Effectiveness of Community Development Organizations in the St. Louis Metropolitan Area

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Effectiveness of Community Development Organizations in the St. Louis Metropolitan Area
by
Kyle Addison Pitzer

A dissertation presented to
Brown School
of Washington University in
partial fulfillment of the
requirements for the degree
of Doctor of Philosophy

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Concentrated poverty has been a core issue in urban America for close to half of a century. The consequences of living in these neighborhoods are also dire. These “neighborhood effects” are defined as the effects of living in concentrated poverty over and above individual circumstances, which have been tied to a number of important life outcomes. One approach to addressing these issues is community development, and perhaps the most salient vehicle of community development is the community development corporation (CDC). This current study sought to address three aims: 1), understand the effects of CDCs on population-level outcomes; 2), understand the effects of potential proxies of neighborhood mechanisms, and 3) explore and detail the neighborhood mechanisms by which CDC activities affect both physical and social dimensions of neighborhoods. To test the hypotheses and answer the research questions, this study utilized a mixed-methods approach. The quantitative phase combined service area data from a local CDC capacity-building organization and population-level data from the United States Census Bureau and utilized propensity-score matching to yield balanced analytic samples of 166 census tracts for housing-related outcomes and 170 census tracts for person-related outcomes. Traditional linear and spatial lag models were used to examine the relationship between being in a CDC service area and a number of outcomes. Both sets of models showed that being in a CDC service area was associated with lower median incomes and greater
percentage of residents on public assistance. The qualitative phase utilized ethnographic observations, focus groups, and interviews to understand the work done by CDCs and how these might impact neighborhood mechanisms. The results of the qualitative work indicated that CDCs go far beyond their traditional work in housing to impact numerous dimensions of their service areas, specifically, physical surroundings, networks, and institutional resources. The qualitative findings also suggested that while the quantitative findings show a greater percentage of residents on public assistance, this could be the result of these organizations building important networks between residents and social service and public agencies to access important assistance programs. The combined findings suggest that CDCs play a role in developing and maintaining multiple dimensions of the neighborhoods they serve, many of which are not accounted for due to being intangible, which has important implications for both practice and policy.
Chapter 1: Introduction

The scientific study of the city has existed for nearly a century, with the founding of the field most commonly marked by works done at The Chicago School of Urban Sociology between 1915 and 1935. Since the original monograph by Park, Burgess McKenzie (1925), *The City*, the study of urban neighborhoods, poverty in the city, and “neighborhood effects” has grown exponentially. Much of this work, and rightfully so, has been focused on the structure of city, changes in the city overtime, economic and racial makeup of the city, and the effects of urban neighborhoods on residents and how to measure these among other topics.

What has been notably missing from this body of work is how to address poverty in urban neighborhoods and its effects on residents who live there. While many scholars of cities propose policy change and local approaches, these rarely go into detail regarding how this would be implemented and most importantly, rather there is a possibility of intervening on the mechanisms that have been linked to many deleterious outcomes experienced by residents. In fact, in one of the cornerstone works of the Chicago School, Burgess asks, “can neighborhood work be scientific”?

Ultimately, the conclusion is that it can, but work needs to be done. Hence, the purpose of this dissertation is to explore one facet of intervention in urban neighborhoods to remedy neighborhood effects: the community development corporation. Specifically, this work explores the activities of 4 community development corporations in a mid-sized post-industrial city via ethnographic observation and focus groups with community workers and couples this with a quantitative investigation into whether there are statistically detectable effects of these organizations on a number of neighborhood characteristics that are most relevant to resident outcomes.
The Study of Neighborhoods and Neighborhood Effects

The study of neighborhoods and neighborhood effects has gone through several marked evolutions in its content. Wilson (1987) brought popular attention to this issue with his work in *The Truly Disadvantaged*, which detailed the major economic shifts and demographic changes happening in America’s cities, which resulted in greater concentration of poverty, particularly for Black Americans. Since Wilson’s (1987) study, the trends of concentrated poverty have been closely followed and reported on in almost every decade, indicating a steady increase, aside from a short-lived decrease in the 1990s, in the number of census tracts characterized by concentrated poverty and population living within them (Jargowsky, 1997; Jargowsky, 2003; Jargowsky, 2013). According to Kneebone & Holmes (2016) this trend continues into the 21st century. Their work suggests that over half of the poor population in the United States live in high poverty or extreme poverty neighborhoods (>20% poverty rate; Kneebone & Holmes, 2016). In addition to concentrated poverty in the city, research in the last decade has indicated that not only are these neighborhoods more prevalent, they are also spreading to inner ring suburbs (Jargowsky, 2013; Kneebone & Berube, 2008; Kneebone, Nadeau, & Berube, 2011). Scholars have suggested that this spread of neighborhoods in deep poverty creates an even more dire situation in which there is a mismatch of services to aid these populations (Allard, 2009; Small, 2009).

In addition to increases in concentrated poverty in urban neighborhoods, the implications for those living in these neighborhoods have also been studied, branching from Wilson’s (1987) work as well. In *The Truly Disadvantaged*, Wilson coined the term “concentration effects”, which were described as the effects of living in concentrated poverty over and above individual circumstances. Early work of urban scholars brought these associations between neighborhood structural characteristics and resident outcomes to light with statistical evidence. For example,
studies found connections between single or combinations of neighborhood characteristics such as poverty, racial composition and segregation, residential stability, presence of affluent or low-income neighbors, and percentage of professional workers and outcomes such as joblessness, juvenile delinquency, dropping out, and various dimensions of child development (e.g., see Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Crane, 1991; Duncan, Brooks-Gunn, & Klebanov, 1994; Massey, Gross, & Eggers, 1991; Shaw & McKay, 1942, 1969).

More recent research has focused on unpacking the variables that can potentially explain the association between neighborhood structural characteristics and life outcomes, referred to as neighborhood mechanisms. Following Jencks & Mayer’s (1990) critique of neighborhood effects research and the focus on aggregate characteristics, social processes that occurred within neighborhoods became more seriously considered by neighborhood researchers (Sampson, Morenoff, & Gannon-Rowley, 2002). Reviews of studies that specifically examined neighborhood mechanisms mention multiple mechanisms, but it is possible to group these into a few broad categories, such as socialization, neighborhood norms, and institutional resources (e.g., see Ellen & Turner, 1997; Sampson et al., 2002; Small & Newman, 2001; Chapter 2 of this work). More recently, Galster (2012) developed and provided a comprehensive list of 15 potential mechanisms falling under similar categories: social-interactive, environmental, geographic, and institutional, which is the most recent accounting of mechanisms in the literature to date.

While there are many challenges in studying neighborhood effects, a few conclusions can be drawn about this body of literature: there are meaningful variations in neighborhoods on a variety of characteristics and outcomes; neighborhoods do have some kind of effect on resident
lives; the mechanisms of neighborhoods effects are still not entirely clear, but provide at least viable entry points of intervention.

**The Study of Community Development Corporations**

While the study of neighborhoods and neighborhood effects has continuously existed since the early 1900s, the study of community development corporations has emerged more recently, specifically in the 1990s with Vidal’s (1992) introductory work focused on the history and contemporary state of community development corporations, which had begun to appear in the 1960s as a response to the War on Poverty. Therefore, while community development corporations have existed for some time, little of the research that has been performed since the beginning of their existence examines the effects of these organizations on neighborhood outcomes. The study of community development corporations has primarily focused on the organizational infrastructure, their outputs, and their successes and failures (Briggs, Mueller, & Sullivan, 1997). While these topics are important from a programmatic standpoint, the impact of CDCs when conceptualized as a neighborhood-level intervention are important to understand as well in the context of neighborhood research. Most importantly, if effects are detected, it is important to then understand how they are accomplished – bridging the neighborhood work with science and replicable solutions as Burgess suggested. Currently, this type of work is largely absent from the literature, besides a few studies that are described here.

Place-based or community development as an overarching approach has been implemented in multiple forms with varying levels of success. Given the importance of community organizations, perhaps the most salient feature of place-based community development is the institution of the community development corporation and strategies employed by these organizations. Community development corporations began forming in the...
1960s as a result of the civil rights movement and War on Poverty and have continued growing since (Vidal, 1992). These community-based development organizations are typically initiated by individuals or small groups within communities and target geographically defined areas (i.e. neighborhoods; Vidal, 1992). While the initial activities conducted by community development corporations included housing construction and rehabilitation, commercial development, and business development, over time, these organizations have also begun to take on activities related to human and social services such as advocacy, financial services, and education and job training (Vidal, 1992; National Congress for Community Economic Development [NCCED], 2005). The most recent figures suggest that there are over 4000 community development corporations operating in the United States today (National Alliance for Community Economic Development Associations [NACEDA], 2010; NCCED, 2005).

While community development corporations have existed for some time in the community development field and are prevalent throughout cities in the United States, little of the research that has been performed measures the effects of these organizations on neighborhood and population-level outcomes (Briggs, Mueller, & Sullivan, 1997). With a few exceptions, much of the research on community development corporations has tended to emphasize their outputs or organizational features, or in other words, what CDCs do, whether they succeed or fail, and why. While this is critical for policymakers and practitioners to understand, the impact of CDCs on the neighborhood and its residents, both tangible and intangible, are also crucial to understand its role as an approach to solving problems at the neighborhood-level. Additionally, the connections between strategies CDCs employ and the proposed mechanisms that connect dimensions of neighborhood disadvantage to adverse resident outcomes are not clearly established.
A handful of studies address the question of the impact of CDCs on neighborhood and population-level outcomes. The quantitative studies primarily examine home values. Smith (2003) developed a “pseudo-experimental” design by designating CDC treatment and comparison areas and used hedonic regression models to test the effect of community development corporations on home values. Hedonic regression models are used to estimate the monetary value of the characteristics of a good. The author found that although the appreciate rates for treatment and comparison areas were similar over the study timeframe, after adjusting for the lower home values in the treatment area to begin with, the appreciate rate was higher for the treatment area, or area served by a CDC. Smith and Havener (2011) also utilize comparison areas to examine changes in CDC-served areas in vacancies, unemployment, median income, and poverty as well as home values. The findings suggest that CDC-served areas, although declining, were declining at a slower rate than comparison areas without CDC services, and that housing values had greater appreciation rates than those in comparisons. Galster and colleagues (2005) also found an impact of CDC activities on property values in five CDC sites using economic trend analysis.

In addition to CDC effects on home and property values, evidence suggests that CDCs can also have effects on social conditions of neighborhoods. The first report to my knowledge that achieved this comes from Briggs, Mueller, & Sullivan (1997), for which they administered surveys and conducted ethnographic fieldwork in three sites. The authors found that work done by CDCs impacted intangible outcomes such as housing satisfaction, community safety, and social capital. Galster et al. (2005), using five case studies, found that CDCs increased community capacity, connections and cooperation between community residents and between residents and other organizational actors, and skills to organize and advocate. In addition to this
work, findings from other studies, though not focused on CDCs specifically, suggest that neighborhood organizations of many types play an important role in influencing social dimensions of the neighborhood (e.g., see Marwell, 2007; Small 2002, 2004, 2009).

Although studies exist that speak to the impact of CDC activities on neighborhoods and residents, there remain gaps in knowledge and room for alternative designs and methods. For tangible outcomes, the few studies that have been conducted look exclusively at property values, and while property values could proxy for housing quality of a neighborhood, important variables related to resident outcomes are left out, such as income, employment, and other indicators of economic well-being. These studies also do not provide true or synthetic control groups. While this is incredibly difficult in context, methods are available by which samples can be balanced on observed characteristics to account for bias introduced by using a comparison group. Additionally, they do not address spatial dependence of geographic locations being served by CDCs, which violates the independence assumption of many traditional statistical methods and is vital to modeling neighborhoods, where spatial clustering of nearly all demographic and economic characteristics is likely.

For intangible outcomes, although the work cited covers a broad range of outcomes related to the social dimensions of neighborhoods, there does not seem to be systematic connections drawn between CDC activities and mechanisms of neighborhood effects. Both producing evidence of CDC impacts on housing- and person-related outcomes and understanding the pathways by which CDC activities influence these outcomes is vital for applied social science. A comprehensive and nuanced explanation for the ways in which CDC activities reach residents and shape their opportunities and trajectories is necessary to inform both practitioners
and policymakers in best practices and creation of community development policy that truly impacts its end-client – residents.

The Current Study

To provide an entry into supplementing previous work and providing a blueprint for neighborhood research that emphasizes the connections between neighborhood work and science, I conducted a mixed-methods study that provides a quantitative investigation of association between a number of housing- and person-related outcomes and a qualitative investigation of what CDCs do and how they influence neighborhood mechanisms. Together these provide a more comprehensive look at neighborhoods in CDC service areas, how they compare to similar areas without CDCs, and what CDCs do to influence neighborhoods in the context of the established mechanisms.

For my quantitative investigation, I estimated a series of traditional linear and spatial lag models using data on census tracts from the U.S. Census Bureau and data on the service areas of CDCs from a local organization in order to examine associations between housing- and person-related neighborhood characteristics and being within a CDC service area. In order to more clearly examine the association between outcomes and CDCs, I implemented a propensity score matching approach in order to resample a larger data set of area census tracts into a balanced sample on observed characteristics that determine the “propensity” for being served by a CDC. In order to account for the spatial clustering of these outcomes, I estimate spatial lag models, which are commonly used for this purpose, but are absent in the studies of the effects of CDCs on home values and other outcomes.

Simultaneously, I conducted ethnographic observations over a 6-month period at 4 CDC organizations in the St. Louis metropolitan area in order to add context to quantitative findings.
and generate evidence of work done by CDCs which could impact neighborhood mechanisms. In addition to ethnographic observations, focus groups and group interviews were conducted with organization staff over a period of 4 months following the observation period. All qualitative work was conducted within the framework of established mechanisms in the literature to provide an entry point into the science of community development that emphasized how they impact mechanisms that are shown to have influence on housing- and person-related outcomes.

**Specific Aims and Research Questions**

The a priori aims, hypotheses, and research questions are detailed here. These were developed from the literature and framed within access of the investigator to both data and CDC organizations. Given the goals of this study, there were 3 specific aims, 10 hypotheses, and 6 research questions:

**Aim 1:** To understand the effects of CDCs on neighborhood and population-level outcomes. (Quantitative)

H1.1: There is a positive relationship between operation of a CDC in a neighborhood and neighborhood median income.

H1.2: There is a negative relationship between operation of a CDC in a neighborhood and unemployment rate.

H1.3: There is a negative relationship between operation of a CDC in a neighborhood and percentage of vacant housing.

H1.4: There is a positive relationship between operation of a CDC in a neighborhood and neighborhood median home value.

H1.5: There is a negative relationship between operation of a CDC in a neighborhood and median gross rent.
**Aim 2:** To understand the effects of CDCs on neighborhood mechanisms (measured by proxies; Quantitative)

H2.1: There is a positive relationship between operation of a CDC in a neighborhood and percentage of households in the neighborhood for at least 1 year.

H2.2: There is a negative relationship between operation of a CDC in a neighborhood and percentage of structures 30 years or older in the neighborhood.

H2.3: There is a negative relationship between operation of a CDC in a neighborhood and mean commute time for residents.

H2.4: There is a negative relationship between operation of a CDC in a neighborhood and percentage of households receiving public assistance.

H2.5: There is a positive relationship between operation of a CDC in a neighborhood and owner-occupied housing.

**Aim 3:** To explore and detail the neighborhood mechanisms by which CDC activities affect both physical and social dimensions of neighborhoods. (Qualitative)

RQ1: How does the work of community development organizations influence resident perceptions and behavior in their neighborhood through social influence and collective socialization?

RQ2: How does the work of community development organizations affect resident social networks and collective efficacy?

RQ3: How does the work of community development organizations affect physical surroundings of residents, and subsequently, their well-being?

RQ4: How does the work of community development organizations affect job opportunities for residents and presence of local market actors in their neighborhood?

RQ5: How does the work of community development organizations affect the availability of quality social services and institutional resources for residents?

RQ6: How does the work of community development organizations affect both internal, resident perceptions of their neighborhood as well as external neighborhood stigma?

**Chapter Summary**

The following chapter of this work provides the background and significance related to the study, specifically covering research in neighborhood poverty, neighborhood effects, and
community development corporations, particular components missing from this literature, and how the current study improves upon those. The third chapter recounts the approach and methodology used to test the study hypotheses and answer the research questions. The fourth chapter details the quantitative investigation using Census data and propensity score matching and spatial lag models. The fifth chapter provides the qualitative evidence generated from the ethnographic observations and focus groups/interviews. The sixth and final chapter synthesizes the quantitative and qualitative phases of the study, compares to current literature, addresses the strengths and limitations of the study, provides avenues for future research, and mentions implications for social work, and specifically, work by and adjacent to that done by community development corporations based on the results of the study.
Chapter 2: Background and Significance

This chapter provides a comprehensive review of literature pertinent to the study describes in this work. These topics include concentrated poverty in the United States, neighborhood effects and mechanisms, and studies on community development, specifically Community Development Corporations.

Concentrated Poverty in the United States

Recent work by Kneebone and Holmes (2016) estimated that just over half of the poor population live in neighborhoods with poverty rates over 20%. This trend of increasing poverty in particular neighborhoods was first recognized by scholars of urban poverty in the 1980s. Wilson (1987) published the first scientifically supported explanation of concentrated poverty in American cities, which detailed shifts in the economy that left many less educated, low skilled, Black workers unemployed and migration patterns of the Black middle class away from their poorer neighbors that left certain neighborhoods with high levels of poverty and disadvantage.

In addition to Wilson’s (1987) explanation, Massey and Denton (1993) suggested the segregation of Black Americans into particular neighborhoods caused by discrimination and racism in the housing market was the explanation of concentrated poverty. The primary way in which this affected the rate of concentrated poverty is the uneven distribution of the effects of economic downturns on segregated neighborhoods. While Wilson (1987) acknowledged the role of historical discrimination in setting up the conditions under which poverty began to accumulate in particular neighborhoods and exacerbating it in his work, he focused on economic shifts and intra-city migration patterns. Much of the work done on this topic supports economic rather than racial segregation as the cause, but both play a role in the generation of concentrated poverty. (see Jargowsky, 1997 and Quillian, 1999 for examples).
Though concentrated poverty was on the rise in the 1970’s and 1980’s, the 1990’s saw the first decrease in these neighborhoods, which was hypothesized as being due to increased economic growth and suburbanization in the U.S. as well as changes in policy related to welfare and housing (Jargowsky, 2003). These trends are detailed in research by Jargowsky (2003) and Kingsley and Pettit (2003), which indicated net decreases in concentrated poverty over the decade (also see Ellen & O’Regan, 2008).

Along with this work, some researchers detected warning signs in these changes and potential consequences of the redistribution of poverty. Ellen & O’Regan (2008), in their study of economic changes in neighborhoods, mentioned that while neighborhoods saw positive changes in economic conditions, they could not confirm whether this was related to population mobility, or actually raising families out of poverty via other means. Additionally, scholars and researchers shared concerns about the increase of concentrated poverty in inner-ring suburbs and the growing population of the poor in moderately poor neighborhoods, both of which could lead to rapid decline in these neighborhoods and the fact that these areas were not equipped to deal with large proportions of poor population (Cooke & Marchant, 2006; Galster, 2005).

Confirming some of these concerns, work done in the early 2000s, as well as in the aftermath of the 2008 financial crisis and recession demonstrated an upward trend in high poverty neighborhoods and the population living in them. Kneebone, Nadeau, & Berube (2011) demonstrated that in the 100 most populous metropolitan areas in the country, both the number of high poverty tracts and the population residing there increased to almost the peak levels of 1990. Work by Jargoswky (2013) on the highest poverty neighborhoods (>40%) also confirmed this trend and suggested that the number of extreme poverty neighborhoods had actually increased beyond the 1990 peak level. Results following the Great Recession further supported
these trends in that over half (55%) of the poor population in the United States lived in high poverty or extreme poverty neighborhoods (>20%; Kneebone & Holmes, 2016).

Another difference from previous decades was the changing nature of poverty neighborhoods, as illustrated by the decentralization and spread of these neighborhoods from urban cores to suburban areas (Jargowsky, 2013; Kneebone & Berube, 2008; Kneebone, Nadeau, & Berube, 2011). Kneebone, Nadeau, & Berube (2011) found that although the absolute share of extreme poverty tracts and poor population resided in central cities, the growth of population in extreme poverty neighborhoods in the suburbs was twice as fast as the central city. The increase in poverty rate incited by the Great Recession was suggested to be responsible for the growth and spread of concentrated poverty to suburban areas, which were hard hit by the housing market crash and subsequent economic downturn (Kneebone & Holmes, 2016). Estimates from 2010-14 indicate that double the number of suburban poor lived in concentrated poverty, which was triple that of 2000 (Kneebone & Holmes, 2016).

Racial Segregation in Urban Neighborhoods

Although Wilson (1987, 2012) has been credited with bringing attention to the pressing spatial inequality of Black Americans living in the inner cities in the 1970s and 1980s, Massey (1990) and Massey and Denton (1993) argued segregation as the primary explanation in generating neighborhood inequality and concentrated poverty. As mentioned in the previous section, Massey and Denton (1993) cite that institutional racism and discrimination, particularly in urban housing markets through practices and policies that prevented Black Americans from choice in neighborhood and housing resulted in racially segregated conditions in urban cities. The authors posit that when racial groups are segregated residentially, economic changes, and particularly downturns, have the most devastating impact on these groups, as they are not
distributed equally across metropolitan areas. In both Massey and Eggers (1990) and Massey and Denton (1993), evidence is produced that demonstrates the key role of racial segregation in the creation of concentrated poverty, and hence, extreme neighborhood inequality by race.

Over the course of history, racial segregation has been the result of both de jure and de facto causes, that is, those that are enforced by law and government policy and those that are influenced by private actors, i.e., individuals, organizations, and businesses (Rothstein 2017). Although it technically violated the constitution, racial segregation imposed by public policy persisted until some level of enforcement was possible with the passage of the Fair Housing Act in 1968 (Rothstein, 2017). This de jure segregation included policies such as the rejection of VA-supported mortgage applications for Black soldiers on account of race and preventing banks from lending government-backed funds to Black families (Rothstein, 2017). De facto causes of segregation include phenomena such as white flight and private individual and business activities such as redlining and real estate steering and covenants.

White flight was the movement of white families from neighborhoods in which Black families moved in, which has been a common phenomenon since the early 20th century (see Frey, 1979; Crowder, 2000; Shertzer & Walsh, 2018). Redlining was when banks did not lend money for mortgages (including those funded by the U.S. government) in city neighborhoods that were predominately Black (see Woods, 2012; Rothstein, 2017; Fishback, Rose, Snowden, & Storrs, 2022). Lastly, real estate steering was when real estate agents steered Black families away from white neighborhoods and vice versa, while restrictive covenants prevented developers and white homeowners from selling to Black families (see Bruce, 1977; Galster, 1990; Gotham, 2000; Jones-Correa, 2000; Galster & Godfrey, 2005). While these are only a few examples, both the
U.S. government and private actors have had a lasting impact on segregation in metropolitan areas which can still be seen today.

Racial segregation has persisted and remains prevalent among cities in the United States (Acs, Pendall, Treskon, & Khare, 2017). Early research demonstrated many detrimental effects of segregation, and the concentrated disadvantage that typically arises from it, on outcomes related to education, employment, and income (Massey, Condron, & Denton, 1987; Massey, Gross & Eggers, 1991). Contemporary research using more sophisticated methods and data have further supported effects of segregation on Black residents who are living in segregated, and more often than not disadvantaged, neighborhoods for a variety of outcomes, including child cognitive ability (Sampson, Sharkey, & Raudenbush, 2008), educational attainment (Quillian, 2014), and upward mobility (Chetty, Hendren, Kline, & Saez, 2014).

Sharkey (2013) has examined exposure to extreme neighborhood poverty as an intergenerational issue, particularly for Black American families. The impetus for this work is the belief that when Black families are “stuck” in the country’s most disadvantaged neighborhoods generation over generation, this disadvantage has a spillover effect into the racial inequality that exists in multiple dimensions of life, such as education, occupation, and income. The primary point is that the concentrated poverty and neighborhood racial stratification described by Wilson (1987, 2012) and Massey and Denton (1993) is inherited by the following generation, which accounts for much of the persistence (growth and expansion) of concentrated poverty seen in more contemporary studies. Ultimately, Sharkey’s (2013) analysis suggests that neighborhood disadvantage is “inherited” due to the institutional barriers that keep Black families in disadvantaged neighborhoods. In fact, those living in these neighborhoods shortly after the Civil Rights Movement, still live in the most disadvantaged neighborhoods today. If a
Black American family was living in a poor neighborhood in 1970, he estimates that it would take one century for to achieve upward contextual mobility, that is, move to a neighborhood with an average income distribution.

**Neighborhood Effects**

From the work on concentrated poverty, naturally, researchers began to wonder how this might affect residents of these neighborhoods. Wilson (1987) originally called these “concentration effects” and suggested that living in a high-poverty neighborhood can influence life trajectories of individuals beyond their personal circumstances. Now called “neighborhood effects”, studies have indicated that various neighborhood characteristics can have an effect on a variety of outcomes, including child and adolescent development and well-being (Leventhal & Brooks-Gunn, 2000), exposure to crime and violence (Sampson, Raudenbush, & Earls, 1997), physical and mental health (Ludwig, Duncan, Gennetian, Katz, Kessler, Kling, & Sabonmatsu, 2013), educational attainment (Leventhal & Brooks-Gunn, 2000), and economic security (Chetty, Hendren, & Katz, 2016).

Early work demonstrated the associations between neighborhood structural characteristics and resident outcomes. One of the first, Shaw and McKay (1942, 1969), found associations between poverty, racial heterogeneity, and residential mobility and rates of juvenile delinquency. Massey, Gross, & Eggers (1991) found relationships between concentrated poverty and racial segregation on joblessness and teenage motherhood. Other studies have found effects of affluent and low-income neighbors or percentage of professional workers on child development and academic achievement outcomes (see Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Crane, 1991; Duncan, Brooks-Gunn, & Klebanov, 1994). While there are many more studies in this area that were published during the explosion of interest in neighborhood
effects, this brief selection demonstrates the far reaching and significant effects of various neighborhood characteristics on life outcomes.

While the association between neighborhood characteristics and individual outcomes has been the entry point into understanding neighborhood effects, more recently, the mechanisms of neighborhood effects have brought researchers closer to explaining how these effects manifest in individual life outcomes. Neighborhood mechanisms are essentially the inner workings of neighborhoods that in turn influence outcomes being tested in previous work, providing more explanatory value and an avenue of intervention. There have been varying descriptions of neighborhood mechanisms that account for neighborhood effects over the years (e.g., see Ellen & Turner, 1997; Sampson, Morenoff, & Gannon-Rowley, 2002; Small & Newman, 2001) ranging from social networks to quality of local services and institutions.

The most recent and detailed list of mechanisms is provided by Galster (2012) and is a set of fifteen plausible mechanisms derived from his review of sociological and epidemiological theory and research. These mechanisms have been outlined in Table 1. The four categories of mechanisms, similar to previous propositions, include social-interactive, environmental, geographic, and institutional (Galster, 2012). Each of these categories of mechanisms contains multiple common explanations that have been explored in the field of neighborhood effects that might account for the relationship commonly found between neighborhood characteristics and resident outcome.

Studies testing these mechanisms have found varying results, with some convergence in terms of explanations for particular outcomes of interest (Sampson, Morenoff, & Gannon-Rowley, 2002). For instance, social networks and social cohesion and control have been shown to influence crime and delinquency in various forms. Researchers have found that acts such as
spending time with neighbors, informal social control, and neighborhood levels of collective 
efficacy have meaningful relationships with lower crime, delinquency, and violence (Bellair, 
1997; Sampson, 1997; Sampson, Raudenbush, & Earls, 1997). Another example is the influence 
of neighborhood physical and social disorder on health and mental health outcomes such as 
feelings of powerlessness, depression, distress, substance use, and self-rated health (see Cutrona, 
Russell, Hessling, Brown, & Murry, 2000; Franzini, Caughy, Spears, & Esquer, 2005; Geis & 
Ross, 1998; Hill & Angel, 2005; Ross, 2000; Ross, Reynolds, & Geis, 2000). Again, there are a 
large number of additional studies in this period of neighborhood effects research, but this 
sample demonstrates some of the common themes in mechanisms prevalent throughout this body 
of work.

Though research on neighborhood effects has changed considerably over the decades, a 
few common points of agreement have been established – 1) there is meaningful variation in 
neighborhoods on a variety of characteristics and outcomes; 2) neighborhoods have some kind of 
effect on resident lives; 3) the mechanisms are still not entirely clear but some have been 
identified. For instance, social-interactive mechanisms seem to be most important for outcomes 
related to crime and delinquency while environmental mechanisms seem to be more related to 
one’s physical and mental health. While there are some exceptions, for applied social science, 
these types of patterns are most meaningful and inform the work being done here. Given this 
plethora of research on neighborhood effects and all that can be learned from detecting the 
patterns throughout it, the question for the applied social scientific side that this study attempts to 
begin to answer is: how are these mechanisms targeted in the context of interventions that seek to 
address housing- and resident-related outcomes.
Table 2.1. Mechanisms of Neighborhood Effects.

<table>
<thead>
<tr>
<th>Type</th>
<th>Mechanism</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social-Interactive</td>
<td>Social Contagion</td>
<td>Changes in behaviors and attitudes as a result of contact with peers in neighborhood</td>
</tr>
<tr>
<td></td>
<td>Collective Socialization</td>
<td>The adherence to neighborhood social norms by residents</td>
</tr>
<tr>
<td></td>
<td>Social Networks</td>
<td>Influence of information and resources that pass through neighborhood networks</td>
</tr>
<tr>
<td></td>
<td>Social Cohesion and Control</td>
<td>Level of social disorder and collective efficacy (Sampson et al., 1997) that can affect residents’ attitudes/beliefs and behavior</td>
</tr>
<tr>
<td></td>
<td>Competition</td>
<td>Groups compete for resources in a neighborhood – access to resources is determined by group securing the resources</td>
</tr>
<tr>
<td></td>
<td>Relative Deprivation</td>
<td>Relative economic success of neighbors generates feelings of dissatisfaction</td>
</tr>
<tr>
<td></td>
<td>Parental Mediation</td>
<td>Parents’ reaction to other neighborhood mechanisms, which affects the child</td>
</tr>
<tr>
<td>Environmental</td>
<td>Exposure to Violence</td>
<td>Victimization or fear of victimization that generate psychological and physical responses that affect functioning</td>
</tr>
<tr>
<td></td>
<td>Physical Surroundings</td>
<td>The effect of decaying built infrastructure of neighborhood on psychological well-being of residents</td>
</tr>
<tr>
<td></td>
<td>Toxic Exposure</td>
<td>Exposure to unhealthy environmental factors</td>
</tr>
<tr>
<td>Geographical</td>
<td>Spatial Mismatch</td>
<td>Inaccessibility of employment opportunities suitable for residents’ skills</td>
</tr>
<tr>
<td></td>
<td>Public Services</td>
<td>Substandard public services in neighborhood limit personal development and educational opportunities</td>
</tr>
<tr>
<td>Institutional</td>
<td>Stigmatization</td>
<td>Stigmatization of residents results in limited opportunities</td>
</tr>
<tr>
<td></td>
<td>Local Institutional Resources</td>
<td>Limited access to high-quality public and non-profit organizations restricts personal development opportunities</td>
</tr>
<tr>
<td></td>
<td>Local Market Actors</td>
<td>The presence of market actors that influence resident behaviors</td>
</tr>
</tbody>
</table>

Adapted from classification by Galster (2012, p. 25-27)
The Community Development Corporation (CDC)

One approach to addressing concentrated poverty and neighborhood effects is community development or “place-based neighborhood development strategies” (Vidal, 1995, p. 173). Community development can be considered a framework in which strategies and approaches to improve place are implemented. Since the major shift in community development strategies from self-directed regeneration to provision of services to community members, community development is a field made up of organizations that play various roles in its implementation. Ferguson and Stoutland (1999) describe a useful typology for organizations involved in community development from voluntary, frontline organizations to larger government entities that provide funding and oversight to such efforts. The typology consists of organizations that are classified as levels 0 through 3. Level zero are the voluntary community organizations and informal networks between residents, level 1 are the frontline organizations that utilize resources to implement services in a neighborhood, level 2 are local funders, policymakers, researchers, and advocates, and level 3 are national funders, policymakers, researchers, and advocates. While each level is interconnected to one another, of particular interest to this project is how frontline organizations impact residents of the neighborhoods they serve.

Perhaps the most salient of frontline organizations under the umbrella of community development are community development corporations (CDCs). CDCs are community-based organizations that are designed to address issues in low-income communities related to neighborhood revitalization and resident well-being (Stoutland, 1999). While CDCs have been defined in multiple ways, the most common criteria for being considered a community development corporation comes from the former National Congress for Community Economic Development: a private, non-profit organization serving a low-income community with a
community-based board and completing at least one project in housing, commercial-industrial development or business enterprise development (Stoutland, 1999). Given this criteria, the three major roles these organizations take on are housing production, rehabilitation, and management, commercial real estate development, and business enterprise development (Schill, 1997; Vidal, 1992). In addition to these major roles, more CDCs have begun expanding to activities such as advocacy, financial services, and education and job training (NCCED, 2005).

The most recent figures suggest there are over 4000 CDCs in the United States and given that the last report on these figures was issued 8 years ago, it is likely that this number has fluctuated, and perhaps even grown (NACEDA, 2010). The existence of this community development infrastructure provides a promising avenue for intervention around issues related to neighborhood poverty and effects. Understanding the ways in which community development organizations’ activities impact residents both tangibly and intangibly is of utmost importance if the well-established infrastructure is to be utilized most effectively. While there is a small body of research focused on community development corporations, most of these studies focus on organizational characteristics and functioning or outputs. These studies are important to understanding what CDCs do, however, another pressing issue is how the outputs generated by CDCs affect residents in their service areas. Provided this effect is positive, this may provide insight into how particular place-based interventions should be prioritized, funded, and implemented.

**Research on Community Development Corporations**

While there is a body of research focused on CDCs, most of these studies focus on output in the form of housing constructed, services provided, or the organizational structure of CDCs. Additionally, most studies in the field are case studies that provide good snapshots of CDCs in
action, but less rigorous evidence of their effects and pathways by which these effects manifest in neighborhoods (Briggs, Mueller, & Sullivan, 1997). Despite these shortcomings, there are several studies that examine the effects of CDCs on neighborhood characteristics and outcomes. The majority of these studies focus on home and property values as an indicator of neighborhood quality, while some also provide insight into how community development corporations influence social dimensions of neighborhoods.

Most of the early studies on CDCs come from community development research groups and the former NCCED and examine the organizational structure of CDCs as well as what CDCs do in terms of their activities and outputs. For instance, Vidal (1992) conducted one of the first major, national studies on community development corporations, which is still widely cited today. This report discussed the history of CDCs, their activities, accomplishments, and financial supports, and what CDCs need to grow and expand their community development activities. NCCED and NACEDA (see NCCED, 2005; NACEDA, 2010 for examples) performed several “censuses” of community development corporations and described CDC organizational characteristics, outputs in housing, commercial real estate, job creation, community building, and funding sources, among other topics. In addition to these descriptive studies, studies that provide evidence of CDC impacts on neighborhoods have also been conducted. Many emphasize home and property values as the outcome of interest. Galster and colleagues (2005) describe home and property values as excellent indicators of neighborhood quality, and hence, an indicator of the success of CDCs working in poor neighborhoods. Lastly, a few studies have also sought to determine CDC effects on intangible outcomes such as housing satisfaction and social capital.

Smith (2003) is one of the first studies that attempts to link CDC service in an area to residential home values. The author examined appreciation rates of residential property values
over a three-year period in Indianapolis, Indiana in CDC-served areas as well as comparison areas outside of the CDC service area boundaries. The focus of the study was on a township within Indianapolis with 12 CDCs operating within its boundaries. The comparison group was made up of all other areas within the township that do not receive CDC services. A hedonic price model, which is considered an appropriate method for determining the value of a durable good by relating prices to attributes that might affect it, was then used to determine appreciate rates (Smith, 2003). Ultimately, the findings suggest that after adjusting for baseline values, appreciation rates were higher for the CDC served areas.

Galster, Levy, Sawyer, Temkin, & Walker (2005) also conducted an analysis of the effect of CDC activities on property values across five sites. The authors chose five exemplary CDCs based on nominations from large organizations that invest in CDC activities and used economic trend analysis to determine changes in property values induced by CDC activities in the area. While there was no comparison group, per se, in this study, the economic trend analysis utilized determines prices and price appreciation rates while controlling for “differences in quality of homes sold and macroeconomic factors” compared to only other low-income neighborhoods (Galster et al., 2005, p. 20). Although there are limitations, this method does allow “precise estimate of how much impact on prices was achieved and whether impact was likely due to chance or not” (Galster et al., 2005, p.20). In at least two of the neighborhoods, strong evidence of CDC impact on home values was produced.

Smith and Havener (2011) is yet another example of a study of CDC impacts on home values. In addition to home values, the authors also did a descriptive comparison of population-level characteristics, such as poverty and unemployment, before and after CDC activity implementation. For the analyses, the authors selected comparison areas both adjacent and
peripheral to the treatment areas served by the CDC being studied. The analyses included 1) a descriptive comparison of target and adjacent/peripheral census block groups as well as application of a calculated rate of change for comparison block groups to determine hypothetical changes to the treatment area if it experienced the same rate of change on key variables as comparison areas, 2) a regression analysis to determine the impact of the CDCs activities on home prices, and 3) comparison of value for CDC-produced housing and other housing that was resold by owners. For the first component of the analysis, the authors found that while the entire area was declining, the treatment area was declining slower than the peripheral comparison, however, results were mixed for comparison to the adjacent area. For comparison of home values, results from the second component of the analysis indicated that appreciate rates in the treatment area were greater than those in the comparison areas. Finally, the study found that CDC-produced homes that were resold retained value and appreciated over time as well as raised the median home price in the immediate area.

In addition to these promising findings on tangible aspects of neighborhoods, Briggs, Mueller, & Sullivan (1997) conducted an extensive study on ways in which CDC activities impact intangible dimensions of neighborhoods such as housing satisfaction, public safety, and social capital. The study utilized both random-sample surveys and qualitative fieldwork at three accomplished CDCs. The surveys were also utilized in a comparison area without CDCs, and the qualitative fieldwork was used to further explore the survey results.

For housing, the study found that most CDC-produced housing residents were overall satisfied with their units and viewed their current living situation as a step up from previous living situations. It also described the complicated role of tenant associations, tenant screening, and building rules and enforcement in affecting resident behaviors and feelings. For public safety
outcomes, the study found mixed results across the sites with some benefiting residents in terms of actual victimization and others in their perception of safety, at times depending on the effort invested in anticrime activities. Finally, for elements of community building, i.e., physical conditions, social service support, resident empowerment, and social capital, CDCs succeeded in improving physical conditions, access to social services, building casual ties between residents, and the belief that neighbors would intervene on behalf of them, but had mixed or no effects on other dimensions of empowering residents and neighboring.

**Building on Previous Work**

There are two ways in which this study builds upon previous work both quantitatively and qualitatively. In the quantitative studies that utilize comparison groups, the procedures for choosing the comparison groups are based on geography rather than approaches like propensity score analysis, which is a set of statistical strategies that allow researchers to estimate treatment effects in non-experimental studies (Guo & Fraser, 2015). In this study, the observation is a census tract, and the “treatment” effect is the effect of the CDC. By resampling and creating a balanced sample, a more rigorous estimate of the association between being in a CDC service area and housing- and person-related outcomes can be achieved. Additionally, in these studies, the spatial nature of CDC work and the potential for spillover effects is not addressed. Dealing with spatial autocorrelation, or the tendency for spatial locations close to one another to be correlated in most, if not all, variables of importance, in these studies could greatly improve the evidence. Any mention of spatial clustering is typically absent in this work, and the current study is conducted on the basis that studying neighborhood or census tracts necessitates accounting for spatial autocorrelation. Lastly, although Smith & Havener (2011) do include some descriptive analyses of population-level characteristics, utilizing linear and spatial lag models for the
association between CDCs and indicators of neighborhood and resident well-being such as poverty, unemployment, home ownership, and vacancies provides a more rigorous look at these relationships.

Secondly, understanding the mechanisms by which any statistical associations arise is crucial to both practice and policymaking in community development. While Briggs, Mueller, & Sullivan (1997) provide a critical step in that direction, the extensive work done on the mechanisms of neighborhood effects provide a framework by which to consider how CDC activities influence neighborhood mechanisms, and subsequently, neighborhood- and population-level outcomes. Indeed, Briggs, Mueller, & Sullivan (1997) themselves call for more research on social processes occurring within CDC housing, although in this study, this is extended to the neighborhood as well. Together, this study attempt to improve on the approaches to providing evidence of associations between housing- and person-related outcomes as well as mechanisms by which they are influenced.

**Connecting Neighborhood Effects and Community Development**

While research exists on both neighborhood effects and community development, the connections between these two have remained tenuous. Elucidating the connections between the science of neighborhood effects and community development activities in the United States is paramount to designing and implementing the most effective and efficient community development strategies as is the goal of this study. Understanding these linkages more clearly will allow practitioners and policymakers to envision a path forward for community development and the best practices in doing so.

While there are a number of mechanisms, this study focuses specifically on social contagion, collective socialization, social networks, collective efficacy, physical surroundings,
spatial mismatch, public services, stigmatization, local institutional resources, and local market actors. Each of these has the potential to operate as intervening variables between community development organization activities and resident outcomes. For instance, by working directly with residents, they may create norms around organizing for particular purposes, such as protesting displacement or advocating for public amenities in a neighborhood, and this may eventually reach a critical mass of residents as more and more residents come together (i.e., collective socialization and social contagion). In another way, community development organizations may improve housing stock or commercial real estate in a neighborhood, which in turn, brings greater job opportunities and amenities to residents (i.e., physical surroundings, spatial mismatch, and local institutional resources and market actors).

These two examples are just a couple of myriad possibilities on the ground for CDCs to affect neighborhood change both in terms of housing and person-related outcomes, and further examples based on the qualitative work conducted in this study are presented in Chapter 5.

Altogether, this study attempts to identify critical points of intervention on neighborhood mechanisms that could help define the work done by community development organizations, and demonstrate a clear path between community development and positive resident outcomes.
Chapter 3: Theoretical Framework and Methods

Though there exists much background work on concentrated poverty, neighborhood effects, and community development, connections between these bodies of work are not always explicitly made. While simple, a theoretical framework is provided in this chapter and the study methods is outlined.

Theoretical Rationales for CDCs and Neighborhood Mechanisms

Although some work has been done on this (see e.g. Briggs, Mueller, & Sullivan, 1997), the mechanisms affected by the work of CDCs remains unclear. Furthermore, with advances in theory around neighborhood mechanisms, efforts to connect the work of CDCs and these mechanisms can reveal the pathways by which CDCs impact the lives of residents. In addition to better understanding the mechanisms impacted by the core and tangential work of CDCs, this could also illuminate how they impact some of the commonly measured outputs, such as employment, income, and vacancies. Given that theorizing of community development and neighborhood mechanisms has not been thoroughly undertaken, particularly since Galster’s (2012) comprehensive list of neighborhood mechanisms, and the exploratory nature of the study at hand, I will provide plausible rationales for how the work of CDCs might impact established mechanisms of neighborhood effects. These rationales will allow me to develop middle-range explanations for how community development affects population and neighborhood outcomes via neighborhood mechanisms based on the qualitative component of the study.

Social contagion and collective socialization

The neighborhood mechanism of social contagion is characterized as changes in behaviors and attitudes as a result of contact with peers in neighborhood, while collective socialization refers to adherence to neighborhood social norms by residents. While social
contagion has been used in reference to negative behaviors (see e.g., Case & Katz, 1991), it can also be used to understand increases in positive behaviors. It is also plausible that social contagion and collective socialization work in tandem. Drawing from the previous chapter, work done by CDCs in conjunction with neighborhood residents might generate norms around resident engagement and participation. These norms may then generate a critical mass of residents that engage with CDC activities, and perhaps, other relevant, local organizing efforts, resulting in a “spreading” of these behaviors (i.e. social contagion). While the context may be different, perhaps the aspect of CDC activities that are important here is how CDCs engage residents in various elements of their work. Indeed, Galster and colleagues (2005) found that a component of particular CDCs’ successes came from engaging residents in their work, and that this in turn encouraged sustained resident participation in many forms.

Social networks and collective efficacy

Social networks and collective efficacy have been demonstrated to be important mechanisms on outcomes such as crime and employment/income (Elliot, 1999; Sampson, Raudenbush, & Earls, 1997). Social networks are the networks formed within neighborhoods through which information and resources flow (Galster, 2012). Collective efficacy is a well-defined and studied construct that combines social control and cohesion and describes the propensity for neighbors to intervene on behalf of the common good of the neighborhood (Sampson, Raudenbush, & Earls, 1997). These two elements of neighborhoods are important to the well-being of residents in multiple dimensions, and it is plausible that the work of CDCs can have effects on them. Similar to collective socialization and contagion, CDC’s engagement of residents in activities or hosting of community events could be a primary driver of connections between neighbors and feelings of collective efficacy. For instance, neighborhoods in which
CDCs are very active in creating opportunities for neighbors to meet each other could see formation of fuller social networks among residents as well as feelings that neighbors will intervene on behalf of one another. These neighborhood changes could then lead to major benefits for residents and the neighborhood in the form of job networks and neighborhood safety. In addition to social networks between residents, CDCs could be an organization which has social networks itself and connected residents to its extensive networks of social service and government agencies as described by Small (2009).

**Physical surroundings and well-being**

Physical surroundings as a mechanism is more straightforward in that much of the core programming of CDCs revolves around housing construction and rehabilitation. Physical surroundings refer to the effects of the deterioration of neighborhood buildings on resident health and mental health in particular (Galster, 2012). CDCs can potentially affect resident well-being both directly and indirectly via improvements to the physical environment of the neighborhood. The outputs of this type of work, in terms of housing units constructed, rehabilitated, and managed, are readily apparent, and this can lead to increases in housed individuals and families as well as individual and family wealth if CDC housing is rent-to-own or purchasable outright. Additionally, as an indirect benefit, when the physical infrastructure of the neighborhood improves, residents could potentially feel less distress due to the reduction of physical disorder (i.e. graffiti, vacant/deteriorating buildings) and perhaps experience increases in neighborhood attachment and pride. Both of these effects could lead to benefits via resident investment in the neighborhood, such as purchasing a home or investing in their current home, being outside and meeting with neighbors to build social cohesion, and spending money at local businesses.
Local market actors and spatial mismatch

Local market actors are businesses and amenities that can influence resident behavior (Galster, 2012). Spatial mismatch, which goes beyond the presence of local market actors, and focuses on the availability of job opportunities, refers to the inaccessibility of job opportunities for residents due to a mismatch of job location and skills (Galster, 2012). While CDCs do work around commercial redevelopment and business enterprise development that would directly impact these mechanisms, CDCs may also play a role in attracting these types of actors and relieving mismatch due to other work such as infrastructure redevelopment or community organizing in the neighborhood. Additionally, the capacity of a CDC may influence the extent to which CDCs can work with and negotiate with market actors to bring them into the neighborhood. These direct and indirect effects on presence of local market actors can then result in neighborhood amenities not previously accessible to residents like restaurants or local gyms which can increase resident investment in the neighborhood as well as health and mental health outcomes. Additionally, as in the case of physical surroundings, increasing the presence of local market actors can also possibly increase feelings of attachment and neighborhood pride, resulting in similar positive outcomes mentioned above. For spatial mismatch, increasing businesses and amenities via local market actors in a neighborhood will remedy some of the disconnect between the location of jobs and residents in the neighborhood.

Social services and institutional resources

Social services and institutional resources refer to the degree to which local public services and organizations (or lack thereof) either enhance or stifle opportunities for personal development (Galster, 2012). While CDCs may enhance the services related to personal development, such as financial services, education, and job training, by providing them to
residents, this is not always possible for CDCs. However, CDCs could certainly influence these indirectly by organizing or assisting resident groups in bringing attention to the lack of these types of services in the neighborhood or applying to receive these types of services through grants or partnerships. Additionally, the work done by CDCs in terms of connecting with outside organizations and local government could pave the way for improvements to public and social service provision and quality of institutions. These mechanisms are similar to the previous one in that it is at least partially reliant on the capacity and access to external resources by the CDC.

**Resident perceptions and stigma**

One thing that is overlooked in many “large-sample tests” is one’s emotional reaction to their neighborhood (Small, 2004, p. 182). These reactions, in turn, likely influence how one invests socially and economically in their neighborhood, their neighborhood networks, and these networks’ effects on neighborhood poverty and other characteristics. In addition to the effects on resident perception of neighborhoods and their subsequent investments, an additional process also takes place. Greater investment on behalf of residents, both tangible and intangible, also likely impacts perception of neighborhoods or stigma from those not living in the neighborhood, which could play a role in whether individuals or developers invest in neighborhoods as well. These types of investments are necessary for “community development” to work and benefit residents in that all of the investment cannot come from a community that is already low-resourced. This phenomenon can be interpreted as two distinct processes that are happening simultaneously – one internal and one external.

The internal process can be described as CDC outputs affecting residents’ perception of their neighborhoods, that is whether they see their neighborhood as something to protect or abandon (see Small, 2004 for example of this process), and subsequently, how residents invest in
their neighborhood both socially and economically. The external process occurs outside of the neighborhood in which internal investments made in a neighborhood influence external perception or stigma that is typically directed toward high poverty neighborhoods. This external perception dictates investments made in the neighborhood both by individuals visiting the neighborhood to shop or eat at a restaurant and developers looking to invest in neighborhood commercial or residential infrastructure.

The Explanatory Role of Neighborhood Mechanisms

These processes together can help explain the impact CDC activities have on residents and how these activities develop internal resources and secure external resources to alleviate poverty and its correlates for residents of disadvantaged neighborhoods. The overarching goal of this theoretical framework is to show how this study connects community development as an organizational field (via CDCs) to programmatic outputs and resident outcomes and explains the mechanisms that are related to CDC activities from direct observation and discussion with CDC staff.

Methods

The current study was broken into two components: a quantitative and qualitative component. I utilized an explanatory sequential design (Creswell, 2009). In this type of design, the qualitative component attempts to add explanatory power to the results of the quantitative component. The quantitative component consisted of data exploration and modeling of the association between being in a community development corporation service area and a variety of census-tract-level outcomes. The qualitative component consisted of ethnographic observations and focus groups with organizational staff. The primary objective of this component of the study
was to establish qualitative evidence of the neighborhood mechanisms that community
development corporations affect.

**Quantitative Phase**

For the quantitative phase, geoprocessing, propensity score matching, traditional linear
models, and spatial lag models were used to determine associations between being in a CDC
service area and selected housing- and person-related outcomes. First, data were geoprocessed to
determine which census tracts in 4 Missouri and Illinois counties were within CDC service areas.
Second, propensity score matching was used to generate a balanced sample on relevant
covariates. Lastly, both traditional linear and spatial lag models were used to estimate the effect
of being within a CDC service area on outcomes while accounting for spatial clustering.

**Sample**

The total sample for this study was 426 census tracts, consisting of all census tracts
within St. Louis city and St. Louis County in Missouri and St. Clair and Madison County in
Illinois. These counties were selected primarily based on data availability and familiarity with
the area. Throughout the design of the study, I worked closely with a local facilitating
organization for CDCs that collected information regarding CDC service areas in these counties
and made it available to me for the purposes of this study. Also, all of these counties have some
level of CDC activity. Samples are reduced following propensity score matching due to using a
1:1 match ratio and inability to match some census tracts (see Chapter 4).
Variables

All variables are taken from the American Community Survey 2012-2017 5-year estimates administered and distributed by the U.S. Census Bureau (2017). The primary outcome variables based on the hypotheses proposed in Aim 1 in this study were median income, unemployment rate, percent vacant housing units, median home value, and median rent. The primary outcome variables based on the hypotheses proposed in Aim 2 are percentage of residents who lived in the same place over the last year, the percentage of housing structures that are over 30 years old, residents’ mean commute time to place of employment, the percentage of households that receive public assistance, and the percentage of owner-occupied housing. These are all measured as continuous variables per U.S. Census data. Additional covariates included in the models are total population, number of housing units, percentage of Black residents, percentage of residents under 18, percentage of residents over 65, percentage of households headed by single mothers, and percentage of residents that are high school graduates or higher. Again, these are all measures as continuous variables per U.S. Census data. Some variables were computed after pulling all data, such as percentage variables, and other variables were divided in 100s or 1000s such as population and median income for ease of model interpretation.

Data Setup

Data setup consisted of a two-step process. The first step was collecting all necessary variables from the U.S. Census Bureau data and the second step was determining which census tracts fell within CDC service areas per the CDC service area map provided by the CDC convening organization. The first step entailed accessing the U.S. Census Bureau API and extracting variables directly from data tables. The R package ‘tidycensus’ was used to pull all variables (Walker, 2022). First, Census variable codes were located in lookup tables for both the
detailed and subject tables via tidycensus, and R package that allows for direct extraction of Census data into “tidy” data frames. Variables were then pulled into two data sets by county from the American Community Survey 2012-2017 5-year estimates via the API with the variable codes, one for the detailed tables (B) and one for the subject tables (S). Once both data sets for each county were complete, all counties were combined into one data set each for detailed and subject table variables. Some percentage variables were then calculated such as percent single-mother headed households by dividing the number of single-mother led households by the total number of households. After all variables were computed and checked, the final data set for Census variables was created by combining all necessary census estimates as well as geography details for all census tracts in the 4 study counties and both types of tables into one data set for analysis.

The second part of the data setup entailed geographically placing all census tracts on a map and overlaying CDC service areas to determine which census tracts were contained in CDC service areas. Census tract shape files were retrieved from the U.S. Census Bureau and the CDC service area shape files were retrieved from the CDC convening organization with whom I worked closely on the design of this study. Using ArcGIS, the CDC service area shape files were overlaid on a base map of the census tract shape files in the four counties. The CDC service area boundaries were provided by the facilitating organization for CDCs in the area that I worked closely with throughout the design of this study. Due to differences in coordinate systems between shape files, prior to selecting census tracts within CDC service areas, all shape files for both census tracts and service areas were re-projected on the same coordinate system – UTM15N. There are several pre-determined coordinate systems that are commonly used in GIS, and the choice of system is largely arbitrary for this kind of work. It is primarily only necessary
that all shape files are projected using the *same* coordinate system for accuracy of boundaries rather than using a *specific* coordinate system.

Data tables were then generated for all census tracts that were contained within a CDC service area. In order to detect census tracts within CDC service areas, only census tracts in which the centroid was contained within the service area were included. While not perfect, this approach was chosen as a middle ground between intersection and containment. The rationale for this approach was that being within a CDC service area was likely to have an effect on census tracts with at least 50% of housing and residents within the service area rather than only touching or being completely within the service area. This approach resulted in three CDCs not having selected census tracts due to covering <50% of a census tract each. These census tracts were then exported and matched with the full data set to generate a dummy variable for “treatment” exposure, 0 for those census tracts that were not contained within a CDC service area and 1 for those that were. This resulted in the final analytic data set that was used to complete the propensity score match and model the effect of being within a CDC service area on the outcomes.

**Data Analysis**

Multiple steps were performed to complete the data analysis for this study. First, cases were propensity score matched to generate a balanced sample on observed and unobserved characteristics. Second, the extent of spatial autocorrelation was examined using Moran’s I test. Lastly, both traditional linear models and spatial lag models were estimated to examine the relationship between being in a CDC and the outcomes specified in each aim.

The first step in data analysis was generating a balanced sample using propensity score matching. In this case, the propensity score is the conditional probability of a tract being in a
CDC service area, that is, the probability of being in a CDC service area conditional on the covariates included in the propensity score matching model. The objective of propensity score matching is to “identify observed covariates affecting selection bias and further specify a functional form of the covariates for the propensity score model” (Guo & Fraser, 2015). To determine the most appropriate model, I performed a two-step procedure developed by Rosenbaum and Rubin (1984, 1985), as described by Guo and Fraser (2015). First, I developed my preferred logistic model to determine propensity scores and matched these scores using a nearest neighbor within caliper approach with a .20 caliper. Although a caliper of .25 is typically a standard starting point for propensity score matching (Guo & Fraser, 2015), I tightened this caliper in order to achieve acceptable balance between groups in my matched sample. Secondly, I conducted bivariate analyses to examine any balance of the data, and if imbalances existed, I planned to respecify my logistic model. I considered standardized mean differences of <.20 between matched covariates evidence of balance. Two propensity score matching models were used – one for housing-related outcomes and one for person-related outcomes. This approach was used because using the same covariates in each propensity score match would have resulted in certain matching covariates being related to both being in a CDC service area and the outcomes depending on whether the outcome was related to housing or residents. The application of this propensity score matching technique is meant to allow the estimation of a ‘treatment effect’, which is a difference between the average outcome of the CDC service areas and the average outcome of non-CDC service areas. The use of the average outcome of the non-CDC service areas allows the estimation of a counterfactual outcome of the CDC service areas, that is, what would have happened had a CDC not served in this area.
Following finding a balanced sample for both housing- and person-related outcomes, descriptive statistics were examined, and bivariate analyses were performed to determine whether significant differences exist between areas within CDC service areas and areas outside CDC service areas. The purpose of these bivariate analyses is to examine differences in outcomes as well as determine the effectiveness of the propensity score matching approach and whether balance issues still exist to control for selection bias in the evaluation of treatment effectiveness. Due to departure from normality as determined by a Shapiro test for all variables except percent owner occupied, Wilcoxon two-sample tests were used throughout to determine significant differences between both outcomes and covariates (except for percent owner occupied, which used the traditional T-test).

To test my hypotheses, I used both traditional linear and spatial autoregressive (SAR; spatial lag) models. These models were also implemented as doubly robust models, that is, covariates from the propensity score matching models were included in the outcome analysis. One of the foremost issues with modeling outcomes of place-based interventions is spillover effects, that is, effects of treatment in one neighborhood may “spill over” to effects of treatment in an adjacent neighborhood (Nichols, 2013). The presence of spillover effects also violates the stable unit treatment value assumption, which is required in the evaluation of treatment effects (Rubin, 1980; Guo & Fraser, 2015). Spatial autoregressive models allowed me to adjust for these spillover effects and isolate the association of the “treatment” with neighborhoods outcomes.

Spatial autocorrelation means that “data from locations near one another in space are more likely to be similar than data form locations remote from one another” (O’Sullivan & Unwin, 2010, p. 34). The issue spatial autocorrelation creates in standard statistical analyses is the violation of assumptions inherent to these types of analyses, specifically independence of observations,
which generates biased and inefficient estimates of treatment effects (O’Sullivan & Unwin, 2010).

To deal with spatial autocorrelation, my SAR models included spatial dependence terms generated via a number of preliminary steps. First, I fit traditional linear models to the data using the same formula that I would use for my SAR models. Following examination of results of the traditional fitted model, I calculated neighbors for each census tract in the data set. I used a “zero-policy” approach in which census tracts that have 0 neighbors were assigned a 0. From this neighbor list, I computed spatial weights for all observations. After generating my spatial weights matrix, I used Moran’s I to determine the extent of spatial autocorrelation for outcomes in the data. Finally, I fit SAR models to each of the traditional linear formulas and compared them to the original linear model’s results.

Spatial weights are required to eventually include spatial dependence terms in the modeling procedure, and can be calculated based on numerous definitions of the spatial relationships (e.g. adjacency, shared edges, meeting at a corner vertex; O’Sullivan & Unwin, 2010). Based on the nature of this study and its emphasis on place-based interventions, queen’s (shared corners) criteria, which is one of a few common criteria to use, were used to generate spatial weights from the neighbor list for all census tracts in each analytic sample. While rook’s criteria for generating spatial weights was also considered, it seemed more likely, practically speaking, that if census tracts shared either borders or corners, it would be cause to consider those census tracts neighbors, rather than if they only shared borders. This also captures neighbors despite the sometimes complex shapes of census tracts.

To measure levels of spatial autocorrelation in the data, I used Moran’s I, which is commonly used for these purposes (O’Sullivan & Unwin, 2010). The equation for Moran’s I
includes a covariance term for census tracts that are adjacent and normalization based on the total sample, the number of adjacent tracts, and range of values in the outcome (O’Sullivan & Unwin, 2010). I examined significance for the Moran’s I test to determine whether spatial autocorrelation was present. I considered Moran’s values of greater than 0.3 or less than -0.3 indicative of strong spatial autocorrelation (Sullivan & Unwin, 2010), the former representing spatial clustering and latter representing spatial uniformity.

The final step of my data analysis procedure consisted of implementing a multivariate analysis that attempted to account for spatial autocorrelation. In order to account for spatial autocorrelation, I used SAR, or spatial lag, models for each model estimated as a traditional linear model (Bivand, Pebesma, & Gómez-Rubio, 2013). The spatial lag model is an econometric model where spatial weights are used on the dependent variable (W*y) on the right-hand side of the equation. This model is primarily used when there is the possibility of spillover effects, as in the case of place-based interventions in particular neighborhoods (Bivand et al., 2013). I examined the estimates and p values of estimates to determine the magnitude and statistical evidence of differences between census tracts within CDC service areas and those that are not. Additionally, I examined the rho parameter and its significance, which indicates the existence of and magnitude of spillover effects. In order to compare the spatial lag models to the traditional linear models, I examined Nagelkerke’s pseudo R-squared values, which indicate how much variation in the outcome is accounted for by the model, and AIC values to determine each model’s fit to the data. Missing data were handled via list-wise deletion and diagnostics for various steps in the data analysis procedure were used throughout.
Qualitative Phase

To establish qualitative evidence in the study, ethnographic observations were conducted over 6 months. Following the observation period, 4 staff focus groups/formal interviews (depending on organization size) across the organizations that participated in the study were conducted that served to pinpoint the neighborhood mechanisms affected by the CDC from the perspective of staff and their work. The total qualitative period lasted a total of 10 months.

Site Selection and Description

There was a total of 4 sites utilized in this study. The approach to site selection sought to maximize heterogeneity in sites by geography, racial and economic makeup of neighborhoods, organization size (quantified by staff), organizational affiliation (faith-based versus non-profit), and organization age. While no formal approach was taken to determine this heterogeneity, the sampling frame taken from a local organization that serves as a convening body for community development corporations provided a variety of possible sites, which enabled meeting the criteria.

Multiple sites were contacted for participation with the goal of securing 4 total sites. These sites were recommended from the facilitating organization for CDCs mentioned previously based on the criteria I requested. The final group of sites, while subject to consent from the organization, provided at least some level of heterogeneity in each of the specified characteristics. The final sample of sites included 1) a non-profit organization covering a broad geography (10+ municipalities) in suburban St. Louis county with over 50 staff members, 2) a faith-based organization in South St. Louis City covering a single geography and some auxiliary geographies with less than 10, but more than 5 staff members, 3) a non-profit organization
covering two primary geographies in North St. Louis City with 2 staff members, and 4) a non-profit, community-association affiliated organization in suburban St. Louis county that covers a single geography with 1 staff member.

Site 1 is a multi-departmental non-profit organization that started in 1975 and focused on housing, specifically. Over time, they began to focus on a number of priorities including housing, education, health, policy, and community engagement. The site currently serves 23 municipalities in St. Louis County and partners closely with the school district (which serves the 23 municipalities). While their primary investment has been in housing and the micro-economy of their service area, their staff provide services that cover a number of basic and complex resident needs. This organization is staffed by over 50 employees.

Site 2 is a faith-based, non-profit organization that worked on housing as a group prior to its formalization as an organization in 2015. The formalization process began as a result of a housing project and a startup grant from a faith-affiliated foundation. Their primary service area is located in the South part of St. Louis city. They also serve auxiliary geographies, both proximal and distant. The core efforts of this organization are housing, community engagement and building connections between residents and between residents and organizations, and building capacity of other faith-based groups to do the same. This organization has several employees included property management, community engagement staff, and construction/maintenance staff.

Site 3 is a non-profit organization that began within another organization as its housing department in 1977. This organization became an independent organization in 2003 and focuses primarily on housing. The current service area includes two adjacent neighborhoods in the North side of the city with a sprinkle of housing in other neighborhoods. While the primary focus of
the organization is housing, they have also provided funding and technical support to a number of community initiatives related to both the physical and social infrastructure of neighborhoods. This organization has two primary staff members, the executive director and the community development coordinator.

Site 4 is a non-profit organization that formalized as an offshoot of a community association. The community association has served the neighborhood since around 1999, and the affiliated community development corporation emerged in 2014. The primary service area is a single large municipality in North St. Louis County. The primary focus of the community development corporation is housing and home repair, however, it also provides resource linkages to community members, engages community members, and serves as the administrative entity for community development for the county because it does not have its own municipal government. This organization has a single employee – the executive director who gets some support from volunteers in the service area.

**Ethnographic Observations**

Ethnographic observations in this study consisted mainly of organization-related meetings, events, and 1-1 time spent with organizational staff throughout their workday. Each Friday, schedules were set for the following week with relevant staff members. At least one observation per week per organization was attempted. Depending on the schedules of the staff members involved, responsiveness of staff, and the general capacity of the organizations, some weeks offered multiple observations and others there were none. Meetings, events, and any 1-1 observations that were directly related to activities carried out by the organization were prioritized. In total, roughly 90 observations were completed, or an average of 23 per organization, or nearly one per week. The organization with one staff member had the least
observations primarily due to scheduling issues (14) and the organization with two staff members had the most (30).

The observations were primarily non-participatory; however, some were voluntarily participatory, such as helping families carry food to their car at a food pantry while interacting with organization staff or volunteering with a community event. Observations typically lasted anywhere from 1-4 hours depending on the activity. As the researcher, I tried to introduce as little intervention as possible to get an authentic view of how organizations made decisions and carried out activities related to their service areas. To accomplish this, I primarily observed without discussion and took field notes during these observation periods. Afterward, it was common that I would follow-up with particular participants to clarify topics they may have mentioned or discussed that I felt were relevant to the study. Field notes were primarily description of the event, but personal notes were also taken that bridged the gap between the events taking place and the study at hand.

Focus Groups/Formal Interviews

The second component of the qualitative phase was the collection of focus group/formal interview data with key staff members at each organization. Due to organization size, two of the organizations’ data were collected with formal interviews and two with focus groups. The participants in these interviews and focus groups varied by organization, in some cases including the executive director, department leads, and client-facing staff members including non-social work staff, such as a property manager who also manned the front area of the CDC and interacted with residents of the service area in one instance.

At Site 1, all department heads attended the focus group – housing, home repair, education, health, policy, financial education, and community engagement. At Site 2, most staff
attended – executive director, community engagement, property managers, accountant, and members of the construction crew. At Site 3, both the executive director and the community development coordinator attended. At Site 4, the single staff member (executive director) was interviewed.

The questions for the focus groups/interviews were predetermined and a focus group/interview guide was used. There were 6 domains covered in the focus groups/interviews. These included 1) history, context, and perception of the neighborhood and CDC, 2) collective socialization and social contagion, 3) networks and collective efficacy, 4) physical infrastructure, 5) market actors and spatial mismatch, and 6) social and public services. Each domain had 3-4 questions for a total of 21 question. Follow-up and probing questions were also used when appropriate. At times, conversation would depart from the guide, but as long as it was relevant to the study, this discussion was recorded and analyzed as data. These interviews/focus groups lasted at minimum 1 hour and at maximum 2 hours.

**Qualitative Data Analysis**

Following data collection, all field observation notes and audio recordings of the focus groups/interviews were transcribed and coded using Nvivo software. After transcription, top-level codes were created that correspond to the broad topics addressed by the study: history and context, services provided, environmental mechanisms, geographical mechanisms, institutional mechanisms, and social-interactive mechanisms. All field observations and focus groups/interviews were reviewed and coded for these topics and then broken down into child codes relevant to specific neighborhood mechanisms. These child codes included physical surroundings, public services, spatial mismatch, institutional resources, market actors, stigmatization, collective socialization, networks (resident-resident, resident-organization, and
organization-organization) and collective efficacy, and social contagion. Lastly, each code was reviewed independently. These data were analyzed for patterns, comparisons, and contrasts between each site. From this “focused coding”, I developed “schemas” (Padgett, 2008) to detail the processes by which CDC activities influence mechanisms and generate outcomes, which make up the primary findings from the qualitative phase. Particular quotes were notated that constitute specific evidence of the process being described. This process was done until saturation was reached in the data.

While approaches to ensuring rigor for qualitative research remains debated in qualitative research (Padgett, 2008), I followed a selection of Padgett’s (2008) six strategies. First, I ensured prolonged engagement, which refers to being in the “field”, in my case, CDCs and their respective neighborhoods. Although my work took place over 10 months, I was within the context of the CDC and community weekly to ensure immersion in my sites and positive relationships between myself and participants. I also used triangulation, comparing my findings to multiple explanations of neighborhood effects related to mechanism, including quantitative evidence related to the effect of CDCs on population- and neighborhood-level outcomes, and the use of both observations and interviews. While I did not use a formal member-checking procedure, during my time at the organizations, I used informal member-checking to ensure understanding and clarity around central issues related to the study.
Chapter 4: Community Development Corporations and Neighborhood Characteristics

This chapter details the results of all steps of the quantitative component of this study detailed in the previous chapter. To summarize the procedures, 1) data were extracted from ACS 2012-2017 5-year estimate data tables distributed by the U.S. Census Bureau, 2) data went through a geoprocessing procedure to determine which census tracts fell within CDC service areas, 3) data were matched on propensity scores estimated for being within a CDC service area on a number of selected covariates, 4) the extent of spatial autocorrelation was determined using Moran’s I, 5) spatial lag models were fit to the data in order to estimate the effect of being within a CDC service area while accounting for spatial clustering in the data.

Study Census Tracts

As mentioned in the previous chapter, data were extracted for census tracts in St. Louis city and St. Louis County in Missouri and St. Clair and Madison County in Illinois. These were selected based data detailing the extent of CDC operation in the larger St. Louis metropolitan area spanning both states. Due to the time the CDC operation data was collected, data from 2012-2017 5-year estimates were used. Although census tracts can change over time, in 2017, there were 426 census tracts between these four counties. Specifically, there were 106 census tracts in St. Louis city, 199 census tracts in St. Louis county, 60 census tracts in St. Clair county, and 61 census tracts in Madison county. St. Louis city and St. Clair County are primarily urban whereas Madison and St. Louis County are primarily suburban.

Out of all 426 census tracts, 96 were at least 50% within a CDC service area and 330 were not. A summary of all characteristics of the census tracts in the study are presented in Table 1 as well as the results of Wilcoxon tests used to detect differences in the two groups. All bivariate test results were significant except for percent under 18 and mean commute, which
provides strong evidence that it is important to balance these variables for the following analysis, justifying the use of propensity score matching. In general, total population, total households, and total housing units were smaller in CDC service areas than other census tracts. The mean percentage of Black population was 59% and is much greater in CDC service areas compared to 24% in other census tracts. The age distribution of CDC service areas compared to other census tracts is roughly the same – 22.8% compared to 21.7% for population under 18, and 12.6% compared to 15.2% for population over 65. The percentage of single-mother headed households in CDC service areas is larger than that in other census tracts by about 10% - 24.1% compared to 14.1%.

Percentage of high-school graduates is slightly lower for CDC service areas (84.1%) than other census tracts (91.5%). The median income for CDC service areas is about $22,000, whereas other census tracts have a median income of about $33,400, while the unemployment rate is slightly higher in CDC service areas (12.5%) than other census tracts (7.2%). Based on median income and unemployment rate, the percentage receiving public assistance in CDC service areas is over double that in other census tracts – 30% compared to 12.6%.

The percentage of vacant structures in CDC service areas is roughly double that of other census tracts – 21.6% and 10.7%, respectively. Average median home value in CDC service areas is $99,600, which is roughly half that of other census tracts at $182,00, whereas average median gross rent in CDC service areas is less than other census tracts - $771 to $954, respectively. The percentage of residents living in their home for at least 1 year as well as mean commute time to place of employment are roughly equivalent between CDC service areas and other census tracts. CDC service areas have a slightly larger share of structures over 30 years old.
<table>
<thead>
<tr>
<th></th>
<th>Not in CDC Service Area (N=330)</th>
<th>CDC Service Area (N=96)</th>
<th>P-value¹</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Population</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>4600 (1900)</td>
<td>3400 (1540)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>4590 [294, 10400]</td>
<td>3150 [862, 7940]</td>
<td></td>
</tr>
<tr>
<td><strong>Total Households</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>1870 (758)</td>
<td>1420 (640)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>1850 [145, 4020]</td>
<td>1290 [300, 3310]</td>
<td></td>
</tr>
<tr>
<td><strong>Total Housing Units</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>2070 (788)</td>
<td>1790 (706)</td>
<td>0.00109</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>1990 [149, 4510]</td>
<td>1680 [620, 3900]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Black</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>24.2 (31.1)</td>
<td>59.3 (32.5)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>9.87 [0, 99.4]</td>
<td>61.5 [1.18, 99.8]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Under 18</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>21.7 (5.58)</td>
<td>22.8 (7.91)</td>
<td>0.143</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>21.7 [1.44, 42.7]</td>
<td>22.9 [3.39, 39.2]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Over 65</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>15.2 (5.07)</td>
<td>12.6 (4.72)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>14.7 [0, 34.4]</td>
<td>12.0 [2.95, 25.7]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Single Mother Households</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>14.1 (10.1)</td>
<td>24.1 (12.1)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>10.5 [0, 53.8]</td>
<td>22.0 [0.285, 54.8]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent High School Graduate or Higher</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>91.5 (7.10)</td>
<td>84.1 (7.94)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>93.9 [57.1, 100]</td>
<td>85.7 [62.0, 97.9]</td>
<td></td>
</tr>
</tbody>
</table>

**Median Income**
<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>Median [Min, Max]</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean (SD)</strong></td>
<td>33400 (11600)</td>
<td>22000 (6820)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Median [Min, Max]</strong></td>
<td>32800 [3980, 79600]</td>
<td>20700 [11700, 40500]</td>
<td></td>
</tr>
<tr>
<td><strong>Unemployment Rate</strong></td>
<td>Mean (SD)</td>
<td>7.17 (6.20)</td>
<td>12.5 (6.30)</td>
</tr>
<tr>
<td></td>
<td>Median [Min, Max]</td>
<td>5.30 [0, 40.8]</td>
<td>12.2 [1.20, 25.1]</td>
</tr>
<tr>
<td><strong>Percent Structures Vacant</strong></td>
<td>Mean (SD)</td>
<td>10.7 (9.64)</td>
<td>21.6 (10.3)</td>
</tr>
<tr>
<td></td>
<td>Median [Min, Max]</td>
<td>7.99 [0, 51.8]</td>
<td>20.3 [4.94, 55.1]</td>
</tr>
<tr>
<td><strong>Median Home Value</strong></td>
<td>Mean (SD)</td>
<td>182000 (122000)</td>
<td>99600 (63700)</td>
</tr>
<tr>
<td></td>
<td>Median [Min, Max]</td>
<td>157000 [34200, 734000]</td>
<td>81700 [23700, 381000]</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>3 (0.9%)</td>
<td>1 (1.0%)</td>
</tr>
<tr>
<td><strong>Median Gross Rent</strong></td>
<td>Mean (SD)</td>
<td>954 (275)</td>
<td>771 (159)</td>
</tr>
<tr>
<td></td>
<td>Median [Min, Max]</td>
<td>893 [288, 2410]</td>
<td>767 [242, 1250]</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>7 (2.1%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td><strong>Percent Same House for 1 Year</strong></td>
<td>Mean (SD)</td>
<td>84.8 (7.81)</td>
<td>82.4 (6.90)</td>
</tr>
<tr>
<td></td>
<td>Median [Min, Max]</td>
<td>86.1 [39.9, 99.2]</td>
<td>82.5 [65.6, 94.8]</td>
</tr>
<tr>
<td><strong>Percent of Structures over 30 years old</strong></td>
<td>Mean (SD)</td>
<td>80.6 (18.9)</td>
<td>89.7 (10.6)</td>
</tr>
<tr>
<td></td>
<td>Median [Min, Max]</td>
<td>88.0 [13.3, 99.6]</td>
<td>92.7 [43.5, 100]</td>
</tr>
<tr>
<td><strong>Mean Commute</strong></td>
<td>Mean (SD)</td>
<td>24.4 (4.06)</td>
<td>25.0 (3.68)</td>
</tr>
<tr>
<td></td>
<td>Median [Min, Max]</td>
<td>24.0 [8.50, 40.2]</td>
<td>24.5 [15.5, 35.4]</td>
</tr>
<tr>
<td><strong>Percent Receiving Public Assistance</strong></td>
<td>Mean (SD)</td>
<td>12.6 (13.0)</td>
<td>30.0 (13.8)</td>
</tr>
<tr>
<td></td>
<td>Median [Min, Max]</td>
<td>8.24 [0, 57.8]</td>
<td>30.9 [2.11, 61.6]</td>
</tr>
<tr>
<td><strong>Percent Owner-Occupied</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

52
than other census tracts, and much fewer houses are owner-occupied compared to other census tracts.

Based on these figures, it is immediately evident that CDC service areas operate in some of the most challenging areas of the city and suburbs, as expected. There are fewer people, fewer dual-parent households, and a smaller housing stock. These census tracts are highly racially segregated, having almost double the percentage Black than other census tracts. Although the difference in single-mother headed households, one of the indicators of neighborhood disadvantage, is not as stark as expected, CDC service areas still contain roughly 10% more single-mother headed households on average than other census tracts.

Economically, although CDC service areas and other census tracts have only a 6% difference in high school graduates or higher, CDC service areas are far worse off than other census tracts, with lower median incomes, greater unemployment rates, and greater shares of families receiving public assistance. It is possible that since high school is used as a cutoff, many residents of other census tracts have college degrees or higher whereas most residents in CDC service areas completed high school without further education, however this is not examined here.

In addition to individual economic circumstances, the housing market is worse off as well, with lower median home values, lower gross median rent, a greater share of older structures, and fewer owner-occupied housing. Although these values tend to point to a poor housing market, it should be noted that having lower gross median rent could be a positive aspect of these neighborhoods. Also, the share of older structures could be related to where CDCs

<table>
<thead>
<tr>
<th>Mean (SD)</th>
<th>66.3 (20.2)</th>
<th>46.0 (14.9)</th>
<th>&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median [Min, Max]</td>
<td>68.8 [1.30, 99.5]</td>
<td>45.6 [12.2, 82.7]</td>
<td></td>
</tr>
</tbody>
</table>

P values were derived from Wilcoxon tests for all variables.
operate – for instance, according to the map of CDC service areas, most CDCs operate in urban compared to suburban areas, the former having many more older structures on average than the latter.

**CDC Service Areas and Census Tracts in Study Counties**

The map of census tracts and CDC service areas is presented in Figure 1. The census tracts are highlighted in blue, whereas the CDC service areas are orange. The census tract layer represents all 426 census tracts that are part of the study. The CDC layer contains service areas for 33 organizations. Prior to generating Figure 1, all census tracts and CDC service areas were re-projected on the same coordinate system to correct for any differences in boundaries from original coordinates. The map (as well as descriptives detailed in the previous section) suggests that out of all census tracts in the four counties, CDC’s serve a relatively small proportion of them. As mentioned, the largest proportion of these are in urban localities, such as St. Louis city and East St. Louis, with some in suburban areas such as Spanish Lake, MO and Alton and Belleville, IL. While these service areas are where the data are drawn from using a centroid-based approach described in methods, three CDCs served less than 50% of a single census tract and were therefore excluded from these data.
Note: The blue polygons are the census tracts within the 4 study counties and the orange polygons are the CDC service areas

**Figure 4.1. Study Census Tracts and CDC areas.**

**Propensity Score Matching**

Based on descriptive statistics, all variables except percent under 18 were unbalanced prior to matching (Absolute Standardized Mean Difference > 0.20; McCaffrey et al., 2013). To generate a more balanced sample, propensity score matching was used. I used two propensity score models – one for housing-related and one for person-related covariates. Each propensity score model includes covariates that are common measures of neighborhood disadvantage, which would theoretically be correlated with the exposure (being in a CDC service area). I used two models to separate covariates that could theoretically be correlated with both the exposure and outcomes as best as possible.
The housing related propensity score model was specified as the following:

\[ y_{\text{cdc}} = a + b_{\text{pop}} + b_{\text{hu}} + b_{\text{black}} + b_{<18} + b_{>65} + b_{\text{sm}} + b_{\text{hs}} + b_{\text{minc}} \]

where:

\[ y_{\text{cdc}} = \text{being within a CDC service area} \]

\[ b_{\text{pop}} = \text{total population} \]
\[ b_{\text{hu}} = \text{total housing units} \]
\[ b_{\text{black}} = \text{percent black} \]
\[ b_{<18} = \text{percent under 18} \]
\[ b_{>65} = \text{percent over 65} \]
\[ b_{\text{sm}} = \text{percent single - mother households} \]
\[ b_{\text{hs}} = \text{percent high school education or more} \]
\[ b_{\text{minc}} = \text{median income} \]

This propensity score model was estimated, and cases were matched using nearest neighbor within caliper (.20 caliper) and a 1:1 matching ratio without replacement. The results of the matching process are presented in Table 2 and the love plot for the before and after absolute standardized mean differences is shown in Figure 2. The match resulted in a total sample of \( n=166 \), with 83 observations in each group. The results of the matching model indicate that all covariates were now balanced within the established threshold for standardized mean difference of 0.2. Based on the results of this matching model, the final sample of \( n=166 \) was used for all models of housing-related outcomes.
Table 4.2. Differences in Housing-related Matching Model Variables after Match

<table>
<thead>
<tr>
<th>Variable</th>
<th>Before Match</th>
<th>After Match</th>
<th>Standardized mean difference (abs.)</th>
<th>Absolute standardized mean difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not in CDC Service Area (N=330)</td>
<td>CDC Service Area (N=96)</td>
<td>Not in CDC Service Area (N=83)</td>
<td>CDC Service Area (N=83)</td>
</tr>
<tr>
<td>Total Population</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>4600 (1900)</td>
<td>3400 (1540)</td>
<td>0.78</td>
<td>3780 (1810)</td>
</tr>
<tr>
<td>Total Housing Units</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>2070 (788)</td>
<td>1790 (706)</td>
<td>0.40</td>
<td>1930 (858)</td>
</tr>
<tr>
<td>Percent Black</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>24.2 (31.1)</td>
<td>59.3 (32.5)</td>
<td>1.08</td>
<td>55.0 (35.8)</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>9.87 [0, 99.4]</td>
<td>61.5 [1.18, 99.8]</td>
<td>60.5 [0, 99.0]</td>
<td>60.3 [1.18, 99.8]</td>
</tr>
<tr>
<td>Percent Under 18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>21.7 (5.58)</td>
<td>22.8 (7.91)</td>
<td>0.14</td>
<td>22.3 (7.52)</td>
</tr>
<tr>
<td>Percent Over 65</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>15.2 (5.07)</td>
<td>12.6 (4.72)</td>
<td>0.55</td>
<td>12.6 (4.16)</td>
</tr>
<tr>
<td>Percent Single Mother Households</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>14.1 (10.1)</td>
<td>24.1 (12.1)</td>
<td>0.83</td>
<td>23.0 (12.0)</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>10.5 [0, 53.8]</td>
<td>22.0 [0.285, 54.8]</td>
<td>21.5 [0, 52.1]</td>
<td>22.1 [0.285, 54.8]</td>
</tr>
<tr>
<td>Percent High School Graduate or Higher</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>91.5 (7.10)</td>
<td>84.1 (7.94)</td>
<td>0.94</td>
<td>85.4 (7.96)</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>93.9 [57.1, 100]</td>
<td>85.7 [62.0, 97.9]</td>
<td>85.7 [57.1, 99.3]</td>
<td>85.9 [62.0, 97.9]</td>
</tr>
</tbody>
</table>

Median Income
Figure 4.2. Covariate Balance for Housing-related Variables
The second propensity score model estimated was for person-related outcomes and was specified as:

\[ y_{cde} = a + b_{pop} + b_{hu} + b_{black} + b_{<18} + b_{>65} + b_{sm} + b_{oo} \]

where:

\[ y_{cde} = \text{being within a CDC service area} \]
\[ b_{pop} = \text{total population} \]
\[ b_{hu} = \text{total housing units} \]
\[ b_{black} = \text{percent black} \]
\[ b_{<18} = \text{percent under 18} \]
\[ b_{>65} = \text{percent over 65} \]
\[ b_{sm} = \text{percent single – mother households} \]
\[ b_{oo} = \text{percent owner – occupied homes} \]

This second propensity score model was estimated, and cases were again matched using nearest neighbor within caliper (.20 caliper) and a 1:1 matching ratio without replacement. The results of the matching process are presented in Table 3 and the love plot for the before and after standardized mean differences is shown in Figure 3. The second match resulted in a total sample of n=170, with 85 observations in each group. The results of the second matching model indicated that all covariates were now balanced within the established threshold for standardized mean difference of 0.2. Based on the results of the second matching model, the final sample of n=170 was used for all models of person-related outcomes.

**Extent of Spatial Autocorrelation**

Prior to estimating models, I examined the extent of spatial autocorrelation of my outcomes. To do this, I used the Moran’s I test, which is commonly used to examine
### Table 4.3. Differences in Person-related Matching Model Variables after Match

<table>
<thead>
<tr>
<th></th>
<th>Before Match</th>
<th>After Match</th>
<th>Standardized mean differences (abs.)</th>
<th>Absolute standardized mean difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not in CDC Service Area (N=330)</td>
<td>CDC Service Area (N=96)</td>
<td>Not in CDC Service Area (N=85)</td>
<td>CDC Service Area (N=85)</td>
</tr>
<tr>
<td><strong>Total Population</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>4600 (1900)</td>
<td>3400 (1540)</td>
<td>0.78 (1670)</td>
<td>3470 (1600)</td>
</tr>
<tr>
<td><strong>Total Housing Units</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>2070 (788)</td>
<td>1790 (706)</td>
<td>0.40 (824)</td>
<td>1820 (718)</td>
</tr>
<tr>
<td><strong>Percent Black</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>24.2 (31.1)</td>
<td>59.3 (32.5)</td>
<td>1.08 (36.1)</td>
<td>57.6 (32.7)</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>9.87 [0, 99.4]</td>
<td>61.5 [1.18, 99.8]</td>
<td>60.5 [0, 99.4]</td>
<td>60.3 [1.18, 99.8]</td>
</tr>
<tr>
<td><strong>Percent Under 18</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>21.7 (5.58)</td>
<td>22.8 (7.91)</td>
<td>0.14 (7.94)</td>
<td>22.8 (7.69)</td>
</tr>
<tr>
<td><strong>Percent Over 65</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>15.2 (5.07)</td>
<td>12.6 (4.72)</td>
<td>0.55 (4.68)</td>
<td>12.7 (4.67)</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>14.7 [0, 34.4]</td>
<td>12.0 [2.95, 25.7]</td>
<td>11.9 [0, 28.7]</td>
<td>12.0 [2.95, 25.7]</td>
</tr>
<tr>
<td><strong>Percent Single Mother Households</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>14.1 (10.1)</td>
<td>24.1 (12.1)</td>
<td>0.83 (13.2)</td>
<td>23.5 (11.6)</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>10.5 [0, 53.8]</td>
<td>22.0 [0.285, 54.8]</td>
<td>22.5 [0, 53.8]</td>
<td>21.2 [0.285, 51.2]</td>
</tr>
<tr>
<td><strong>Percent Owner-Occupied</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>66.3 (20.2)</td>
<td>46.0 (14.9)</td>
<td>1.36 (18.7)</td>
<td>46.8 (15.1)</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>68.8 [1.30, 99.5]</td>
<td>45.6 [12.2, 82.7]</td>
<td>47.4 [1.30, 81.8]</td>
<td>47.2 [12.2, 82.7]</td>
</tr>
</tbody>
</table>
autocorrelation. I considered Moran’s values of greater than 0.3 (clustering) or less than -0.3 (uniformity) indicative of strong autocorrelation (Sullivan & Unwin, 2010). In order to perform Moran’s I tests, it was necessary to generate a neighbor list and spatial weights matrix from the data. While there are multiple methods for generating neighbor lists, I opted to use “queen’s” method, which is also known as “shared corners”. This approach essentially considers polygons neighbors if they touch at any point on their boundary, which makes the most practical sense for the shape of census tracts and conceptual sense for how spillover effects work.

Figure 4 provides a visual representation of the neighbor list for housing-related outcomes. Although not entirely intuitive to read, the denser areas represent places with a greater number of neighbors. The densest areas are on the north-central and north side of St. Louis city,
which makes sense given the density of census tracts and CDC operation in that region of the
city. There were 6 census tracts that had 0 neighbors, as can be viewed by “island” census tracts
in the figure. These are assigned a 0 per the zero-policy applied in counting neighbors and
establishing weights. Figure 5 provides a visual representation of the neighbor list for person-
related outcomes. Similarly, the densest areas are on the north-central and north side of the city.
There were 5 census tracts in these data that had 0 neighbors. These neighbor lists were then
used to generate spatial weights matrices for each set of outcomes and to perform the Moran’s I
tests.

Moran’s I tests were performed for each outcome. The results of these tests are presented
in Table 4. Census tracts with 0 neighbors were excluded from the analysis. The Moran’s tests
for each outcome variable were statistically significant at the p<.001 level. Moran’s I values
ranged from 0.380 to 0.815. These results indicate a large amount of spatial clustering in the
sample for each outcome. The lowest degree of spatial clustering was for median gross rent at
0.380 and the largest degree of spatial clustering was for percent of population receiving public
assistance at 0.815. Based on the results of the Moran’s I tests, resident and housing
characteristics are highly correlated by census tract neighbors, thus, necessitating the use of
models that deal with spatial clustering.
Figure 4.4. Neighborhoods for Housing-related Outcomes

Figure 4.5. Neighborhoods for Person-related Outcomes
Table 4.4. Moran’s I for Outcome Variables

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Moran’s I</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Vacant</td>
<td>0.810</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median Home Value</td>
<td>0.780</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median Gross Rent</td>
<td>0.380</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Percent Housing More than 30 years old</td>
<td>0.679</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Percent Owner-Occupied Housing</td>
<td>0.786</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Mean Commute</td>
<td>0.656</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median Income</td>
<td>0.828</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Unemployment Rate</td>
<td>0.772</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Percent Same House Over 1 Year</td>
<td>0.563</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Percent Receiving Public Assistance</td>
<td>0.815</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Results of Spatial Lag Models

Due to my primary concern being spillover effects of outcomes in neighborhood research, I estimated both traditional linear and spatial lag models to estimate the effect of being in a CDC service area on the target outcomes. Prior to testing my hypotheses with these models, I performed simple bivariate analyses to see whether there were detectable differences in the covariates and outcomes by group. Specifically, for all variables except for percent owner-occupied and percent under 18, I used Wilcoxon two-sample tests due to departure from normality of outcome variables. For percent owner-occupied and percent under 18, I used a standard t-test. The results of these tests are presented in Table 5 for housing-related outcomes and Table 6 for person-related outcomes. The only test that was statistically significant was that for percent on public assistance. The results of this test suggest that on average, census tracts
Table 4.5. Housing-related Covariates and Outcomes by CDC Service Area

<table>
<thead>
<tr>
<th></th>
<th>Not in CDC Service Area (N=83)</th>
<th>CDC Service Area (N=83)</th>
<th>P-value(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Population</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>3780 (1810)</td>
<td>3470 (1580)</td>
<td>0.298</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>3620 [617, 7760]</td>
<td>3170 [862, 7940]</td>
<td></td>
</tr>
<tr>
<td><strong>Total Households</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>1590 (811)</td>
<td>1450 (658)</td>
<td>0.35</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>1420 [232, 3540]</td>
<td>1300 [300, 3310]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Black</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>55.0 (35.8)</td>
<td>58.0 (33.5)</td>
<td>0.469</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>60.5 [0, 99.0]</td>
<td>60.3 [1.18, 99.8]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Under 18</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>22.3 (7.52)</td>
<td>23.2 (8.04)</td>
<td>0.465</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>22.8 [1.44, 42.7]</td>
<td>23.0 [3.39, 39.2]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Over 65</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>12.6 (4.16)</td>
<td>12.6 (4.77)</td>
<td>0.969</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>11.8 [3.53, 27.7]</td>
<td>12.5 [2.95, 25.7]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Single Mother Households</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>23.0 (12.0)</td>
<td>23.9 (12.5)</td>
<td>0.608</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>21.5 [0, 52.1]</td>
<td>22.1 [0.285, 54.8]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent High School Graduate or Higher</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>85.4 (7.96)</td>
<td>84.2 (8.09)</td>
<td>0.381</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>85.7 [57.1, 99.3]</td>
<td>85.9 [62.0, 97.9]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Vacant</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>20.4 (11.3)</td>
<td>20.8 (9.46)</td>
<td>0.434</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>17.8 [2.83, 51.8]</td>
<td>18.8 [4.94, 54.1]</td>
<td></td>
</tr>
<tr>
<td><strong>Median Home Value</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>103000 (72100)</td>
<td>102000 (66000)</td>
<td>0.854</td>
</tr>
</tbody>
</table>
in CDC service areas have a 5% larger share of households receiving public assistance than other census tracts. Another note is that the non-significance of the bivariate tests on covariates also indicates that the propensity-score matching procedure worked as intended and covariates are now balanced between the two groups.

Following examination of bivariate results, I proceeded with traditional linear and spatial lag models. In spatial lag models, the spatial weights generated from the neighbor list described

Table 4.6. Person-related Covariates and Outcomes by CDC Service Area

<table>
<thead>
<tr>
<th></th>
<th>Not in CDC Service Area (N=85)</th>
<th>CDC Service Area (N=85)</th>
<th>P-value¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>78900 [34200, 429000]</td>
<td>82800 [37300, 381000]</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>2 (2.4%)</td>
<td>1 (1.2%)</td>
<td></td>
</tr>
<tr>
<td>Median Gross Rent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>798 (154)</td>
<td>778 (158)</td>
<td>0.512</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>779 [288, 1160]</td>
<td>771 [325, 1250]</td>
<td></td>
</tr>
<tr>
<td>Percent Structures over 30 years old</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>88.9 (13.3)</td>
<td>89.0 (11.1)</td>
<td>0.41</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>94.1 [31.7, 99.6]</td>
<td>91.8 [43.5, 100]</td>
<td></td>
</tr>
<tr>
<td>Percent Owner Occupied</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>47.6 (18.3)</td>
<td>46.1 (15.5)</td>
<td>0.559</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>50.1 [2.85, 86.1]</td>
<td>44.3 [12.2, 82.7]</td>
<td></td>
</tr>
<tr>
<td>Mean Commuting Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>25.4 (5.10)</td>
<td>24.9 (3.47)</td>
<td>0.881</td>
</tr>
<tr>
<td>Median [Min, Max]</td>
<td>24.3 [13.4, 40.2]</td>
<td>24.4 [18.1, 33.0]</td>
<td></td>
</tr>
</tbody>
</table>

¹P values were derived from Wilcoxon tests for all variables except Percent Owner-Occupied and Percent Under 18.
<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>Median [Min, Max]</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3590 (1670)</td>
<td>3310 [1040, 7770]</td>
<td>0.617</td>
</tr>
<tr>
<td></td>
<td>3470 (1600)</td>
<td>3170 [1090, 7940]</td>
<td></td>
</tr>
<tr>
<td><strong>Total Households</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1550 (774)</td>
<td>1420 [308, 4020]</td>
<td>0.52</td>
</tr>
<tr>
<td></td>
<td>1450 (649)</td>
<td>1310 [435, 3310]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Black</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>54.5 (36.1)</td>
<td>60.5 [0, 99.4]</td>
<td>0.515</td>
</tr>
<tr>
<td></td>
<td>57.6 (32.7)</td>
<td>60.3 [1.18, 99.8]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Under 18</strong></td>
<td></td>
<td></td>
<td>0.169</td>
</tr>
<tr>
<td></td>
<td>21.5 (7.94)</td>
<td>20.7 [1.44, 42.7]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>22.8 (7.69)</td>
<td>22.2 [3.39, 37.9]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Over 65</strong></td>
<td></td>
<td></td>
<td>0.993</td>
</tr>
<tr>
<td></td>
<td>12.6 (4.68)</td>
<td>11.9 [0, 28.7]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.7 (4.67)</td>
<td>12.0 [2.95, 25.7]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Single Mother Households</strong></td>
<td></td>
<td></td>
<td>0.404</td>
</tr>
<tr>
<td></td>
<td>22.2 (13.2)</td>
<td>22.5 [0, 53.8]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>23.5 (11.6)</td>
<td>21.2 [0.285, 51.2]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent High School Graduate or Higher</strong></td>
<td></td>
<td></td>
<td>0.0626</td>
</tr>
<tr>
<td></td>
<td>86.9 (8.04)</td>
<td>87.6 [62.3, 100]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>84.8 (7.49)</td>
<td>86.0 [69.5, 96.8]</td>
<td></td>
</tr>
<tr>
<td><strong>Median Income</strong></td>
<td></td>
<td></td>
<td>0.0628</td>
</tr>
<tr>
<td></td>
<td>25200 (9790)</td>
<td>23200 [3980, 53600]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>22200 (6730)</td>
<td>21200 [12800, 37800]</td>
<td></td>
</tr>
<tr>
<td><strong>Unemployment Rate</strong></td>
<td></td>
<td></td>
<td>0.214</td>
</tr>
<tr>
<td></td>
<td>12.1 (9.00)</td>
<td>8.50 [1.80, 40.8]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.5 (6.38)</td>
<td>12.2 [1.20, 25.1]</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Same House for 1 Year</strong></td>
<td></td>
<td></td>
<td>0.743</td>
</tr>
<tr>
<td></td>
<td>81.5 (10.0)</td>
<td>83.4 [39.9, 96.1]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>82.0 (6.89)</td>
<td>82.3 [65.6, 94.8]</td>
<td></td>
</tr>
</tbody>
</table>
The traditional linear models for housing outcomes were specified as:

\[ y_i = a + b_{pop_{100}} + b_{hu} + b_{black} + b_{<18} + b_{>65} + b_{sm} + b_{hs} + b_{min_c1000} \]

Where:

- \( y_i = \text{outcome} \)
- \( b_{pop_{100}} = \text{total population in 100s} \)
- \( b_{hu} = \text{total housing units} \)
- \( b_{black} = \text{percent black} \)
- \( b_{<18} = \text{percent under 18} \)
- \( b_{>65} = \text{percent over 65} \)
- \( b_{sm} = \text{percent single mother households} \)
- \( b_{hs} = \text{percent high school education or more} \)
- \( b_{min_c1000} = \text{median income in 1000s} \)

The traditional linear models for person-related outcomes were specified as:

\[ y_i = a + b_{pop_{100}} + b_{hu} + b_{black} + b_{<18} + b_{>65} + b_{sm} + b_{oo} \]

where:

- \( y_i = \text{outcome} \)
\[ b_{pop} = \text{total population in 100s} \]
\[ b_{hu} = \text{total housing units} \]
\[ b_{black} = \text{percent black} \]
\[ b_{<18} = \text{percent under 18} \]
\[ b_{>65} = \text{percent over 65} \]
\[ b_{sm} = \text{percent single – mother households} \]
\[ b_{oo} = \text{percent owner – occupied homes} \]

The spatial lag models are specified identically to the traditional linear models, however a weighted outcome term \((w \ast y_t)\) is added to the right-hand side. I estimate the traditional linear models in order to compare and discern differences from the spatial lag model, since I know that there is spatial autocorrelation and the traditional models could be biased.

As part of diagnostics, I examined variance inflations factors (VIF), which is a measure of multicollinearity (i.e., a problem due to high correlations among predictor variables), for all models due to it being common that census variables are typically highly correlated with one another. Variables that had issues with multicollinearity as indicated by VIFs greater than 10 were removed from the final models per the recommended strategy. In all models, housing units had a VIF greater than 10 and was removed from the final versions of the models. In the models for median home value, median gross rent, percent housing over 30 years old, and percent owner-occupied, population also had a VIF over 10 and was removed from the final models.

Linearity, heteroskedasticity, and normality of residuals as well as influential values were examined for all models. The only model in which there was a concern with assumptions was the model for structures over 30 years old, in which residuals had a large departure from normality in residuals. I estimated a second model using the log transformation of this outcome; however,
it did not improve normality to an acceptable level. Additionally, although residuals presented as normal, nearly all outcome variables were not normally distributed. Due to the prevalence of skewed outcomes, I conducted a series of “sensitivity” analyses using logged and squared outcome variables (depending on skew) to examine whether results changed between the raw or transformed outcome variables. Consistent with Lumley, Diehr, Emerson, and Chen (2002), which illustrates that reliable results can be achieved from linear models even with extreme departures from normality, results were largely similar in magnitude, direction, and significance, therefore I only present results for the raw outcomes for ease of interpretation and parsimony.

The results of the traditional linear models and spatial lag models for housing related outcome are presented in Tables 7 and 8. All models except for the structures over 30 years old had a good fit to the data, with associated F-values being statistically significant at the <.001 level. Being in a CDC service area was not associated with any of the outcomes according to the traditional linear models. For percent vacant, population, percent Black, and percent with high school education or higher were significantly associated with the outcome. The models suggest increases in population are associated with a decrease in vacancy, an increase in percent Black is associated with an increase in vacancy, and an increase in percent high school graduate or higher is associated with a decrease in vacancy. For median home value, increases in percent under 18
Table 4.7. Results of Traditional Linear Models for Housing-related Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Percent Vacant</th>
<th>Median Home Value</th>
<th>Median Gross Rent</th>
<th>Percent Housing over 30 Years</th>
<th>Percent Owner-Occupied</th>
<th>Mean Commute</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDC (ref=No CDC)</td>
<td>-0.645</td>
<td>2947.670</td>
<td>-19.542</td>
<td>0.291</td>
<td>-1.321</td>
<td>-0.751</td>
</tr>
<tr>
<td></td>
<td>(1.144)</td>
<td>(7826.448)</td>
<td>(21.682)</td>
<td>(1.932)</td>
<td>(1.938)</td>
<td>(0.547)</td>
</tr>
<tr>
<td>Population (100)</td>
<td>-0.158***</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.032</td>
</tr>
<tr>
<td></td>
<td>(0.038)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(0.018)</td>
</tr>
<tr>
<td>Percent Black</td>
<td>0.098***</td>
<td>351.640</td>
<td>-0.124</td>
<td>-0.033</td>
<td>-0.303***</td>
<td>0.028*</td>
</tr>
<tr>
<td></td>
<td>(0.029)</td>
<td>(197.526)</td>
<td>(0.545)</td>
<td>(0.049)</td>
<td>(0.049)</td>
<td>(0.014)</td>
</tr>
<tr>
<td>Percent Under 18</td>
<td>-0.179</td>
<td>-1942.214 *</td>
<td>-3.522</td>
<td>-0.160</td>
<td>0.198</td>
<td>0.059</td>
</tr>
<tr>
<td></td>
<td>(0.119)</td>
<td>(819.361)</td>
<td>(2.227)</td>
<td>(0.199)</td>
<td>(0.199)</td>
<td>(0.057)</td>
</tr>
<tr>
<td>Percent Over 65</td>
<td>-0.043</td>
<td>-2499.268 **</td>
<td>1.305</td>
<td>-0.161</td>
<td>2.264***</td>
<td>0.072</td>
</tr>
<tr>
<td></td>
<td>(0.136)</td>
<td>(948.363)</td>
<td>(2.570)</td>
<td>(0.229)</td>
<td>(0.230)</td>
<td>(0.065)</td>
</tr>
<tr>
<td>Percent Single-Mother</td>
<td>0.094</td>
<td>-1973.020 **</td>
<td>5.628 **</td>
<td>-0.039</td>
<td>0.664***</td>
<td>0.136**</td>
</tr>
<tr>
<td></td>
<td>(0.104)</td>
<td>(729.308)</td>
<td>(1.976)</td>
<td>(0.176)</td>
<td>(0.177)</td>
<td>(0.050)</td>
</tr>
<tr>
<td>Percent High School or Higher</td>
<td>-0.275**</td>
<td>1323.183</td>
<td>1.255</td>
<td>-0.042</td>
<td>0.242</td>
<td>-0.082</td>
</tr>
<tr>
<td></td>
<td>(0.101)</td>
<td>(678.106)</td>
<td>(1.890)</td>
<td>(0.168)</td>
<td>(0.169)</td>
<td>(0.049)</td>
</tr>
<tr>
<td>Median Income (1000)</td>
<td>-0.181</td>
<td>2756.681 **</td>
<td>12.099 ***</td>
<td>-0.184</td>
<td>0.347</td>
<td>0.068</td>
</tr>
<tr>
<td></td>
<td>(0.136)</td>
<td>(998.095)</td>
<td>(2.588)</td>
<td>(0.231)</td>
<td>(0.231)</td>
<td>(0.065)</td>
</tr>
<tr>
<td>N. obs.</td>
<td>166</td>
<td>163</td>
<td>166</td>
<td>166</td>
<td>166</td>
<td>166</td>
</tr>
<tr>
<td>R squared</td>
<td>0.534</td>
<td>0.503</td>
<td>0.245</td>
<td>0.024</td>
<td>0.484</td>
<td>0.390</td>
</tr>
<tr>
<td>F statistic</td>
<td>22.520</td>
<td>22.403</td>
<td>7.309</td>
<td>0.561</td>
<td>21.160</td>
<td>12.564</td>
</tr>
<tr>
<td>P value</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.787</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>AIC</td>
<td>1141.102</td>
<td>3997.223</td>
<td>2118.188</td>
<td>1315.506</td>
<td>1316.494</td>
<td>896.454</td>
</tr>
</tbody>
</table>

*** p < 0.001; ** p < 0.01; * p < 0.05.
Table 4.8. Results of Spatial Lag Models for Housing-related Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Percent Vacant</th>
<th>Median Home Value</th>
<th>Median Gross Rent</th>
<th>Percent Housing over 30 Years</th>
<th>Percent Owner-Occupied</th>
<th>Mean Commute</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDC (ref=No CDC)</td>
<td>-0.920</td>
<td>-3927.337</td>
<td>-16.050</td>
<td>-2.262</td>
<td>-2.978</td>
<td>-0.850</td>
</tr>
<tr>
<td></td>
<td>(1.042)</td>
<td>(7198.993)</td>
<td>(21.317)</td>
<td>(1.619)</td>
<td>(1.754)</td>
<td>(0.521)</td>
</tr>
<tr>
<td>Population (100)</td>
<td>-0.128 ***</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.034</td>
</tr>
<tr>
<td></td>
<td>(0.035)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(0.017)</td>
</tr>
<tr>
<td>Percent Black</td>
<td>0.054</td>
<td>266.201</td>
<td>-0.095</td>
<td>-0.012</td>
<td>-0.242 ***</td>
<td>0.023</td>
</tr>
<tr>
<td></td>
<td>(0.028)</td>
<td>(177.979)</td>
<td>(0.530)</td>
<td>(0.040)</td>
<td>(0.046)</td>
<td>(0.013)</td>
</tr>
<tr>
<td>Percent Under 18</td>
<td>-0.194</td>
<td>-1507.959 *</td>
<td>-3.579</td>
<td>-0.155</td>
<td>0.142</td>
<td>0.064</td>
</tr>
<tr>
<td></td>
<td>(0.109)</td>
<td>(727.492)</td>
<td>(2.168)</td>
<td>(0.164)</td>
<td>(0.179)</td>
<td>(0.054)</td>
</tr>
<tr>
<td>Percent Over 65</td>
<td>-0.120</td>
<td>-1650.339</td>
<td>1.407</td>
<td>-0.216</td>
<td>1.967 ***</td>
<td>0.060</td>
</tr>
<tr>
<td></td>
<td>(0.124)</td>
<td>(849.829)</td>
<td>(2.501)</td>
<td>(0.190)</td>
<td>(0.213)</td>
<td>(0.062)</td>
</tr>
<tr>
<td>Percent Single-Mother</td>
<td>0.111</td>
<td>-1619.372 *</td>
<td>5.644 **</td>
<td>-0.135</td>
<td>0.543 ***</td>
<td>0.124 **</td>
</tr>
<tr>
<td></td>
<td>(0.095)</td>
<td>(661.817)</td>
<td>(1.924)</td>
<td>(0.146)</td>
<td>(0.160)</td>
<td>(0.047)</td>
</tr>
<tr>
<td>Percent High School or Higher</td>
<td>-0.223 *</td>
<td>1211.816 *</td>
<td>1.360</td>
<td>-0.004</td>
<td>0.156</td>
<td>-0.071</td>
</tr>
<tr>
<td></td>
<td>(0.093)</td>
<td>(532.097)</td>
<td>(1.839)</td>
<td>(0.140)</td>
<td>(0.152)</td>
<td>(0.046)</td>
</tr>
<tr>
<td>Median Income (1000)</td>
<td>-0.157</td>
<td>2441.096 **</td>
<td>11.845 ***</td>
<td>-0.076</td>
<td>0.471 *</td>
<td>0.075</td>
</tr>
<tr>
<td></td>
<td>(0.124)</td>
<td>(901.854)</td>
<td>(2.522)</td>
<td>(0.192)</td>
<td>(0.210)</td>
<td>(0.062)</td>
</tr>
<tr>
<td>N. obs.</td>
<td>166</td>
<td>163</td>
<td>166</td>
<td>166</td>
<td>166</td>
<td>166</td>
</tr>
<tr>
<td>R squared (Nagelkerke)</td>
<td>0.592</td>
<td>0.575</td>
<td>0.248</td>
<td>0.300</td>
<td>0.562</td>
<td>0.417</td>
</tr>
<tr>
<td>AIC</td>
<td>1126.072</td>
<td>3978.902</td>
<td>2119.442</td>
<td>1268.102</td>
<td>1295.388</td>
<td>891.761</td>
</tr>
</tbody>
</table>

*** p < 0.001; ** p < 0.01; * p < 0.05.

and percent over 65 were associated with lower home values, whereas increases in median income were associated with higher home values. Similarly, increases in median income resulted in higher median gross rent as well as increases in percent single-mother headed households. For percent owner-occupied, increases in percentage of Black population were associated with a
lower percentage of owner-occupied homes, and increases in percent over 65 and percent of single mother-headed households were associated with higher percentage of owner-occupied homes. Lastly, increases in Black population and single mother-headed households were associated with increases in mean commute times. The R-squared statistics for these models suggested they explained between 24 and 53% of the variation in the outcomes.

When spatial autocorrelation is taken into account, the models largely provide the same significance and direction of estimates, however there are some differences. For percent vacant, percent Black is no longer significantly associated. For median home value, percent over 65 is no longer associated, but percent high school education or higher becomes significantly associated. The model suggests that an increase in percent high school graduate or higher is associated with an increase in median home value. For percent owner-occupied, an increase in median income is now associated with an increase in percent owner-occupied. For mean commute, percent Black is no longer associated. Most of the models improve in terms of variation in the outcome explained. With the exception of median gross rent, models improved by 3-8% variance explained. In addition, all models except for median gross rent improved in fit according to their AICs once spatial autocorrelation was taken into account.

The results of the traditional linear and spatial lag models for the person-related outcomes are presented in tables 9 and 10. All models suggested a good fit to the data with F statistics being significant at the <.001 level. For these models, being in a CDC service area was associated with both median income and percent receiving public assistance, however, in the opposite direction of the hypothesis. For median income, being in a CDC service area was associated with a decrease in median income. For receipt of public assistance, being in a CDC area was associated with an increase in percent receiving public assistance. In addition to the
Table 4.9. Results of Traditional Linear Models for Person-related Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Median Income</th>
<th>Unemployment Rate</th>
<th>Percent Same House Last Year</th>
<th>Percent Public Assistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDC (ref=No CDC)</td>
<td>-2397.545 **</td>
<td>-0.347</td>
<td>-0.331</td>
<td>3.838 **</td>
</tr>
<tr>
<td></td>
<td>(838.544)</td>
<td>(0.842)</td>
<td>(1.002)</td>
<td>(1.290)</td>
</tr>
<tr>
<td>Population (100)</td>
<td>40.846</td>
<td>-0.092 **</td>
<td>-0.087 **</td>
<td>-0.090 *</td>
</tr>
<tr>
<td></td>
<td>(27.761)</td>
<td>(0.028)</td>
<td>(0.033)</td>
<td>(0.043)</td>
</tr>
<tr>
<td>Percent Black</td>
<td>-99.500 ***</td>
<td>0.102 ***</td>
<td>-0.001</td>
<td>0.165 ***</td>
</tr>
<tr>
<td></td>
<td>(23.969)</td>
<td>(0.024)</td>
<td>(0.029)</td>
<td>(0.037)</td>
</tr>
<tr>
<td>Percent Under 18</td>
<td>0.631</td>
<td>0.074</td>
<td>0.248 *</td>
<td>0.141</td>
</tr>
<tr>
<td></td>
<td>(83.178)</td>
<td>(0.084)</td>
<td>(0.099)</td>
<td>(0.128)</td>
</tr>
<tr>
<td>Percent Over 65</td>
<td>-6.636</td>
<td>0.024</td>
<td>0.513 ***</td>
<td>0.051</td>
</tr>
<tr>
<td></td>
<td>(118.372)</td>
<td>(0.119)</td>
<td>(0.141)</td>
<td>(0.182)</td>
</tr>
<tr>
<td>Percent Single-Mother</td>
<td>-249.184 **</td>
<td>0.129</td>
<td>0.077</td>
<td>0.431 ***</td>
</tr>
<tr>
<td></td>
<td>(76.439)</td>
<td>(0.077)</td>
<td>(0.091)</td>
<td>(0.118)</td>
</tr>
<tr>
<td>Percent Owner-Occupied</td>
<td>37.099</td>
<td>0.011</td>
<td>0.250 ***</td>
<td>-0.204 ***</td>
</tr>
<tr>
<td></td>
<td>(32.541)</td>
<td>(0.033)</td>
<td>(0.039)</td>
<td>(0.050)</td>
</tr>
</tbody>
</table>

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N. obs.</td>
<td>170</td>
<td>170</td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td>R squared</td>
<td>0.610</td>
<td>0.528</td>
<td>0.453</td>
<td>0.713</td>
</tr>
<tr>
<td>F statistic</td>
<td>36.125</td>
<td>25.914</td>
<td>19.181</td>
<td>57.403</td>
</tr>
<tr>
<td>P value</td>
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<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>AIC</td>
<td>3416.244</td>
<td>1069.071</td>
<td>1128.163</td>
<td>1213.947</td>
</tr>
</tbody>
</table>

*** p < 0.001; ** p < 0.01; * p < 0.05.

treatment variable of interest, percent Black and percent single mother-headed households were associated with a decrease in median income. For unemployment rate, population was associated with a decrease in unemployment whereas percent Black was associated with an increase in unemployment. For percent in same house over the last year, population was associated with a decrease in percent in the same house over the last year, while percent under 18, percent over 65,
Table 4.10. Results of Spatial Lag Models for Person-related Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Median Income</th>
<th>Unemployment Rate</th>
<th>Percent Same House Last Year</th>
<th>Percent Public Assistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDC (ref=No CDC)</td>
<td>-2402.019 **</td>
<td>-0.539</td>
<td>-0.517</td>
<td>2.876 *</td>
</tr>
<tr>
<td></td>
<td>(782.118)</td>
<td>(0.811)</td>
<td>(0.989)</td>
<td>(1.205)</td>
</tr>
<tr>
<td>Population (100)</td>
<td>26.566</td>
<td>-0.082 **</td>
<td>-0.087 **</td>
<td>-0.077</td>
</tr>
<tr>
<td></td>
<td>(26.248)</td>
<td>(0.027)</td>
<td>(0.032)</td>
<td>(0.040)</td>
</tr>
<tr>
<td>Percent Black</td>
<td>-76.708 **</td>
<td>0.079 **</td>
<td>0.001</td>
<td>0.106 **</td>
</tr>
<tr>
<td></td>
<td>(23.983)</td>
<td>(0.025)</td>
<td>(0.028)</td>
<td>(0.038)</td>
</tr>
<tr>
<td>Percent Under 18</td>
<td>45.014</td>
<td>0.078</td>
<td>0.262 **</td>
<td>0.166</td>
</tr>
<tr>
<td></td>
<td>(79.072)</td>
<td>(0.081)</td>
<td>(0.098)</td>
<td>(0.119)</td>
</tr>
<tr>
<td>Percent Over 65</td>
<td>-18.006</td>
<td>0.013</td>
<td>0.503 ***</td>
<td>0.071</td>
</tr>
<tr>
<td></td>
<td>(125.895)</td>
<td>(0.114)</td>
<td>(0.138)</td>
<td>(0.169)</td>
</tr>
<tr>
<td>Percent Single-Mother</td>
<td>-268.780 ***</td>
<td>0.134</td>
<td>0.063</td>
<td>0.412 ***</td>
</tr>
<tr>
<td></td>
<td>(73.363)</td>
<td>(0.074)</td>
<td>(0.090)</td>
<td>(0.109)</td>
</tr>
<tr>
<td>Percent Owner-Occupied</td>
<td>45.962</td>
<td>0.005</td>
<td>0.249 ***</td>
<td>-0.188 ***</td>
</tr>
<tr>
<td></td>
<td>(32.251)</td>
<td>(0.031)</td>
<td>(0.038)</td>
<td>(0.047)</td>
</tr>
<tr>
<td>N. obs.</td>
<td>170</td>
<td>170</td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td>R squared</td>
<td>0.644</td>
<td>0.541</td>
<td>0.458</td>
<td>0.741</td>
</tr>
<tr>
<td>AIC</td>
<td>3404.696</td>
<td>1067.441</td>
<td>1128.881</td>
<td>1201.272</td>
</tr>
</tbody>
</table>

*** p < 0.001; ** p < 0.01; * p < 0.05.

and percent owner-occupied was associated with an increase in the percent in the same house over the last year. In addition to being in a CDC service area, population and percent owner-occupied were associated with decreases in percent receiving public assistance, whereas percent Black and percent single mother-headed households were associated with increases in percent receiving public assistance. These models explain between 45 and 71% of the variation in outcomes according to the associated R-squared statistics.
For the spatial lag models of person-related outcomes, all results remain the same significance and direction. Again, the spatial lag models improve the variance explained compared to the traditional linear models. Models explained 2 to 3% more variation than their linear counterparts. Similar to the housing-related outcomes, all spatial lag models except percent in the same house over the last year improved the model fit to the data. The percent in same house over the last year remained approximately the same.

**Summary of Results**

In summary, two out of the 10 hypothesis tests performed failed to reject the null hypothesis. In addition, the two hypothesis tests that were able to reject the null, for median income and percent receiving public assistance, indicated an association in the opposite direction of that hypothesized. Although the hypotheses established a priori to the study were not supported by the final models, there is still information that can be gleaned from the results of these models.

While most models resulted in null findings, there are two major takeaways from the series of models tested in this phase of the study. First, based on results of the median income and public assistance models, not surprisingly, the populations of census tracts in which CDCs operate typically face greater economic hardship. When taken together, the fact that there is no significant difference in outcomes such as vacancy, unemployment, and residents living in the same home for the last year possibly suggests that there are additional forces working in these neighborhoods to prop up those who have the most economic hardship.

Additionally, although having a greater percentage of residents on public assistance at a glance simply describes the census tracts CDC operate within, it is possible that residents in CDC neighborhoods are better resourced to access this assistance as well as other non-
profit/social service assistance, though the latter is not measured here. Based on the qualitative work detailed in the following chapter, a large part of the work done by CDCs is connecting residents to both public and non-profit sources of assistance for a variety of needs. In addition to the direct connection, the organizational connections CDCs maintain are critical for delivering necessary aid to those in need within their service areas. While the models in this chapter do not test this theory, the following chapter provides context and a possibility that this could be the case.
Chapter 5: How CDCs Impact Neighborhood Mechanisms

The previous chapter presented the associations between being within a CDC service area and various neighborhood characteristics, demonstrating that census tracts within CDC service areas are subject to greater financial hardship, but have no statistically detectable differences between non-CDC census tracts. Further, it’s possible based on the findings of the qualitative component of this study, that residents are able to access public assistance at a greater rate than those not in CDC service areas. In this chapter, the common themes and schema that emerged through observations and focus groups and interviews with organizational staff are presented to illustrate how CDCs impact neighborhood mechanisms, which perhaps accounts for or adds explanatory value to the results in the previous chapter. All of the mechanisms mentioned in the research questions proposed by this project were observed and/or mentioned in the focus groups/interviews conducted at the end of the observation period to some degree. The mechanisms most impacted by CDCs according to the qualitative analysis were physical surroundings, networks, and institutional resources.

Within physical surroundings, there were 6 sub-categories including property acquisition and development, providing quality rentals and services, working on communal property, property repair and maintenance, and supporting first-time homebuyers detailed in the following section. For networks, there were three types of networks identified: organization to organization, resident to organization, and resident to resident. Finally, for institutional resources, CDCs contributed to family and community-focused resources (similar to social services), community space, and educational programs. In addition to these mechanisms, CDCs also impacted public services in the neighborhood, market actors, spatial mismatch, collective socialization, social influence (contagion), and internal and external stigma. While many of these
mechanisms are inter-related and possibly impacted as “bundles” by a single component of a CDC’s work, these were distinct in how they function in relation to the CDC’s work and within the neighborhood ecosystem.

**Physical Surroundings**

Across every organization, there was unanimous agreement that the physical infrastructure around and that they inhabit impacted residents in a number of ways, including their psychological well-being. One ED described the process of traveling from his current home in an area that has not been subject to consistent disinvestment as the neighborhood in which he was raised and now worked:

> It’s a big impact, even as you drive through the city...The mood changes...Everything changes as you get closer to [a major hub of development in central St. Louis]. The whole feeling, the whole vibe, it’s more uplifting. It’s more depressing when you come back the other way. What it looks like, what it feels like, that definitely has a big impact on how a person perceives things and how they go about their day. Period. It makes a difference.

The rental manager at another organization in reference to vacancy in their property and associated vandalism describes the effect it can have on a community: “if the nice home there with the red door gets a rock thrown through the window, and it’s a beautiful home, and then the community is sad.” Lastly, the executive director at a third organization describes the way housing quality can impact residents:

> If you’re living in a terrible apartment, life is terrible. If your apartment is inexpensive and you can’t pay the utility bill, it’s no longer inexpensive. And if it has lead contamination, now you’ve got bigger problems, Or if you’re going to be displaced because you’re getting into it with your landlord who’s not doing anything and now you’ve got to pull your kid out of school, it’s just incredibly disruptive.
While described in different ways, the conclusion that physical infrastructure in a neighborhood has profound effects on residents’ well-being is clear, which is the impetus for the primary work of many of these CDCs.

Community development corporations impact physical surroundings in a number of ways within the neighborhoods they serve. Their impact on the physical environment of residents can range from their direct work like providing quality rental housing and acquiring property to more indirect methods such as working with non-profit or public entities to impact communal or public property or convening residents to act on infrastructure issues in their neighborhoods. Six major areas of influence were identified in focused coding of the qualitative data. These include: 1) property acquisition/development, 2) providing quality rentals and services, 3) working on communal or public property, 4) property repair and maintenance, 5) supporting first-time homebuyers, and 6) convening community members regarding infrastructure issues. The more direct paths, such as property acquisition and development and providing quality rental homes and services were referenced on a larger scale than indirect or more intangible paths such as supporting first-time homebuyers and convening community members, but each of these themes impacted neighborhoods served by the 4 sites.

**Property Acquisition and Development**

Property acquisition and development, along with provision of quality rentals and services, was the primary or one of the primary activities at all sites except for one. The three sites where this was their primary activity, although varied in their volume of property owned and developed varied, each had a substantial amount of investment into neighborhood property, on the high end owning around 300 apartments or single-family homes. In these three organizations, I was able to observe both the completion of new properties as well as the
acquisition of key properties that had been left vacant or were deteriorating under current ownership.

These acquisitions and development of new properties were part of a key strategy found in each site: to create a critical mass of well-maintained and usable property, whether for residential, commercial, or community use. One ED referred to this as “fixing the market” and others referenced “creating equity for residents” as opposed to speculators and other investors that may not have the community’s best interests in mind absorbing properties in the market.

**Providing Quality Rentals and Services**

An associated component to property acquisition and development is the provision of quality rentals and services. Again, in three of the four sites this was one of the primary services provided to their services areas. In terms of property management, 2 out of the 3 organizations managed their properties in-house and one employed a third-party property manager, which was housed within another community development corporation in the city.

The quality of their services was critical to each organization in their provision of rentals to residents in the neighborhoods. Quality, in this case, refers to both the physical condition of the homes and apartments rented and the customer service provided to renters. In each of these organizations, including the organization that contracts its property management services with a third party, the quality of housing and the way renters are treated are paramount to the provision of these rental services.

In all three organizations, the quality of rental housing itself was explicitly credited with the changes in the neighborhood. At one site, the quality of the housing was anecdotally described as inspiring other residents to better upkeep their properties. At another, the executive director in discussing the renovation of housing, talked about how this could provide some
income diversity to the community as well as influence the local market and economic
development when the area is made more appealing to businesses and potential job providers.
The community development coordinator at a third site lucidly described the process that she
credited to the rental housing: 1) the quality of the housing is the primary draw for new residents,
and 2) because of the quality of the housing, the new residents have a greater sense of attachment
to the neighborhood and develop networks with other residents, and then 3) the strength of those
intangible neighborhood qualities can lead to new economic development in the neighborhood.
While these three examples have slightly different outcomes, they illustrate the impact the
quality of the rental housing itself can have on other residents, the local housing market, and
economic development in the areas they serve.

Secondly, the way rental services are administered, and more specifically, the way renters
are treated and provided with additional resources within that framework was consistently
mentioned across sites that provided a large amount of rental housing. At the largest site, staff
members felt the length of tenancy spoke to the quality of services provided to renters of their
housing. They specifically mentioned that when they expanded their housing resource team,
eviction dropped by around 50%. The other two sites both had instances of describing their rental
housing as incomplete without services and programs for their residents. Lastly, 2 out of the 3
organizations, explicitly mentioned simply treating renters with respect. They both felt as though
non-CDC landlords did not do this and were frequently working against renters, whereas CDCs
bring this quality with them in renting to residents. The one contrast between these organizations
is that the organization that contracted with the third-party to provide property management had
to push harder on staff at the third party to treat residents to their standards, but ultimately, this
still happened despite their challenges.
**Working on Community or Public Property**

While properties designed for residential use are the primary focus of CDCs, they are also instrumental in the development or introduction of community or public property as well. This entails a few different responsibilities: 1) working with other organizations to bring amenities to the neighborhood, 2) working with local government to bring amenities to the neighborhood or improve public property that already exists in the neighborhood such as a local park, and 3) serving as a gatekeeper to developers that want to bring in amenities or community space to a neighborhood. The former responsibilities are active roles, whereas the latter role of serving as gatekeeper is a passive role in which organizations or developers must create some kind of relationship with the CDC in order to introduce their work into the neighborhood. Being directly involved with development of community or public amenities has a tangible effect on the neighborhood, while serving as a gatekeeper is less tangible, but retains the best interests of the community while introducing externally driven development.

Within each organization, there was some level of serving in one of these three capacities, if not all three. At one site, in which there was a rich supply of historical sites, the organization actively partnered with local government and other organizations to maintain or renew these sites for use by the community. This site also served as gatekeeper on other external development, such as the greenways that run throughout the city. Another form of this was observed in the site within an unincorporated part of suburban St. Louis. This organization was the primary entity that interfaced with the county government on behalf of the community since it did not have a municipal government of its own, like many of its suburban peers. This included being the gatekeeper or partner for all external development via both other organizations and the government.
Property Repair and Maintenance

Another minor, but still prevalent component of CDCs’ work included property repair and maintenance. Organizations varied in the type of repairs they offered, which ranged from minor to major (more than $15,000), but each played some role in offering this service to residents. Most sites were the administrators of this program, however there were cases where the organization served as the information provider for the service being provided through other organizations.

Supporting First-time Homebuyers

While the majority of activities carried out by the organizations observed were direct in the sense of the outcomes could be observed in the neighborhoods, these organizations also performed two activities that were indirect. One of these activities is supporting first-time homebuyers. Each of the sites had a goal of supporting homebuyers within their service areas. The ways in which organizations support homebuyers in the sites observed included 1) transitioning current renters to owners and 2) attracting individuals external to the neighborhood to purchasing homes in the neighborhood with the intent to reside there.

There were two primary ways in which organizations were able to transition current renters to home-owners. The first method is a collection of programs that are informational or educational. These include general home-buyer education, one-on-one financial or housing counseling, or assistance rendered while going through the homebuying process. Two of the four sites offered some form of these programs. The second method observed was diversifying housing stock to attract new residents into the neighborhood – specifically at market rates. This method was utilized by the two organizations that did not actively offer informational or educational programs related to homebuying. While the methods are different, the final goal is
the same for each organization in supporting first-time homebuyers either internally or externally.

Convening Community Members

The final way in which CDCs impact the physical infrastructure was via convening community members – specifically about issues related to physical infrastructure. All of the sites in the study participated in at least some degree in creating relationships with community members to impact infrastructure in their neighborhood, and three of these sites actively convened community groups with the explicit aim of influencing the physical surroundings of the neighborhood, either through calling for action from public officials or departments, or participating in collective action to do things like clean-up a local green space or improve homes that were considered eyesores in the neighborhood.

Networks

At all sites, the second most prevalent activity was generating networks. In the traditional sense, these organizations built social networks through which resources and information could flow, but in addition to networks between residents, they equally generated networks between organizations and between residents and organizations. This phenomenon is cited by Small (2009) in which he found that organizational social capital was also a critical part of the social safety net for under-resourced families. The formation of these networks could be considered to be on a continuum of direct to indirect, similar to the impact organizations have on physical surroundings. Organization to organization networks are primarily formed directly based on some kind of mutual need, resident to organization networks are formed both directly and indirectly by the organization and organically as residents recognize the organization as an entity...
that serves needs in the community, and resident to resident networks are almost fully indirect and are formed via community events and convening of community members by organizations.

**Organization to Organization Networks**

Partnerships between organizations was a central theme that emerged through the ethnographic observations. Collaboration with other organizations was a major component of the work done by each site. These collaborations most consistently included 3 types of organizations: other nonprofit organizations, public agencies or government, and informal resident groups. The executive director of one of the sites clearly described these partnerships with a supermarket analogy:

...like if the neighborhood was a supermarket and you’ve got the meat counter, you’ve got the bakery, you’ve got junk food, and all that, one of the things I really sought out as we’ve been doing this work is sort of find that matrix or categories that would be different departments for “neighborhood health”... one of the problems we had about two years ago, when you’re looking at all the problems, and you’re trying to do all of them, you’re dead, you can’t do anything, as opposed to saying I’m a butcher, I can handle the meat counter, and I’m also cross-trained to the point if I need to step out and go to dairy for a minute, I can do that. So that’s kind of been our approach, these are, out of the twelve categories, these are the 4 things we can directly impact, and by directly impacting them, whenever we have an opportunity to bring an employer into a development, now we’re doing a jobs piece, so we have a clear understanding of what’s our role... Or when someone comes and brings an amazing opportunity for what the neighborhood brings, then you’re like I’m sorry I’m a butcher, but you have to have these connections and these relationships organizationally so you can at least take them and give them to the right folks that can use that resource. So, part of that is building these connections, and then we need to you know, coordinate our efforts going forward.

As they put it, certain organizations can directly impact certain categories of “neighborhood health”, whereas the second most important component of working in a neighborhood is being able to call in or refer to the different “departments” (i.e. organizations) in order to meet needs their organization is unable to meet. And the final
phase of that is coordinating efforts between organizations or linking all the departments together.

The first major category of partner organizations were other non-profit organizations including other CDCs. These are primarily formed when there is mutual benefit for organizations as well as meeting a greater need in the community. For instance, one site partnered with a CDC in an adjacent service area along with several other CDCs to capture a larger service area on a large grant with dozens of neighborhood change goals. This partnership allowed multiple organizations to pool resources and capacity as well as have control of ripple effects throughout several adjacent neighborhoods.

At a second site, the CDC was involved in a larger collaborative that served their service area and worked in very close partnership with two of these organizations. The site itself was primarily involved in physical infrastructure development but relied on these other organizations for social infrastructure development – one with older adults and one with younger adults. This essentially created a flow of information and resources specific to priorities of residents in multiple demographics to the organization. These organizations also collaborated on direct projects and community events in the neighborhood such as the revitalization of an important neighborhood landmark and planning of a large-scale community 5k event. Along with these examples, all sites had some form of referral network with other organizations with which they could introduce resident populations back and forth for a variety of needs.

The second type of partnerships formed were with public agencies or local government. These relationships primarily met a mutual need between organizations, but
in some cases, the partnership was primarily to increase a resource (financial, social, informational, etc.) for the organization. One common relationship was between the CDC and public schools in the area. These relationships were formed primarily to provide family and community resources, which is discussed specifically later. For instance, one site’s major initiative was directly tied to the local school district, which provided access to families in the area to quality social services and the resources of the CDC. A second common relationship was between the organizations and different government departments such as the housing authority or code enforcement. At one site, the organization worked directly with the housing authority and its programs to house veterans in their housing both meeting a need for housing among vets and a need for the organization to rent their units. At another site, the organization worked directly with a specific code enforcement officer to address code-related resident needs and concerns in the area.

The final type of partnerships were those between the CDC and resident groups. These groups could serve a number of purposes, including public safety, organizing community events, or the general community groups/associations that host and attend neighborhood meetings. One of the sites was specifically generated via the local community association for the purposes of addressing housing in the area. These relationships were primarily for flow of information from residents to the CDC or for the CDC to provide resources to residents, such as their own organizational networks, space, or personnel.
Resident to Organization Networks

Resident to organization networks are the second type of relationships generated by CDCs. A major theme that arose during discussion with CDC staff was that residents have needs but may not know what resources are available to meet those needs. In response to a question of whether the CDC has a role to provide information to residents and connect them with other organizations for resource flow, one executive director responded, “Yes - information. Whenever we do those kinds of things [events where they host other organizations], we give information, it’s always just information. It’s important, but you have to have the cookies and the forms to sit and talk to people about how important these services are and what they can do for you.” Each of the sites provided some form of networking between residents and their own organizational network.

These were formed typically one of two ways. First, residents were referred directly to a resource network of some kind. For instance, at one of the sites, one of the primary duties of the community coordinator was to connect residents in need to resources that could help with whatever that need may be via their organization-organization network. At another site, one of the community engagement department manager’s main goals was to get information about resources out to community members throughout their service area. The second way was via some sort of resource fair. At each site, at some point throughout the observation period, there was a community resource fair which was at least in part or primarily organized by the CDC in which organizations gathered and residents were able to go and explore resources available in their community. Attendance at these events was very high and served to be an important networking and informational opportunity for residents. These were most popular around August
when children were returning to school, since in most cases having school children is the primary avenue in which residents were able to connect with resources.

**Resident to Resident Networks**

The final type of network generated by CDCs are the resident-resident networks. Although these were rarely observed during the observation period, it was the most discussed topic during the focus groups at the end of the observation period. Although most sites hoped to improve their generation of resident-resident networks, work to do this was already being done by each organization. The resident-resident networks were formed via 3 main roles of the CDC: 1) hosting community events/classes/groups, 2) providing space for community members, and 3) convening of community members around neighborhood issues.

In addition to the resource fairs in which residents were able to meet each other and form resident-resident networks, there were events that did not specifically revolve around introduction to neighborhood resources. One example is a renters’ event hosted by one of the sites. Although resources and information were part of the event, the primary purpose of the event was to provide recreation, food, and opportunity to meet one another for renters of the site’s properties. Another example is a health group that served residents with diabetes. The manager of this group cited the networks built between younger and older adults with diabetes in the community: “I know with the diabetes support group, when you are in that group dynamic, if one person is doing something that you haven’t implemented in your own health journey to manage your condition then you can see different relationships being formed in those groups that helps to prolong peoples’ lives.” Lastly, one of the organizations hosted simple barbeques at their developments to provide an opportunity for residents to get to know one another.
The second major way organizations contributed to the formation of resident-resident networks was by providing space for community members to connect. In many sites, there were spaces that community members could use for a variety of purposes. At all of the sites there were either plans of acquiring property to be used specifically as a community center-type space or provision of community center-type space already. Several organizations had community space in their offices or housing developments. These spaces were used primarily for resident interaction, but there were also services offered via these spaces as well. At one site, a major service offered by the organization was use of space in a historic event space owned by the community association. Community groups as well as other social/recreational groups used this space for meetings, events, and classes, which could organically lead to resident relationships being formed. They also planned to acquire a large “community hub” that would be primarily utilized for community activities.

The last major way organizations provided opportunities for network development was by convening community members around a variety of neighborhood issues. One site specifically convened a number of community coalitions around multiple issues such as physical environment, public safety, neighborhood unity, and policy. At these coalition meetings, it was typical to see people from different parts of the service area exchanging contact information or inviting others to their homes. Another organization, which was closely tied to the community association, convened community members around public safety specifically with their neighborhood watch, generating ties between residents around concern for the safety of their property.
Institutional Resources

There were also a large number of references related to institutional resources provided directly or influenced by the sites in the study. After reviewing discussions about these resources, they were broken down into three categories. These categories were 1) family or community-centered resources, 2) community space, and 3) educational programs. Although these were potentially related the discussion of resources typically fell distinctly into one of these three groups.

Family- and Community-centered Resources

By a large margin, family and community-centered resources which would most commonly be identified as social services were the largest contribution of these organization to institutional resources in the neighborhood. These were provided either directly by the organizations or indirectly via facilitation of these resources to their respective service areas. One organization in particular offered a variety of family and community services to their service area in addition to their property development and management activities. They offered family resources through schools, health support groups, policy and leadership training, and financial and home ownership education services to name a few. While this organization was the most extensive in terms of service provision, other organizations had one of more of these types of resources being provided directly, although sometimes these were limited programs rather than ongoing. These resources also speak to the range of theories of change endorsed by CDCs. For instance, policy and leadership training suggests a resident empowerment, or self-help approach while providing direct support to move residents to homebuying suggests a technical assistance approach. These services indicate that there are many approaches to community change and many are blended within CDCs.
The major indirect method of providing these services to the community was through organizing resource fairs or events. As mentioned in the networks section, these occurred at all sites in the study at some point throughout the observation period. These provided an opportunity for residents to be exposed to a number of resources both in and outside of their neighborhood, and typically offered on-the-spot services or sign-up for services. The most common of these were back-to-school events that helped residents sign up for school, provided access to goods and services like school shoes and haircuts, and gave out school supplies such as backpacks and stationery. There were also standard resource fairs with organizations that provided information from organizations that provided services related to things such as youth jobs and education, outdoor recreation information, child IDs, and free books. Another method was by facilitating services from another single organization. For instance, one organization partnered with a city and county-wide organization that provided access to minor home repairs for seniors and veterans. The community coordinator at another organization provided direct referrals to a number of services through the school system.

Community Space

The second major contribution to institutional resources in a neighborhood is the community space provided by the organizations. As mentioned in the previous section, all organizations either owned or had plans to acquire space to be used specifically for community members. All 4 of the study sites provided some type of community space through their organizations for community use. Two of the four sites had community space within their developments that was used for recreation, programs, and services for residents. Some of the sites also worked internally and with other organizations to develop outside green space or community parks for residents in their service areas.
**Educational Programs**

The final major contribution to institutional resources is educational programs. Like family and community-focused resources, these were provided both directly and facilitated indirectly by the organizations. The majority of these educational programs revolved around homebuyer/home ownership education and financial education. One site in particular had both homebuying/homeowner education as well as one on one financial coaching. Two other sites hosted financial education through a third organization for residents of their neighborhood. One of the study sites also partnered with a local neighborhood educational center to facilitate educational programs from third party organizations for youth involved in their summer programs.

**Public Services, Market Actors, and Spatial Mismatch**

Although the previous three mechanisms were the dominant mechanisms affected by the work of CDCs, CDCs also impacted public services, market actors, and spatial mismatch.

**Public Services**

The impact on public services in neighborhoods served by the study sites was almost entirely advocacy work, that is, the organization worked with public services on behalf of residents. In addition to advocacy work, CDCs also enhanced the capacity for certain public services in some way. The public services impacted by this aspect of CDC work included education, housing and code enforcement, police, political leadership, transit, and public works and sanitation. Many sites worked through local schools to provide services and connect with residents, increasing the resources of families in the service area that had children attending these schools. For housing and code enforcement, sites worked closely with housing authorities to get
new residents housed in their service areas and with code enforcement agencies to deal with problem properties and other issues on behalf of residents. CDCs had a mixed relationship with police in that they worked on behalf of residents to increase the quality of public safety resources, but also were hesitant to involve residents, particularly youth, with the police because of concern for their well-being. For political leadership, at least two of the organizations had training for residents who had aspirations of running for office, and community groups that helped with political advocacy around neighborhood issues. Transit was mentioned at one organization, but this was in the context of pressuring local politicians to work on public transit on behalf of residents in their service area. Lastly, for public works and sanitation, organizations were frequently in touch regarding a variety of neighborhood issues, and some even mentioned that they felt these departments were more responsive to the organizations than individual resident complaints. It is also worth mentioning that these relationships varied depending on whether the organization was in the city or the county. In the county, at one of the county sites, the executive director essentially acted as the mediator between the county government and residents, whereas in the other county site they had to work with multiple local public service departments due to serving multiple municipalities, and their success varied depending on the municipality. In the city, the organizations essentially dealt with one government body and again in more of an advocacy role rather than assuming the responsibilities of these public departments.

**Market Actors and Spatial Mismatch**

For CDC influence on market actors and spatial mismatch, most of the sites mentioned that part of their work had the goal of eventually attracting businesses or other economic development to the area, while some doubled as market actors, and others employed residents for
a variety of work. At one site, the CDC owned market actors in the area – a movie theater, restaurant, and coffee shop. Others also employed residents for things like home repair and maintenance and lawn care and landscaping. Another method was providing resources for business owners in the neighborhood, particularly women- and minority-owned businesses. The remainder of the work was increasing both the tangible and intangible amenities in the neighborhood such as physical infrastructure and resident relationships to strengthen the appeal to entrepreneurs and business owners to invest in the communities in some way. This work both increased access to a variety of amenities for residents and provided jobs in many cases as well.

**Collective Socialization and Social Influence (Contagion)**

The impact of CDCs on networks was by far the most referenced social-interactive neighborhood mechanism, however collective socialization and social contagion were also mentioned by staff of the study sites.

**Collective Socialization**

Collective socialization in the context of the study sites primarily revolved around physical infrastructure in the neighborhood, and even more specifically, individual homes and apartments. This finding is not surprising given that a majority of the work undertaken by CDCs had to do with changing the physical surroundings of residents. At one site, a department manager who attends many community meetings described the shared norms: “I think there’s an expectation that people who are homeowners or that own the property keep up the property because they’re all faced with value and property values within their community.” At the same site, another department manager described how the organization affects these shared norms:
I think whenever we do build homes, we’re setting an example or expectations, and I always tell residents when they call that, if they want to plant flowers in the front yard, then yes, we want you to be comfortable, we want you to make it your own. Just make sure that when you plant those flowers, you maintain those flowers because we do want to be the best on the block. We want to look good.

Another department manager corroborated this experience with the following: “I’ve heard anecdotally when we’ve built new homes there, that other residents have done more upkeep on their own properties as well…”

In addition to physical infrastructure there were also shared norms around public safety. As one organization staff put it, “There definitely [are] like [municipalities] - there’s an expectation that you keep your yard right, someone’s gonna call you if they see something suspicious going on.” At another site, the community coordinator describes some of the ways neighbors watch out for each other around public safety: “I do think that there is a lot of shared responsibility in the neighborhood. There’s a man here that watches the kids as they get off the bus – not so much since it’s been cold. Even when I leave, I’ve made myself familiar with him, so he’ll sit on the porch, and he’ll watch me walk to my car,” and the executive director of the same organization describes these norms as, “You know watching out like crime prevention – if they see something suspicious.”

The one way organizations felt they influenced these shared norms around public safety was the events they host for residents. At least two of the four study sites mentioned events as helping to generate and foster those neighborhood norms. One executive director described that as being the primary purpose of the events they host, “…that’s the purpose of them. They’re to bring people together and get people to look at things a different way.” An executive director at another organization mentioned their
events as well in relation to influencing collective socialization among residents of their properties:

Separately, we have a different relationship with our direct residents, which is something that we’re still wanting to grow into where that’s a place where we can more directly foster community, and I think we’re more on the front end of trying to do that, but by having BBQ’s and having get-together’s and doing that with regularity so that it’s predictable...

Additionally, sites found that the norms and rules generated via collective socialization, while could be neighborhood-wide, typically varied by clusters of homes or other types of dwellings, whether a block, a subdivision, or a smaller type of cluster and were different depending on being short-term or long-term residents. At one site, the executive director describes these clusters: “So I think that the norm is… these clusters of people, they identify with their cluster [subdivision]. A department manager at another organization discusses this as well: “I don’t know that it’s a municipality by municipality – it’s more of a block-by-block thing.” There was also a distinction in renters and homeowners. One organization staff mentioned, “I think, like you said, the homeowners, I think their expectations are stronger than those that are renters. So, the homeowners don’t understand why the renters’ expectations are not the same as theirs.” A more detailed division of homeowners’ and renters’ norms was provided by a community coordinator at another organization, coining an idea of fear-driven or fear-based norms:

I’ll break it up, so the residents who may be homeowners are very close knit, and because they kind of recognize the neighborhood needs a lot of improvement and work and they have stake with owning property, they generally work together... Then if you take all the residents that are renting or maybe transient, under the poverty line, they definitely live in fear, they have fear-driven norms...typically I would say what data says is that if I ask if you want to get to know your neighbor, they would be like, ‘ehhhhh, I don’t know about that, my neighbor is probably crazy. Why would I get to try to know my neighbor?’
These fear-driven or fear-based norms were a contrast from the more neighborly norms expected in a neighborhood and seemed dependent on the status of home-owning versus renting as well as previous experience in neighborhoods depending on whether someone was a short-term or long-term resident.

Social Influence (Contagion)

Social influence, which has historically been called social contagion and typically considered a way negative behavior spreads throughout a neighborhood in the literature, was responsible for positive behavior at the study sites. I have called this social influence rather than social contagion due to the historic interpretation of social contagion. Staff at the sites described social influence in the context of community engagement in general, getting residents involved in politics and policy, home upkeep and repair, and physical health. At one site, community engagement and residents getting involved in politics and policy were described by multiple staff members. One described their work with community engagement throughout their service area, “So yeah, we still have a success rate as far as bringing in those residents as far as CE, and sometimes it’s the department that goes out and builds those relationships. So they see what we’re doing and want to be a part of it.” Another staff member mentioned how this impacted policy and political leadership specifically:

*For example, as the partnership grows and its influence, the group in itself is getting bigger, and so people are being more focused and efficient about policy. We also have a subcommittee called the policy and advocacy council so that includes everything from calling your state reps, senators. So this is a coalition of residents and elected officials that are concerned because they see that policy is a part of the driver of the demise of these particular communities. So yeah, for sure, they are becoming more activated, especially in this political climate. It’s more trendy to be activated right now, but they’re more so interested because the policies that have been enacted in the last 2-3 years have truly impact this area.*
For home upkeep and repair, this process is described as happening for both residents individually and being interested in accessing resources through the organization. One staff member describes their experience witnessing this, “I’ve heard anecdotally when we’ve built new homes there that other residents have done more upkeep on their own properties as well” and another describes a “trickle effect” of accessing home repair services, “Well like [neighborhood], you had a trickle effect in [neighborhood], once one resident got word, it just went down the block because they talk and even though we couldn’t get to everybody, I got a lot of phone calls that I wanna get into the home repair program.”

Lastly, a staff member at an organization described the way in which this social influence effect has impacted health in the service area. While this was an isolated occasion, I felt it was noteworthy relative to the rest of the data being related to more common things like political involvement and home repair and upkeep. The staff member describes how things have changed since implementing the health program:

To the point of the health, when we first started the pilot last year for the community health program in general, we were trying to reach out to people and [get them to] take their health seriously and see that there is a way to take care of it better. Now we’ve got people calling who have pre-diabetes, and although we don’t work with pre-diabetes it just shows us that people are going back to their friends and families and letting them know they enjoy the support group or that ‘this community health worker told me this and now I’m here’, and so eliminating those barriers helps people to see they can do that.

This particular anecdote illustrates how exposure to the community health program lead to people in the community becoming more proactive about their health, and seeking more preventative services instead of treatment.
Stigmatization

The final mechanism affected by the work of CDCs is stigmatization. This mechanism is possibly one of the hardest to glean information from, but surprisingly there was a moderate amount of data that directly referenced stigma, both internally between residents and externally from other areas. In nearly all sites, staff members mentioned that this was an important issue that CDCs need to address.

From an external perception, most of the stigma cited by organizational staff was negative, even in neighborhoods where there was a rich history, such as the neighborhood from which multiple celebrities were born and raised, “I personally think that people don’t know the historic value that the [neighborhood] has. And even with all the famous people out of this neighborhood and the movies that we have, it’s never mentioned that they’re specifically from the [neighborhood]. I think a lot of this history has been lost.” These stigmas primarily revolved around the expected level of crime and poverty, which was not always accurate, and the visible deterioration of infrastructure, although this was typically the result of out-of-state or absent owners unaffiliated with the neighborhood. One organizational member noted about their service area, “I guess the general perception of this area is that it’s pretty bad. You know it’s crime-ridden, it’s poverty-ridden, all houses are run down, they’re old.” This sentiment was echoed by other organizations regarding the external perception of their service areas, even in more mixed income communities, e.g., in one mixed income community, the executive director of the CDC mentioned that the external perception is “not great” and that “the most distressed areas of [neighborhood] are the drivers of the perception.”. Although less common, these stigmas also become internalized at times by residents of the neighborhood and manifest between more well-off community members and more distressed community members, such as homeowners and
renters or long-time residents and new or short-time residents. Much of these internal struggles are tightly tied with the evidence related to networks and collective socialization.

To address external stigma, the primary work of community development corporations are the events they host and the ways they work on the physical infrastructure. As mentioned in the networks section, there are a number of events hosted by the organizations that are meant to build networks, but there are also events that invite residents of other neighborhoods and outside the area to attend and see that the neighborhood is not as “crime-ridden” or impoverished as they might think and that there is value in the neighborhood. One example is a 5k run that is hosted in one of the neighborhoods. The route for this event is strategically mapped out to pass through historic landmarks of the neighborhood to illustrate the value of the community. A majority of the attendees are from outside of the neighborhood. One organization also provided neighborhood tours with a partner organization to those outside the neighborhood, and at one of these tours, which I attended, the majority of attendees were employees of a local company that wanted to get involved in the community. At another organization, volunteers were hosted from across the city and county to work on homes in the neighborhood that were being rehabilitated. In conversation with the executive director of this organization, we coined this practice as “demystifying the city”, meaning that part of the primary purpose of doing this was to dispel preconceived notions about these neighborhoods and reveal their value:

*I think it places some value on the residents, and you know the community, we can say, we wanna show that there’s value here – there should be value in every neighborhood, you know, every block in the world, that’s my view at least, and I guess that’s typically not how things actually play out. Some areas and people get value more than others, I think that if we can do our piece as well, I think that helps sort of recognize, hey they’re working on this, so let’s try to solve some of these other issues.*
While the impact of community development corporations have on the physical infrastructure of neighborhoods has been described in detail earlier in this chapter, staff members also cited this as an approach to addressing stigma of neighborhoods from external and internal sources. One staff member describes their role in this way:

*So, that would be my main function here, to make sure our residents know more and to revitalize the area by bringing residents in and making this area look more attractive. If we get more homeowners in the area, I personally believe the face of the neighborhood, or any neighborhood, any declining neighborhood can quickly revamp itself by just basically owning their property and taking pride in owning their property.*

This speaks to the depth of the staff role, in that even though they are focused on property development, this also helps improve the external perception of the neighborhood, which then can lead to other types of revitalization such as external investment both on a personal and commercial level. This sentiment was observed across multiple organizations throughout the observation period.

**The Interconnectedness and Complexity of Addressing Neighborhood Mechanisms**

To be clear, while much of the various ways in which organization address neighborhood mechanisms in their mission to improve the neighborhood, these organizations are typically perceived as one-dimensional organizations focused on property, as evidenced by the current stock of studies of CDCs. While this is a vital function of CDCs, the evidence presented here shows that their work goes much deeper and impacts a variety of facets of the neighborhood and residents’ lives, some of which may be unexpected from the outside.

For instance, CDCs are hugely impactful on networks in neighborhoods: organization to organization, resident to organization, and resident to resident. The way these organizations improve physical infrastructure is one component of network formation, but there are many more
activities that perhaps go less noticed but contribute to building these networks, such as community events, partnering with community organizations and sharing capacity and resources, and social service-type referrals for residents, or more specifically, renters of CDC-owned property.

In addition to networks, there was also evidence of impacting other domains of their service areas such as community norms, public services delivered via local government, and external perceptions of the neighborhoods, some of which are connected to the main activity of property development, but all of which go toward the mission of improving the neighborhood in a holistic way. Ultimately, the evidence presented in this chapter demonstrates the far-reaching effects of the work of CDCs, and gives a glimpse into how these activities impact neighborhood mechanisms, and while some are connected to their primary activities, others they take on voluntarily to improve the neighborhood in the ways they see best.
Chapter 6: Moving Forward in Neighborhood Intervention Research

The current study provides a first step in connecting neighborhood work and science as described by Burgess in *The City* roughly a century ago. While the science of neighborhoods has made incredible strides since then, moving into intervention and neighborhood development has seen relatively less attention, as described in Chapter 2. The mixed methods used in this study allow a first look at how neighborhoods within CDC service areas fair related to housing and economic conditions and the work CDCs do that could possibly influence these outcomes.

Synthesis of Quantitative and Qualitative Results

While the qualitative and quantitative findings of this study are able to stand alone, synthesizing the two can add additional explanatory power to the study as a whole. To summarize, all but two of the quantitative models were unable to reject the null, and the two that were unable to reject the null provided estimates that were opposite of the hypothesized direction. For the qualitative work, core elements of CDC activities were identified as interacting with nearly every mechanism, the three dominant ones being physical surroundings, networks, and institutional resources.

The first interesting finding is the lack of statistical association between the housing-related outcomes and census tracts in CDC service areas. From the qualitative phase, work done by CDCs on physical infrastructure is by far the core of most organizations. The most common ways in which organizations impacted physical surroundings were property acquisition and development and providing quality rental services. These activities suggests that certain facets of neighborhoods should appear statistically differently in CDC service areas than other census tracts, all other things being equal. However, it was established by the statistical models that economically, CDCs operated in census tracts that were slightly more disadvantaged than those
without CDCs, even when balanced on most observed characteristics that determine the propensity for CDC operation. If additional methods were employed to examine changes over time, it could be that CDCs served as a mechanism of stability for neighborhoods via their work related to physical infrastructure, which would move towards an explanation of why there were no significant differences between CDC service areas and non-CDC service areas.

Additionally, the scale of working on physical infrastructure varied between the four organizations that participated in the study. Two organizations owned large numbers of property and units, whereas a third organization owned a more moderate amount, and the fourth organization, while rehabilitating houses are part of its revenue stream, did not own or rent units to tenants. While this information was only available for the four organizations that participated in the study, it’s likely that based on the 31 organizations represented in the quantitative study, the distribution could resemble these four organizations, or perhaps even have a heavier tail toward owning fewer properties, which could greatly diminish the statistical effect of the average CDC. That being said, it could also be the case that the housing stock in these areas, as mentioned by multiple staff members, is just poorer quality than the comparison census tracts matched by the propensity score model and examining the effect of CDCs on physical infrastructure requires far more nuance that provided in this study.

A second interesting finding, as mentioned in Chapter 4, is that the statistical evidence generated from the models (median income and percent receiving public assistance) seems to support the idea that CDCs operate in areas with greater economic disadvantage than other areas. That being said, there is possibly an alternative explanation for the percent of households receiving public assistance. While this is typically used as a measure of neighborhood disadvantage, when combined with the qualitative results, it’s possible that there are equally as
many households that qualify for public assistance (and other assistance) but struggle to access it in neighborhoods without a CDC presence. This idea is discussed in the literature by Allard (2009) and Small (2009), and described by Small as the paradox of place, that is, some areas where more disadvantaged populations are concentrated are unable to provide the necessary services and aid to these populations. This was a particular concern voiced by researchers when examining the trend of the spread of concentrated poverty to inner ring suburbs and areas with moderate as opposed to extreme poverty (e.g., see Cooke & Marchant, 2006; Galster, 2005).

The primary qualitative finding that lends itself to this interpretation are those for the organizational networks of CDCs, resident to organization networks facilitated by CDCs, and the institutional resources CDCs bring to the neighborhoods they serve. Aside from work on the physical infrastructure in the neighborhood, facilitating resident to organization and maintaining organization to organization networks was the second core part of the work done by CDCs. CDCs primarily collaborated with other non-profit organizations, government agencies, or resident groups. While the quantitative results only speak to the possible connection between CDCs and government agencies, this could be extrapolated to the idea that if CDCs are connecting more residents to public resources, they are likely doing the same when it comes to other types of social services, access to which is difficult for residents in these neighborhoods per focus groups and interviews with CDC staff members. Besides the network maintained and generated by CDCs, the CDCs themselves bring a number of institutional resources to bear on the residents of the communities they serve, such as family and community-oriented resources, community space, and educational programs. Although these activities do not serve as a solution to the underlying issue of poverty, it could certainly mitigate the effects of poverty on a
household that would otherwise have difficulties accessing external assistance and institutional resources.

Overall, CDCs contribute many invaluable services to the neighborhoods they serve, whether that is revealed in the data or not. In addition to the physical surroundings, networks, and institutional resources, CDCs did work that touched on nearly every mechanism laid out by the study at hand. While these could be considered more ancillary services, CDCs did impact local market actors, social services, and spatial mismatch, as well as influencing norms, collective efficacy, and stigma. The most surprising of these findings was the degree to which CDC activities target stigma, which is perhaps one of the most difficult and hard to detect mechanisms of neighborhood effects. While I was unable to test any stigma-related hypotheses with my quantitative investigation, addressing stigma through their work seems to be clearly acknowledged by staff and either directly or indirectly targeted through a variety of activities detailed in Chapter 5.

Comparison with Previous Neighborhood Studies

The findings of this study can also be compared to current neighborhood literature cited in Chapters 1 and 2 as well as the a priori theoretical framework for mechanisms laid out in Chapter 3. In terms of quantitative work, the findings for housing-related outcomes are consistent with the initial findings of work in this area, although methods are slightly different, and rates of decline and baseline values are not examined in this study. The qualitative findings add several new insights into previous work, including early work on neighborhood effects.

The quantitative results of this study that are related to housing value are generally consistent with available research such as those cited in Chapter 2 (Smith 2003, Galster et al., 2005, Smith and Havener, 2011). In at least Smith (2003) and Smith and Havener (2011), there
were null initial findings, however after adjustments of baseline values and examining rate of decline that were not performed here, they did find effects of being in a CDC neighborhood. In Galster et al. (2005), the authors examined CDCs individually, and in 3 out of the 5 neighborhoods they found no effect. The other quantitative findings are difficult to compare to the literature given that I use several outcomes that have not been examined, however, in discussions with experts in the field, the findings are not wholly unexpected given the difficult circumstances of neighborhoods in which CDCs operate. That being said, as mentioned in the previous section, it’s possible that CDCs provide stability to neighborhoods that results in maintaining housing- and person-related outcomes similar to neighborhoods that do not receive CDC support.

The qualitative findings provide new insights into research on both neighborhood mechanisms and CDCs. For CDCs, work is consistent with Briggs, Mueller, & Sullivan (1997) in that CDCs in this study played a critical role in influencing physical conditions of neighborhoods, connecting residents to resources, and building networks between residents. In addition to these established outcomes, CDCs also provided a number of institutional resources such as educational programs and performed work that targeted collective norms and both internal and external stigma in the neighborhoods they served. The latter in particular serves as an interesting and novel case study on its own because these outcomes are largely intangible and difficult to measure, which likely makes them incredibly difficult to influence from a programmatic standpoint. Although difficult, the CDCs recognized these elements of neighborhoods as an important determinant of resident outcomes (as many neighborhood scholars) and targeted them accordingly.
For collective norms, the findings suggested neighbors have shared norms around public safety, which was consistent with current literature on neighborhood mechanisms, however, there were additional findings that suggested CDCs influence collective norms that affect how residents take care of physical infrastructure. This finding is not necessarily surprising but isn’t a dominant theme in the current neighborhood mechanisms literature. Social contagion, or influence as it’s called here, is another mechanism widely discussing in the literature and is typically a mechanism that has been used to explain problematic behaviors in neighborhood such as violence, particularly among youth. In the context of this study, social contagion was actually a mechanism in which positive behaviors spread among residents, and in certain ways, the organizations were responsible for initiating this process.

This study shows that the work of CDCs goes beyond much of what is currently found in the literature both related to housing- and resident-related outcomes and the work performed by CDCs. Although the quantitative investigation does examine outcomes tested in previous work such as home values, it adds additional outcomes that are important to neighborhoods and CDCs such as vacancy, income, and households receiving public assistance. For CDCs in particular, this study provides insight into neighborhood mechanisms specifically, which, to my knowledge, has not been done before. The closest work is that of Briggs, Mueller, & Sullivan (1997), but as of the completion of that study, a more comprehensive understanding of neighborhood mechanisms was not yet developed. Ultimately, the study serves as a jumping pad into a myriad of new possibilities of study in the overlap of the fields of community development and neighborhood mechanisms. In fact, a study that was released this year by the Brookings Institution (Archaya & Morris, 2022), nearly three years after the present study began data collection, cites presence of community organizations as a predictor of “inclusive prosperity”,

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which is the decrease in poverty, increased incomes, increased home values, more small business loans, and more young homeowners while having small to no levels of community displacement. The current study might serve as a starting point to explain why this might be.

**Strengths and Limitations of the Current Study**

The study at hand has a number of strengths and limitations. First and foremost, the mixed methods approach utilized provides not only a data-focused investigation of neighborhood outcomes and CDC work and includes depth to those results by providing long-term observations and focus group/interview data. This serves to give context and add explanatory power to the quantitative results. Although there are a number of improvements that can still be made, the quantitative component of the study adds techniques that build upon and strengthen previous work. I use propensity-score matching, which creates a balanced sample on covariates that are considered imbalanced between neighborhoods in which CDCs operate and those where they do not. This technique creates a more reasonable evaluation of outcomes related to the work of CDCs in the larger context of urban (and suburban) neighborhoods. Additionally, this is the first study that I am aware of in the field that deals with spatial autocorrelation. While there are few similar studies in the field as it is, none of them deal with spatial clustering of outcome variables, which is arguably one of the most important aspects of neighborhoods to account for.

There are also strengths of the qualitative work including prolonged engagement with organizations, blending multiple qualitative methods, and performing that work within the framework of neighborhood mechanisms. The work done with CDCs took place over a period of 10 months, and for the first 6, I was engaged with organizations at least once, if not many more times each week for ethnographic observations and associated communication. These
interactions provided both the observations that served as the study’s qualitative data as well as in-depth conversations related to the role CDCs play in neighborhoods and cities and how staff and leadership think about their work in the context of neighborhood mechanisms. I also blended multiple methods such as ethnographic observation and focus groups/interviews. This allowed for the collection of data without interference for my analysis as well as the thought process of staff and leadership behind many of these observations, which added an additional layer of depth to the data. Finally, the qualitative component was conducted within the framework of neighborhood mechanisms, which provides an important lens through which to view the work of CDCs. It provided more concrete meaning to observations and served to begin building a bridge between neighborhood-level intervention and the science of neighborhoods.

Despite its strengths, there are still many limitations, primarily in the quantitative phase of the study. One major limitation is that the results of the study come from four counties in the St. Louis metropolitan region and cannot be generalized beyond this region as is. Associated with this limitation, the analytic sample is also much smaller than the full sample due to the matching approach. Although this is common with nearest neighbor within caliper matching, it still generates a limitation for investigations in which the sample size is greatly reduced. Variables also showed high levels of departure from normal distributions. While residuals in most cases presented as normally distributed, and Lumley et al. (2002) demonstrate that reliable results can be achieved even when data are extremely non-normal, non-normal distribution of outcomes can still affect results. Although some sensitivity analyses were performed on non-normal outcomes with similar results, newer, more experimental methods of transformation such as inverse-normal, as opposed to logged and squared outcomes used here may yield slightly different results. The study is also cross-sectional, which restricts the ability to make any causal
claims. The data are captured at one point in time, and it cannot speak to changes over time, which can be useful in the context of a study on neighborhoods. The data also come from Census estimates as opposed to data collected by instruments designed specifically to capture various neighborhood mechanisms. This creates a limitation in which some important variables based on the literature that are relevant to selection into study areas used for the propensity score analyses as well as covariates in the outcome analyses could have been omitted from this study. In addition to the different type of data, there are also inherent quality-issues with Census estimates, although every effort is made in this study to mitigate these. For the qualitative component, more time spent in the field would have strengthened the study as well as more formal member-checking after the qualitative data were analyzed.

**Future Research**

Based on this study, there are a number of directions future research can take including novel studies and improving upon the methods used here in similar studies. The natural next step for a study such as this is a larger study of the same type. By utilizing multiple metropolitan areas and engaging a larger number of CDCs, more generalizable and transferable results can be achieved. A subsequent study could also examine changes over time, which would add greater context to and align appropriately with the work CDCs do. In addition to larger-scale and longer timeline studies, instruments can be used and/or developed that directly measure neighborhood mechanisms rather than relying on publicly available data such as census estimates. Data quality would be more tightly controlled and quantitative results would speak more directly to neighborhood mechanisms rather than proxy for them.

In addition to data quality overall, additional variables could include other spatial context and characteristics, such as proximity to a major education or medical facility, which is
commonly tied to neighborhood investment. Although tracts may be balanced on common measures of disadvantage, it is possible that those in closer proximity to large investment areas could be responsible for the differences detected in the median income and public assistance model results. While beyond the scope of the current investigation, adding additional context such as proximity to major hubs of productivity would increase precision and strengthen conclusions from the types of models estimated in this study.

There are also several avenues of novel studies based primarily on the qualitative results. There are a number of intangible outcomes discussed with CDCs that would serve to strengthen the understanding of the work CDCs do and how it impacts neighborhoods beyond the physical infrastructure. Stigma, in particular, which was broadly mentioned in the qualitative results, could serve to be a fruitful endeavor to understanding how attitudes toward neighborhoods from both residents and outside entities influence outcomes.

**Implications and Conclusion**

This study provides implications for work that is within and adjacent to the community development field that comes from the results of this study. The primary implication is that there are a number of outcomes beyond physical infrastructure that are targeted by CDCs, and the approaches to these should be understood by practitioners and policy-makers in order to effectively prioritize activities and make the most impact. CDCs are primarily seen as organizations that develop and maintain housing for residents, which they do, but there are a number of critical things they do outside of impacting physical surroundings such as creating and maintaining networks, increasing a neighborhood’s institutional resources, and reducing both internal and external stigma. This work largely goes unnoticed or underappreciated and should be considered core tenets of the CDC mission by those outside of the field who want to support
it. The study also begins to establish the neighborhood mechanisms that have been discovered through rigorous research programs that are important in CDC work and how CDCs target them. This provides an avenue for justifying support for these activities because of their importance in the neighborhood field that may not be recognized by funders and those not familiar with neighborhood research.

Ultimately, this study demonstrates that CDCs have and continue to play a critical role in urban (and suburban) neighborhoods across the country. It shows that they have evolved since their inception, and perhaps sometimes without knowing the scientific relevance of it, target some of the most important levers of neighborhood change. Though there can be many improvements to this type of study, it provides a strong entry into building a program of research that emphasizes the connection between neighborhood work and neighborhood mechanisms that have been long established through sociological research. With Burgess’ initial analysis of the field over a century ago in mind, this study hopefully moves the field closer to connecting neighborhood science and neighborhood work in order to create actionable research and further generate knowledge in applied social science.
References


