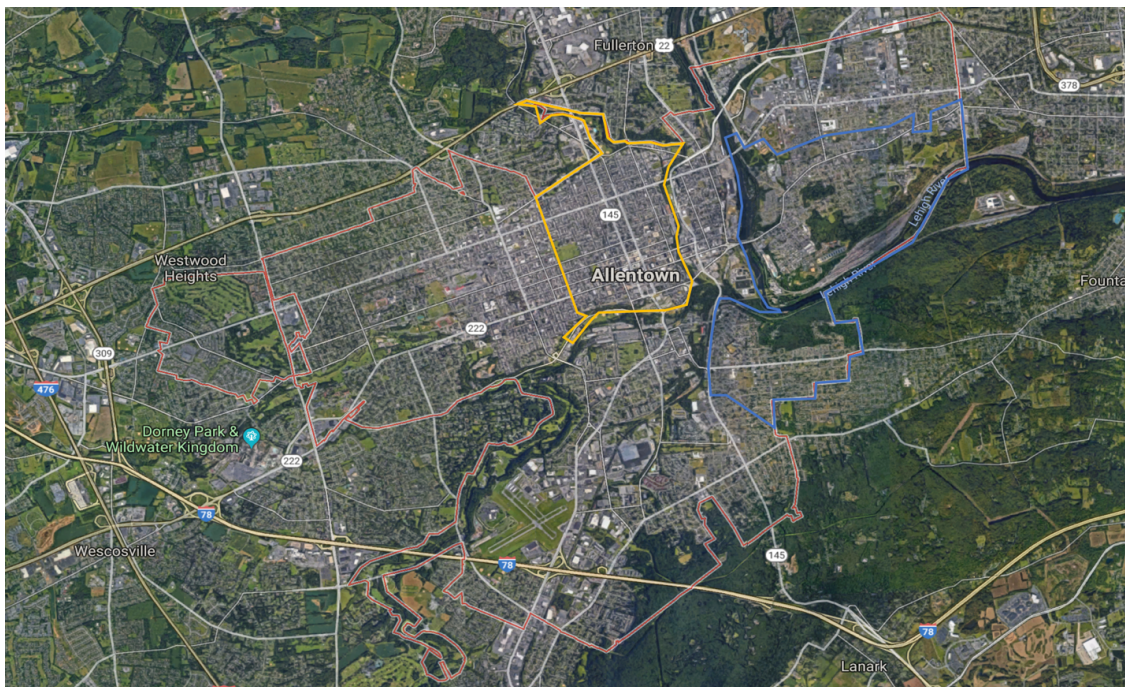


*Source*: Google Map 2018

Graph 9 is the satellite map of Allentown in 2018 from Google Map, the area within the yellow boundary is the center city area, the blue area is the eastern city. This map reflects the difference in green spaces between the neighborhoods of the central and eastern city. Through the map, we see the center city is a denser neighborhood with less covering of green space. In contrast, the eastern city is covered by the East Side Reservoir Park, Canal Park, the Lehigh Mountain Park and the Keck Park. The Canal Park offers the spots at the river front of Lehigh River for people boating and fishing. The Keck Park is the place where people usually go picnic and play sports with families.

**Discussion and Conclusion**

This study has explored Allentown's distribution of Housing Choice Voucher users, especially the low-income and minority voucher-holders, and how this distribution has changed over time. The results clearly showed some dramatic shifts. According to the data analyzed, center city Census tracts, with concentrations of minority and poor households, have seen voucher-holders become far less concentrated. This trend is especially obvious among the minority voucher-holders. The distribution of vouchers in 2016 is more even in the city than it was in 2000. The vast majority of vouchers flowed to the east side of the city from around 2004 to 2008 and is currently highly concentrated in the east.

Another purpose of this paper was to explore whether residents have reached neighborhoods with more opportunities – as measured by economic, human, and environmental indicators. The answer is yes. Compared with the city center, the geographical and community environment in the eastern part of the city are superior, according to the data. In the eastern part of the city, there is a 25 percent lower rental rate

and a 10 percent lower poverty rate than in the city center. Under the white flight, a large

amount of white population moved out from the city to the suburbs, therefore most areas

in the city are racially segregated. Compared with the 84 percent minority rate in the

center city area, the eastern part of the city is still high segregated with its 69 percent

minority rate, but in less severe level. The built environment in the eastern area is of a

higher quality as well. The average sale price and median value of homes in the eastern

city are $19,151 and $34,322 higher than the center city, but in the meantime, the eastern

area's median rent is over $100 lower than central city. Moreover, the eastern city has

more parks and green space for family activities and community events. Therefore, in

general, the eastern part of the city has better living conditions.

A good environment and more integrated communities can have positive short-

term and long-term impacts for relocating residents. According to the results of the

Gautreaux program and Moving to Opportunity, the physical and mental health of family

members, is improved by moving to a better neighborhood. (Ludwig et al., 2013; Kling et

al., 2004). Although the neighborhood-level data in the last section suggest that voucher-

holders who relocate are increasingly likely to find better neighborhood conditions than

they had in the past, this paper did not investigate the impact of the vouchers on

individual quality of living measurements for those who moved to the eastern city.

Considering this limitation, I cannot conclude in this paper that people have achieved

higher living standards in the eastern city based on these numbers alone, and without the

benefit of a longitudinal study of those relocating with vouchers over time. Allentown, as

the case study of this article, does not have a database that measures reasons behind

voucher-holders' moving. Therefore, this article was not able to analyze why people

chose the eastern part of the city in recent years, and why they migrated away from the

central city, or the migration was coerced in relation to the reconstruction of the Overlook Park.

Additionally, detailed data on voucher-users and information of individual households currently cannot be tracked in the publicly available data. So, there is no way of knowing the more about the changing quality of life indicators for voucher holders after their relocation, and in terms of measuring how they rate their new neighborhoods, or for gauging why and where they moved exactly. Thus, we can only study the broader geographical changes in where voucher-holders are concentrated in this article. A follow-up research team could conduct a specific household level survey and ask about voucher-holders ratings of their communities before and after their relocation, about the mental and physical well-being of adults and children in these households, and about the short-term and long-term economic and academic performance of family members after moving.

Although according to my data results, Allentown's voucher-holders moved to a neighborhood with lower poverty rate and lower minority rate, as happened with the Gautreaux program and Moving to Opportunity, in the Allentown's case, the voucher holders' migration was more spontaneous and not guided by explicit program goals or housing authority intervention. In the experience of the Gautreaux program and Moving to Opportunity, consultation has occupied an important position in the process of helping people find the right neighborhood to meet their desires and needs. On the website of the Allentown Housing Authority, they provide residents a landlord portal with information of private landlords who offer houses for rent. This can be considered a channel for people to obtain information, which has the potential to assist people migrating away from the city center. However, it is not clear whether Allentown provides people with

personal counseling services, including efforts to determine what a "suitable" community would look like for individual voucher relocates, based on their own unique situations. Future research can begin by interviewing employees of the Allentown Housing Authority to find out what specific policies are implemented or what guidance is provided, to further study the reasons behind people's mobility choices.

Because voucher-holders are now concentrated in the eastern part of the city, those analyzing the effects of vouchers should be concerned not only with follow up assessments of those who have already relocated, but also with how the voucher program affects future relocatees. Assessments of the voucher program may want to examine the life changes of original residents of the eastern city, as well as neighborhood environmental changes and changes in human quality of life indicators for relocatees. These factors can help us better understand the impact of such migration on communities in transition. In general, future research should consider the above points to better understand the impact that voucher programs changes have on neighborhoods in transition.

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## EDUCATION

Lehigh University

**Master of Art in Political Science**                    **January 2019**

Thesis: "Housing Choice Vouchers and Neighborhood
Effects: A Case Study of Allentown"

Zhejiang Sci-Tech University

**Bachelor of Art in Public Administration**              **June 2016**

Thesis: "Comparison among Points-based Hukou (Household
Registration) System in Shenzhen, Shanghai and Beijing"

## EXPERIENCE

PBS39/WLVT

**Evaluation Intern**                                     **Fall 2018**

Process qualitative information for a grant about childcare and
clean data.

Bank of Inner Mongolia

**Intern**                                               **Winter 2015**

Assisted Client Manager in documents collection, information
researching, meetings scheduling, and clients signing up.

Municipal Environmental Protection Bureau of Aohan

**Intern**                                               **Summer 2014**

Handled policy memos, documents, and legal regulations;
participated in the development of environment policy
formation process; answered environmental report call.

Inner Mongolia Zhongyanhuamao Marketing Co., Ltd.

**Intern**                                               **Winter 2013**

Provided customer service to promote sale and managed goods and supervised advertising inventory.

Environment Protection Society of Zhejiang Sci-Tech University
**Club**                                                                                    **2012 - 2013**
Planned 3 annual on-campus events about environment protection; wrote monthly journal articles for the environmental events; promoted environment protection ideas and concepts in campus

LANGUAGES

Mandarin– native language
English– speak fluently and read/write with high proficiency

SKILLS

Microsoft Word, Access, Excel, PowerPoint, ArcGIS, STATA, SPSS