Spatiality of Immigrant Social Networks and Their Impact on Residential Patterns

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THESIS

Submitted as partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Sociology
in the Graduate College of the
University of Illinois at Chicago, 2013

Chicago, IL

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I. Introduction

If globalization, manifested by condensation of space and time (Harvey 1989), changes the composition and boundaries of communities, then the social and cultural lives of individuals change accordingly (Giddens 1990). As the impact of globalization spreads in American cities, contemporary diversity, triggered by immigration and globalization, is divided and stratified along "language, race, culture, identity, and history" (Bach 1993: 159). Stratified social structures in receiving societies influence immigrants' social reception, integration, and adjustment in new communities. For the past several decades, formation of community and maintenance of solidarity among incoming immigrant groups have been studied through structural lenses, focusing on interactions starting with Breton's (1964) work on institutional completeness. While numerous studies—particularly those using a social network lens—identify attributes that explain immigrant adaptation, seldom have these factors been used to gauge how immigrants and immigrant communities influence the host society in return (Bach 1993; Orum 2005). In particular, little exploration into the role the immigrant and ethnic community plays in residential patterns in American metropolitan areas exists. Drawing on social interactions of three ethnic groups, this study examines the impact of immigrant experiences and the influence of neighborhood conditions on social networks. Findings indicate that the influence of ethnic community on its members persists even when the level of density is lower. Types of interactions (i.e., personal networks versus organization affiliations) serve different functions and needs, and these distinctions are segmented spatially for some ethnic groups. Furthermore, contemporary spatial mobility of immigrants away from their ethnic concentration gravitates toward demographically and economically diverse neighborhoods, easing segregation through residential selection.

This literature review is divided into two sections. The first begins by chronicling the ways in which scholars define community and ethnic communities based on criteria established by the Durkheimian perspective. Social capital and social networks are distinguished, focusing especially on how they subsequently defined ethnic community. The following section discusses three concepts that use spatial components to study ethnic communities: (1) temporary living spaces that began during the contemporary wave of migration of the 19th and 20th centuries, (2) ethnic enclaves that function as a venue for interactions and acquisition of resources, and (3) place stratification and place identify that reflect not only individuals' residency, but also socioeconomic and political identities through neighborhood conditions and perceptions.

The third chapter examines Chicago as a backdrop of this research and the significance of studying ethnic communities in Chicago. The chapter also provides the background of three ethnic groups: Chinese, Filipinos, and Mexicans. Their history in the country and the city and their residential patterns are crucial elements to understanding the relationship between each group's social network structure and their ability to use a place to develop and enhance social and economic opportunities. The latter part of the chapter lays out a methodological approach. Using multilevel models, this study explores the impact of ethnic communities on development and utilization of social capital for members.

Unlike past discussions of immigrant assimilation and integration that perceive abandonment of ethnic components as natural progression, I argue ethnic communities persistently function as a support mechanism through interactions and organization affiliations. These communities segment individuals' paths in the United States according to their ability to navigate and interact. This project integrates two units of analysis, the individual level that deals with immigration and the macro level that deals with urban ecology. Such a method incorporates

micro-level immigrant experience and macro-level neighborhood selection and condition. This data structure relies on the individual-level survey of three selected ethnic groups in Chicago, which is subsequently nested within neighborhood-level estimates from census data. The individual level measures the impact of immigrant experiences on social interactions, and the neighborhood level gauges varying neighborhood conditions of the individuals with various levels of social interactions.

Findings from this study challenge existing conventions and suggest greater variety in measurements to determine spatial arrangements of ethnic communities. My results include identifying ethnic communities in various stages of facilitating the development of social capital for members. The process is measured by each member's ability to develop and use resources through social interactions and organization memberships. In some cases, an ethnic community plays an incubating role, shielding members from external influences—including various forms of discrimination—with its own structure, cultural values, and practices. In other cases, communities support development of social networks and organization affiliation that offer members the ability to participate fully in mainstream housing markets comprised of those who share socioeconomic characteristics irrespective of racial/ethnic identities. Overall, social networks and organizational affiliations for first-generation immigrants illustrate that a robust ethnic community provides social capital that leads to pathways for upward mobility and co-ethnic residential dispersion, which in turn reflects consumption preferences of the host society. In contemporary context, these persistent functions of ethnic communities no longer require physical concentration for all ethnic groups as considered previously.

II. Literature Review

a. The Role of Social networks for Immigrants and Ethnic Communities

A review of the literature begins with ways in which community is defined in the social sciences. Based on six sociological variables from the Durkheimian perspective, this chapter reviews key theoretical approaches identified during the past century. Applying these attributes as criteria for a definition, the following section reviews ways in which ethnic communities have been defined. In doing so, the significance of personal interactions that came to be interpreted as community that cultivates social capital and networks is further explored.

i. Defining Community

Just as communities evolve into various forms, the study of communities advanced from conceptual terms to measurable, operational qualities. The concept of community in the contemporary sociological tradition began with Toennies' essay ([1887] 1988) *Gemeinschaft and Gesellschaft*, where *Gemeinschaft* translates as community and is defined as a grouping based on a sense of shared familiarity through mutual bonds, concerns, and support. *Gesellschaft* is a mature society in which groups are sustained by being rationally instrumental for members' aims and goals, detached from traditional and sentimental concerns (Harris 2001). Unlike Toennies' approach to interpreting *Gesellschaft* as an evolutionary process from *Gemeinschaft* that arose from an urban and capitalist setting, Brint (2001) argues that those sociologists who extracted precise and narrow definitions of community in the Durkheimian tradition were more influential for subsequent studies that sought quantifiable qualities to define community.

In his classic work The Division of Labor in Society, Durkheim (1893) poses the questions of what holds the society together and how varying levels of social interactions impact

differentiated production level. In many ways, Durkheim's definition of mechanical solidarity and European society's eventual transition to organic solidarity mirrors the contemporary microcosmic progression of ethnic community: in mechanical solidarity of the old or an early stage of community formation and solidarity is based on likeness, uniformed beliefs and practices. In this context, a dense social ties are associate with conformity to the morality that dominates a society (Becker, Geer, Hughes, Strauss, and Becker 1961; Homans 1950). Whereas organic solidarity in developed, industrialized society or community consist of various functions that are interdependent (Hirsch, Fiss, and Hoel-Green 2009) and differentiated occupations impact social interactions social consciousness (Hirsch, Fiss, and Hoel-Green 2009). At this stage, collective consciousness is deemphasized and non-kinship ties play integral role in this interdependency. This increased interdependency, according to Durkheim, leads to pronounced moral character in which individuals feel responsible for one another.

Incorporating these emphases on dependency, relationships, and interactions, the Durkheimian perspective offers six variables that are useful for sociological analyses. Those variables include four structural variables: 1) social ties, 2) institutional ties, 3) ritual occasions, and 4) group size, and two cultural variables: 5) perception of similarity in characteristics, styles, or experiences, and 6) common beliefs in ideas, institutions, or moral order. The primary contribution of this perspective is to treat community as "a set of variables [that include] properties of human interactions" (Brint 2001: 3). These attributes can be measured in various societal contexts instead of a social structure or physical entity. Piselli (2007) stresses that the most significant community studies investigate "their distinctive connections and interweaving with the external world" (876), reiterating the importance of social interactions. Such

investigations of one's social networks and relations shifted the concept of community from territorially bounded relations to personal community (Lindstrom 1997).

This method of defining community through personal interactions places measurement of social networks into two relevant categories: contagion and prominence (Burt 2000). Contagion typically occurs during the formation stage when peer behaviors are observed, interpreted, and transmitted as being proper. Prominence forms an advantage through following or emulating particular individuals or organizations. Availability and selection of these social networks are influenced by structurally influenced variables such as education, occupation, income, lifecycle, and gender (Fischer 1982). Social interactions are different from social characteristics, and a series of social interactions leads to formation of communal values, beliefs, and reference points.

Focusing on more specific contexts, social scientists found that diminishing participation in community life based on social networks in impoverished areas decreases opportunities to develop and maintain common rituals, perceptions, or beliefs as a collective (Rainwater 1970; Skogan 1990; Wilson and Kelling 1982). The impact of social ties encompasses measurable qualities that define community such as developing common rituals, perceptions, or beliefs. This transition to consider social networks as a communal measure led Bourdieu (1986) to argue that people construct relationships and networks for the potential benefits they bring later. Perhaps the most relevant portion of Bourdieu's argument for this project is that social capital is seldom acquired without cultural knowledge; an aggregate form of social capital includes boundaries shared uniquely by only those within them, which can be interpreted as a form of community.

The importance of institutional ties led social scientists to consider two perspectives that conflict. The urban poverty perspective, which focuses on societal consequences of having densely concentrated individuals who are severely impoverished, argues that community

organizations suffer when a neighborhood lacks middle-class residents (Wilson 1996) or leaders (Logan and Molotch 1987). On a larger scale, dual-market theory (Averitt 1968) explains inequality in labor market by positing that disadvantaged groups are permanently locked into a secondary labor market without access to more desirable opportunities. Perhaps more importantly, they operate only within a given group without any permeable ties with institutions or individuals outside that group. Institutional ties are also stressed by those who subscribe to the systemic perspective, which found those who are isolated with limited mobility can improve on opportunities and enhance participation in geographically confined but important local organizations (Bursik 1988; Kasarda and Janowitz 1974; Sampson 1988). Regardless of the theoretical dispute, institutional ties undeniably bear historic and cultural importance in America's brand of democracy from the time voluntary organizations a century ago provided "energy, resources, and direction for community building" (Bach 1993: 164).

ii. Contemporary Ethnic Community in the United States

Ethnic community was defined initially as a neighborhood that sustains residents' limited market resources and ethnically bound cultural and social capital (Logan, Zhang, and Alba 2002). Physical concentration of immigrant settlements serves the practical purposes of meeting newcomers' needs for affordable housing, family ties, familiar culture, and finding work (Thomas and Znaniecki [1927] 1974), and meeting the conditions of several attributes for community according to the Durkheimian perspective. These physical boundaries were particularly significant during the late 19th century when non-Protestant, non-white, and largely male immigrants entered the country for manual labor opportunities on sugar plantations in Hawaii and railroad construction sites in California. As their presence became increasingly

visible to the host society, they were met with greater resistance, and such confrontations with the members of the host society led to formation of physically insulated ethnic communities such as Chinatowns or Japantowns.

On arrival, many immigrants were found working primarily as agricultural laborers, confined to ghettos or conditions similar to them. Given the proximity and density of these urban neighborhoods, during early formation, ethnic communities were most commonly defined through numerous intimate social ties by the people who lived and work together, and interacted and married (Sengstock 1978). However, there were a number of institutional barriers imposed by the host society, especially actions taken by government. For example, supporters of the Chinese Exclusion Act of 1882 presumed immigrants, largely comprised of young men, would return to China if Chinese women were kept from entering the country. Subsequently, the act promptly resulted in disproportionate gender compositions of all Asian immigrants for the following century. Additional legal barriers that banned interracial marriages and negative portrayals of racial minority men as sexual predators by the media further reinforced Asian immigrants' foreigner status. Even those from colonized territories such as the Philippines were classified as American nationals who were ineligible for naturalized citizenship despite a series of court challenges (Baldoz 2004).

Based on observations of such restrictive conditions, researchers began to describe and define internal formation of community, which had previously been known to operate without external support or resources. Despite the physical isolation of segregated ethnic neighborhoods and ghettos, the value of institutions persisted within ethnic communities, as argued by Breton (1964), who was one of the first scholars to assess ethnic community was expressed through institutions. He and his colleagues stressed the significance of institutional completeness on

ethnic communities through formation of organizations that address religious, educational, political, recreational, national, professional, and welfare needs. About the same time, the second stage of Gordon's (1964) seven stages of incorporation of immigrants into the host society, which he referred to as structural assimilation, stressed an interaction component similar to social networks. Unlike Breton, Gordon (1964) focused on formation of primary relationships with members of the host society, and did not consider within-group interactions to be significant. Similarly, Holton (1994) defined ethnic community in terms of organized activities and cultural bonds that lead to common identification, interests, and behaviors. Tillie (2004) suggests measuring ethnic groups' social capital through a variety of organization activities, and Fennema (2004) argues that these ethnic organizations should be an indicator that measures the strength of an ethnic community.

Once the significance of social and institutional ties was established, scholars turned to those attributes that cause ties to develop or strengthen. Some defined the role of these ties within operational schemes of ethnic community and beyond (Goering and Feins 2003; Jacobs and Tillie 2004; Wellman, Carrington, and Hall 1988). Using immigrants' aggregated social networks as a proxy, ties were determined by such structural attributes as education, occupation, income, and gender. According to Wellman et al. (1988), such networks are essentially community ties that reach beyond local reality to structure opportunities and resources for those linked through the networks. More broadly, Fischer (1982) concluded that the quality of life in a metropolis is determined largely by the scope of density, types of social networks, and access to resources networks provide. Jacob and Tillie (2004) found ethnic membership facilitates political participation. Fennema and Tillie (1999; 2001) and Tillie (2004) suggest political participation among ethnic minorities is linked to varying degrees of social capital. A bridge

between spatial arrangements and social networks is provided by Goering and Feins (2003), who argue that the class composition of a neighborhood is a determinant of an individual's life chances, though evaluation of such ecological impact has not been tested for immigrant populations.

Reaching beyond the formation and internal operations of ethnic community, researchers began to assess the relationships ethnic communities have with their surroundings in larger society. Aldrich et al. (1985) were some of the first to argue that the internal dynamics of ethnic communities can be impacted by ecological factors. They argue a protected market—an economic demand created by ethnic minorities that can only be met by co-ethnic businesses—stems from residential segregation that restricts accessibility of goods and services, thereby generating captured consumers. Physical restriction of ethnic communities, however, is seldom incorporated into studies of racial segregation in American cities, which sustained a focus on black-white segregation over the years. A study by Aldrich et al. (1985) held an overarching assumption that ethnic enclaves are influenced by conditions of the host society. However, if the assertion by Logan et al. (2002) that some immigrants are fully engaged in mainstream housing market activities without restriction is true, one must be able to gauge how such consumption—and the formation and maintenance of community resulting from these consumption patterns—influences conditions of the host society.

iii. Considerations for Social Capital and Social Networks

At the turn of the 20th century when many U.S. cities were based on a manufacturing economy, German sociologists such as Georg Simmel ([1908] 1971), who began to study newly developing urban areas in Europe, perceived social interactions as the focal element of

investigation in empirical study of modern cities. Their fundamental make-up of population and interactions had changed dramatically from those of agrarian societies. Those who followed Simmel's theory expanded support for empirical studies using social interactions. While some derived contemporary concepts such as systems of relations and network of lines between individuals (Wiese and Mueller [1931] 1941), others operationalized social networks through combinations of points and lines in graphic representation (Moreno 1934). The conception of what Moreno referred to as *sociometrics* illustrates variations in network configurations and their impact on each members of the network. Adding directions (positive/negative) and connecting lines and points became the foundation for sociogram and graph theory (Cartwright and Harary 1956), which was a predecessor of contemporary social network analysis.

As analysis of community and social interactions became increasingly complex with technological advancements and rapid movement of populations, the traditional concept of community—whether Toennies' ([1887] 1988) *Gemeinschaft* or Radcliffe-Brown's (1952) structural-functionalist paradigm—could no longer explain "a fluid and unstable reality" of contemporary society (Piselli 2007: p. 868). Instead, a theoretical shift emphasized various types of capital, interactions, and relationships. These concepts stem from a combination of Weberian concepts of social closure that determines access to resources based on social or physical attributes at conceptual levels (Parkins 1982) and the a Durkheimian perspective at operational levels for sociological analysis. A number of scholars perceived social networks, with trust and norms as elements of social organization that make up social capital, as facilitating coordinated actions among individuals to enhance efficiency (Burt 2000; Coleman 1988a; Putnam 1993). Social networks focus on individual actions as the center of bonds that negotiate and navigate various settings, adaptations, and strategies that lead to social change.

An even greater impact of social networks began to be discussed when social scientists in Britain and the United States began collecting contextual data on social interactions, and subsequently measured social networks that develop collective identity and solidarity beyond geography (Barnes 1954; Mitchell 1969; Wellman 1979; Wellman 1999). Unlike previous work that emphasized micro-level dynamics, network analysis during the 1970s was the pivotal turning point where "personal communities" persisting as community ties that extended beyond geographically bound neighborhoods and were integrated into large-scale systems (Fischer 1982; Granovetter 1973; Kadushin 1966; Laumann 1973; Wellman 1979; Wellman, Carrington, and Hall 1988). Those studying social networks documented the vitality of interpersonal relationships in contemporary metropolises that transmit information for material and emotional support (Nisbet 1969; Parsons 1951; Toennies [1887] 1988). Emphasis on social networks and communal relationships is also evident in studies of other cultures that study migration. For example, complex, multidirectional networking is referred to as oikumene—constantly evolving migratory networks for Asian Indian immigrants—which considers political, economic, social, and cultural forces that control the flow of immigrants based on such factors as economic opportunities, family reunification, chain migration, and advancement of technology (Rangaswamy 2000).

A definition provided by Wellman et al. (1988) emphasizes the significance of analyzing the structure of social networks, and reiterates the importance of territorial dimensions that bequeath a sense of belonging, collective identity, and solidarity circuits (Barnes 1954; Mitchell 1969). Since their findings, additional studies found that social networks influence many aspects of individuals, including employment (Granovetter 2005) and crime (Sampson and Morenoff 2004) in American cities where residents have broader social networks and a larger number of

multiple ties (Fischer 1982). Discussions of such processes led to considering social network accumulation as the leading indicator of community formation.

Other social-network scholars applied the concept to organizations rather than individuals to make similar links between networks and communities. Tillie's (2004) analysis of ethnic civic community uses institutional networks between ethnic organizations to measure varying degrees of robustness among ethnic communities: "the denser the networks between organizations…the greater the degree of ethnic civic community" (p.531). Ultimately, these organization networks were interpreted as proxies for collective social capital in a given ethnic community. Additional studies point to variety of activities offered by ethnic organizations as a component that gauges social capital (Fernandez-Kelly and Schauffler 1994; Portes and Zhou 1993; Tillie 2004; Zhou and Bankston III 1994). To further refine the concept, Portes (2000) argues that this aggregate-level social capital is fundamentally distinct from the individual level. Nevertheless, collective social capital requires individual actions as a proxy, which circles back to emphasis of social networks regardless of the level at which they are analyzed.

As interest in aggregated individual interactions increased, the focus on social capital expanded from individual benefits from community ties (Coleman 1988b) to capacity of a collective community through structural ties (Putnam 1995). Unlike conventional labor-market approaches that emphasize human capital through education, labor force experience, and skills, social capital and networks are social structures that facilitate and enable groups to establish institutions, and grants access and opportunities through networks (Coleman 1988a; Giorgas 2000). According to Piselli (2007), network analysis does not study place but social relationships that define and redefine places and their values constantly.

Extant research suggests functionalities of social networks differ by race and ethnicity (Ajrouch, Antonucci, and Janevic 2001; Fischer 1982; Klinenberg 2002; Marsden 1987; Small 2004; 2007; Tigges, Browne, and Green 1998). For some racial/ethnic groups, social capital serves much of the function known to be served by community, such as convening a sense of identity, allocating resources, and shaping behaviors (Fernandez-Kelly and Schauffler 1994). Lack of such functions leads to catastrophic results for other groups (Klinenberg 2002). While some scholars argue that economic success of some immigrants, particularly those self-employed, is attributed to human capital (Borjas 1990), others identify ethnicity itself as a distinct form of social capital that yields positive economic outcomes (Coleman 1988a; Zhou and Bankston III 1994). It is important to note that all of these measures of social networks studied in ethnic communities are largely referring to co-ethnic ties, a form of network clique, "a small, cohesive group distinct from an external environment" (Burt 2000: p.350).

For the past several decades, evolution in community research led to considering social interactions, accumulation of capital from interactions, and use of acquired social capital. More importantly, the perspective advances the definition of community in a way that opens opportunities for more dynamic and fluid analysis that incorporates unknown elements such as space, place, and time. This study contributes to this process by applying the refined concept of community to ethnic community, and analyzing its composition through the lenses of social network and subsequent impact on the larger community.

b. Explanation of Social Networks and Space

Some of the first scholars to provide insights into explicit links between social networks and spatial elements were Fischer et al. (1977), exploring male friendships in urban settings. In

discussions of social networks in ethnic communities, some scholars acknowledge the spatial component as significant, but others dismiss it. This section reviews three concepts that incorporate spatial components of ethnic communities. First, the concept of ethnic concentration as temporary living space that began during the contemporary wave of migration in the 19th and 20th centuries is explored. Second, as focus shifted from physical conditions to interactions and acquisition of resources, the value of ethnic enclaves—whose definition is debated as to whether it contains spatial boundaries—became an underlying condition where these social networks were developed and used. As scholars debated the value of ethnic enclaves, spatial concentration became an implicit, underlying condition for first-generation immigrants' entry points, the place where social networks and resources were housed and operated. Lastly, social networks are a field of interaction that has neither units nor boundaries, particularly when it comes to geographic boundaries (Piselli 2007). A network encompasses flexible, discretional relationships that cut across territorial and administrative units. As a result, for the past several decades, spatial elements were reintroduced to play a role through the lenses of postmodern and neo-Marxist perspectives, which argue place stratification and place identify are reflected in home and community selection (Lindstrom 1997).

i. Temporary Living Arrangement

Industrialization and colonization across the globe triggered both labor migration on a global scale and displacement, with the United Sates a primary recipient of those seeking economic opportunities (Yu 2001). Chicago School human ecologists conceptualized a spatially driven concept of ethnic community during 1920s, perceiving aforementioned ethnic concentrations as disadvantageous areas due largely to societal resistance to immigrants. These

physical concentrations were their first and temporary stage of a race-relations cycle until newcomers assimilated with the host society (Burgess 1925; Park 1950). Earlier research on ethnic communities during this period found physical concentration a crucial element that supported social and economic needs despite dense, confining, and isolating environments in predominantly urban areas with poor living conditions. As a result, inner-city neighborhoods in industrialized cities, once targeted as a destination for immigrants and racial minorities, were seldom perceived as a place for permanent settlement for generations. This perception led those who were upwardly mobile to move into outer parts of cities and suburbs, while those who were not capable of doing so remained despite deteriorating conditions.

Park's (1930) concept of spatial assimilation relies on spatial proximity to the natives to determine social distance and support mechanisms. Based on his criteria, linguistic abilities and upwardly mobile occupations trigger residential movement toward enhanced amenities, away from initial entry points. Immigrants gravitate toward areas most typically characterized by large proportions of native-born middle and upper-middle class whites. For those left behind, living conditions are generally inferior. In some extreme cases of temporary housing, facilities in this areas mean unconventional living arrangements such as dormitory-style housing for male workers (Smith 1976) that are highly confining and unsustainable in the long-term.

According to the Chicago School concerning urban neighborhoods, the underlying assumption is that common localized territorial boundaries with organization activity and population characteristics are necessary to maintain social order (Gans 1962; Kornblum 1974; Suttles 1968; Wirth 1938). In some instances, physically confined urban contexts provide rich informal bonds of primary groups at the level of everyday exchanges, reciprocal help, emotional support, and normative control (Bott 1957). As the value of these areas was increasingly

emphasized, the geographically bound immigrant enclaves were perceived as the only viable basis for solidarity. Consequently, mobility of individuals out of these areas was deemed destructive to the point where the link between social ties and territory dissolves. Despite such loss of social ties, the ultimate goals and aspirations of immigrants residing in these areas were to leave and scatter into the host society. For most natives, this temporal nature of ethnic concentration assumed by the Chicago School eased the minds of those who perceived cultural integration as inevitable.

The bifurcation of ethnic concentrations expedited when the economic structure transitioned from manufacturing to services, and well-paid wage jobs requiring little to no human capital began to disappear. Just as the immigrant population bifurcated into those who dispersed and those who remained, the study of immigrants diverged into those who studied the population that remained in places of original settlement and those who studied the processes and mechanisms of adaptation to the host society. This idea of temporary but valuable ethnic concentration persisted for decades as spatial assimilation was considered the ultimate individual goal and final indicator of structural assimilation (Massey 1985). Once immigrants achieve the last stage of the assimilation cycle, it is assumed they also strive to "eventual residential dispersal" (Dunn 1998), with the exception of those who remain in permanent concentrations due to structural oppression (e.g., black ghetto) or an unwillingness to assimilate.

When interruption of mass immigration ended with the Hart-Cellar Act of 1965,[1] a large influx of immigrants included those with greater human capital and marketable occupational skills (Portes and Rumbaut 2006). Their arrival to a number of cities around the country triggered inner-city neighborhoods, and the function of these neighborhoods as springboards to better life flourished. Upwardly mobile Chinese immigrants of the 1960s, for example, routinely

[1] Also widely known as the Immigration and Naturalization Act of 1965

accumulated wealth in inner-city Chinatown areas, but left as soon as they could in favor of suburbs for better housing conditions with lower density. New immigrants with higher education and professional jobs followed and began to form what Li (1998) refers to as ethnoburbs. Such spatial shifts forced scholars to rethink ethnic concentrations from "a spatial outcome of oppression" (Dunn 1998: 503) to a formation that offers advantages. Despite a temporary spatial nature, immigrants' geographic concentration and community formation are linked intimately to largely economic benefits within ethnic communities. In the early stages of economic motivation for organization formation in these areas, studies often focus on the processes to which they contribute to groups' socioeconomic adaptation (Wilson and Portes 1980; Wilson and Martin 1982) through concepts such as collective assets and ethnic niches. In some cases, organization networks provide internal, social-trust, co-ethnic credit associations (Light 1972); in other cases, they shield ethnic groups from discrimination (Gold 1992). Light and Gold (2000) offer a greater amount of credit to institutions in ethnic economies, suggesting even the informal sector shifted conditions of the immigrants from starvation to survival. Despite being such a venue for crucial functions, some scholars dispute the temporal condition based on a socio-biological perspective, which suggests essential differences of ethnic or racial groups lead to a desire to maintain physical concentrations as means to preserve gene pools or resources (Ardrey 1966).

Physical concentrations of immigrants and racial/ethnic minorities are portrayed typically as being in a poor condition. For example, the description of Mexican Americans in central cities shares many common descriptions with central city blacks: "sub-standard housing, high rate of unemployment, poverty, school dropouts, crime, and gang violence" (Parrillo 1996: 133). Such commonalities, however, do not necessarily mean they occupy the same space in

metropolitan areas (Frey and Farley 1996). If so, one must consider the possibility of parallel but separate ghettoizations of poor African American and immigrant communities.

Communities can exist without physical concentrations, but this does not mean these communities exist without some form of spatial patterns. With increased competition for limited urban space, declining multiethnic segregation in recent years increased contact among racial and ethnic groups (Timberlake and Iceland 2007). As a result, residential inequality that plagued urban areas began to decline in some cities (Frey and Reynolds 1996; Iceland 2004).

ii. Ethnic Enclaves

As immigration policies shifted in the 1950s from focusing on entrance of select ethnic groups to labor qualifications and labor market demands, ethnic concentrations came to be considered more permanent formations of ethnic communities, and the role of ethnic groups in the economic structure of the host society began to solidify. One significant legal landmark was the Hart-Cellar Act of 1965, which eliminated country quotas, focused on family sponsorship, and triggered military wives and students to petition for parents, partners, and siblings to enter (Yu and Choe 2003-2004). This concept of immigration through family sponsorship not only became prevalent and diversified immigration populations for the following several decades, such form of entry continued to plays a large role in contemporary immigration. To be considered a legitimate form of community, however, earlier versions of these concentrations needed transformation. For example, eventual transformation of Chinatown from ghettos into tourist attractions where foreign and exotic qualities of Chinese culture were emphasized and exaggerated yet spatially isolated, natives were more receptive of their presence in society.

Wilson and Portes' (1980) ethnic enclave hypothesis asserts that what was previously considered periphery, that is, that the secondary economy in ethnic communities provides economic opportunities with better long-term economic mobility for members. Rather than temporary areas, they were part of a permanent, urban landscape. In an attempt to determine the roles of these areas, it is important to point out that the focus of this perspective focuses narrowly on the function of ethnic concentrations motivated by economic opportunities, and does not account for social, cultural, and cultural aspects of these communities. Nevertheless, those who subscribed to assimilation theory could not explain the resilient and thriving economic conditions of these ethnic enclaves, consisting of concentrations of workers employed by co-ethnics. Instead, dual labor-market theory, which explains employment inequality (Averitt 1968), suggests high levels of concentrations of economic resources from one ethnic group create opportunities for self-employment (Portes and Zhou 1996; 1999) and protected markets (Aldrich et al. 1985; Light, Sabagh, Bozorgmehr, and Der-Martirosian 1994). These two qualities lend themselves to require dense spatial concentrations of those who participate in economic activities, or firms that serve co-ethnic or entire populations (Portes and Shafer 2006). Given a focus on economically driven activities, Portes and Jensen (1989) stress that such participation is separate from both residency and defining ethnic enclaves. Logan et al. (2002) suggest those with financial resources and mainstream jobs avoid traditional formation of ethnic enclaves. Overall, concentrated settlements sustain needs for affordable housing, family ties, shared culture, and employment opportunities. Some scholars suggest such areas hinder assimilation through an "ethnically supportive institutional structure" (Alba, Logan, and Crowder 1997: 884). Studies of Vietnamese refugees in Illinois and California (Desbarats 1986), Cubans in Florida,

and Chinese in California (Sanders and Nee 1987) reveal delays in economic self-sufficiency and more prevalent exploitation of workers in ethnic enclaves, which only benefit entrepreneurs.

While suburbanization among immigrants has been studied only in recent years, spatial disparities in urban landscapes, particularly urban/suburban dichotomies, have been the topic among urban scholars since the rapidly growing middle class in the United States dispersed with the prevalence of automobiles and wider access to highways. Despite a perception of homogeneity, scholars have found vast degrees of variations in socioeconomic statuses (Berube and Frey 2005; Berube and Kneebone 2006; Jargowsky 2003; Logan 1976; Logan and Schneider 1981; Madden 2003; Murphy 2007; Orfield 2002) and racial compositions (Farley 1970; Hanlon, Vicino, and Short 2006; Schnore, André, and Sharp 1976) in suburbs. Timberlake and Iceland (2007) attribute reduction in inequality in a number of metropolitan areas to minority suburbanization. Even more relevant are those studies that found suburban destinations for immigrants (Alba and Logan 1991; Frey 2005; Li 1998; Singer 2005; Suro and Singer 2003; Zhou 2009).

As residential patterns of immigrants followed that of suburbanization, particularly for east and west coast Asian immigrants whose proportion in suburbia reached a majority or near majority (Logan 2001), scholars began to theorize another dimension of spatial arrangement. Although some research into spatial assimilation considers suburbanization a key indicator of spatial assimilation (Alba and Logan 1991; Alba and Logan 1993; Alba, Logan, Stults, Marzan, and Zhang 1999; Iceland 2009; Logan, Alba, and Leung 1996; Logan, Alba, Mcnulty, and Fisher 1996; Massey and Denton 1988; Schneider and Phelan 1993; South and Crowder 1997; Stahura 1987), other studies demonstrate that increasing presences of racial/ethnic minorities do not necessarily suggest large-scale spatial assimilations. Instead, these studies suggest

suburbanization leads to a different form of ethnic community from that of traditional urban enclaves. Li's (1998) ethnoburbs—suburban areas with high concentrations of one or more ethnic groups—form as "a sociospatial structure serving to integrate more marginalized groups" (499) unable to reside in more affluent and desirable areas. Similar to those studies that found increasing racial, economic, and social diversity in suburbia that emulates conditions of a central city (Berube and Frey 2002; Clark and Patel 2004; Hall and Lee 2009), Li's characterization of ethnoburbs resembles that of urban ethnic neighborhoods, though with lower density. Formation of ethnoburbs is attached to a condition of vibrant ethnic economies in addition to presences of large numbers of ethnic people. Li's findings confirm those of Alba et al. (1995), which found immigrants in New York metropolitan areas avoid forming suburban enclaves, but gravitate toward multiethnic neighborhoods. While such shifts call for an analytical distinction more refined than the central city/suburban dichotomy, regardless of the meaning behind the pattern, it is clear that the old paradigm of central city as a sole entry point for immigrants is far from the reality (Clark and Patel 2004). This issue of immigrants in suburbs becomes increasingly important as more immigrants bypass central cities to settle in suburbs directly on arrival (Zhou 2009).

Given the "enlarged geographic scale of people's active social networks" (Logan, Zhang, and Alba 2002: 300) through advancement in communication and transportation, Logan et al. (2002) argue physical concentrations of immigrants can be segmented into two types when integration and economic mobility are considered separately: (1) ethnic enclaves, which tend to be involuntary and are created out of necessity to obtain the social and economic needs listed above, and (2) ethnic community, which tend to form in more desirable areas based on preference. Such categorization is similar to the works of other scholars who consider

discrimination a factor (Farley 1995; Galster 1992; Massey and Denton 1993), while others emphasize preference (Clark 1993) or reflection of income differential (Farley, Steeh, Jackson, Krysan, and Reeves 1993). The distinction by Logan et al. (2002) signifies two important shifts in urban space and immigration. First, economic mobility among immigrants does not necessarily lead to the dispersal predicted by scholars in the past, and emphasizes cultural and social needs beyond minimal necessities provided by ethnic neighborhoods. Second, just as experiences of European immigrants revealed that while social mobility eventually leads to in-group parity, differences stemming from social class origins remain (Greeley 1976; Lieberson 1980), and spatial separation within an ethnic group indicates internal variation not considered previously.

As physical forms of these ethnic communities increasingly stabilize, they inevitably influence the host society. Frey (1996) suggests new waves of immigrants continue to occupy traditional gateway areas of American metropolises while increasing numbers of natives move far beyond suburban areas, resulting in a resurgence of non-metropolitan areas. Frey and Liaw (1998) argue that persistent outmigration to avoid immigrants can be attributed to job competition with low-skilled immigrants, high social costs triggered by rapid demographic change, and development of racial prejudice with increased racial/ethnic diversity. According to their findings, such flight occurs among "whites without college education; with children, and with low incomes" (229). On a larger scale, if this push-pull dynamic is prevalent, spatial assimilation is unfeasible since attempts by immigrants to blend in to non-ethnic neighborhoods trigger native residents to move out, similar to the way African Americans triggered white flights in the past.

iii. Place and Place Identity

As research into ethnic communities and enclaves uncovered a wide range of functions, conflicting arguments about their physical formation arose. Those who value the protective nature of ethnic enclaves view segmentation and spatial assimilation for those who are upwardly mobile as a natural progress (Massey and Denton 1985), but as ethnic enclaves develop in densely populated neighborhoods, territories overlap across disparate ethnic groups, resulting in lowered concentrations of one group in a given area (Bach 1993). Although the physical descriptions and merits of physical settlement continued to be debated, many scholars shifted the focus from ecology (i.e., neighborhood conditions) to networks (i.e., social interactions) (Fennema and Tillie 1999; Fennema and Tillie 2001; Goldenberg and Haines 1992) and impacts of neighborhood conditions. Subsequent housing selection based on those conditions and places are important attributes for development of individual social networks. Such consideration is based on segmentation of place in a society whose operating principals are based on capitalism. Berry's (1980) filtering model explains this segmented housing pattern in an inner city or any central area of a decentralized metropolitan area in which new housing occupied by middle-class families provides opportunities for affluent families to acquire decent housing stocks made available to them. Such transitions leave the worst housing to be abandoned, demolished, or occupied by those who do not have the economic leverage to participate fully in the market. Despite this market-driven process, Americans interpret homes and communities as symbolic constructs that represent class distinctions in space (Bourdieu 1989; Douglas 1986). The significance of place or housing selection, in addition to being a means to accumulate financial assets, a concept of homeownership appeals as a place that provides security and safety through implicit outsider exclusions (Clark 1986). As immigrants, a group deemed as outsiders

collectively, a question looms as to how they navigate as individual consumers, and perhaps more importantly, as people who portray an ethnic identity to others. In the past, since they had little choice of where to live, their preference was a secondary interest (Logan, Zhang, and Alba 2002). As economic mobility and human capital increases, and discrimination and resistance by the host society diminish, consumption patterns should receive greater attention from scholars.

In consideration of what place represents, sociologists and urban scholars evaluate the conditions of various neighborhoods. These conditions are significant in the development and education of children and teenagers (Brewster 1994; Brooks-Gunn, Duncan, Klebanov, and Sealand 1993; Crane 1991; Elliott, Wilson, Huizinga, Sampson, Elliott, and Rankin 1996; Reardon, Yun, and Kurlanender 2006; Sucoff and Upchurch 1998), for individual health (Wen, Browning, and Cagney 2003), mortality (Hannon and Cuddy 2006; Wen and Christakis 2005), and for perceptions of crime (Taylor and Covington 1993). In the past century, social scientists became familiar with determinants and consequences of varying ways in which populations are distributed as proxies for social and economic stratifications. At the neighborhood level, an explanation can be derived from such aggregate characteristics as racial/ethnic compositions, presences of immigrants, and economic conditions (i.e., poverty, housing value, etc.). At the individual level, the concept of place legibility (Lynch 1960)—a mental map with which people understand the layout of a place through representations of images and perceptions—plays a part in determining population distribution. Tuan (1977) suggests that "when space feels thoroughly familiar to us, it has become place" (73). In practical terms, Tuan's theory explains spatial components of forming a community; when social networks are used and if there is a spatial relationship in use (i.e., density or connectivity), residency is more than a place to live but a part of a community. According to Tuan (1977), distance "connotes degrees of accessibility," (46)

which means societal value is placed highly on those close to self. Li (1998) argues the link to a spatial element fills a void in a "socio-spatial construction of ethnic communities" (479) that provides a more comprehensive explanation of the integration process for immigrants and their roles in the social dynamics of the host society. Extending Tuan's theory, these characteristics assume spatial dependence argued by Tobler (1970), which state near things are more related than distant things. This sentiment extends to social networks (Fischer et al. (1977) in terms of density. It is this concept of contiguity and aggregated demographic attributes within geographic units (Voss 2007) that form a community through a combination of sociological traits and spatial continuity.

The focus of these aggregated forms is in "the behavior of the aggregate" (Barclay 1958: 2) rather than individuals. Neighborhood class composition is an important determinant in one's life chances (Goering and Feins 2003), and racial segregations and spatial mismatches hinder employment opportunities for racial minorities (Holzer 1991; Kain 1992). In a society where technology broadens one's ability to communicate with those far away (Hawthornewaite and Wellman 1998; Wellman and Gulia 1999), the significance of proximity in formation of community has not yet been fully tested. If spatial concentration is not required, then one can apply social network measures as proxies to community formation regardless of a group's size or location. However, high levels of social networks do not necessarily indicate high-level concentration or spatial characteristics.

Beginning in the 1970s, the place identity concept moved emphasis from boundaries and social networks to ways individuals derive identities through culturally constructed meanings embedded in American houses and communities (Csikzentmihalyi and Rochberg-Halton 1987; Cuba and Hummon 1993; Duncan 1976; Hummon 1989; 1990; Laumann and House 1970).

Hummon (1989) defines housing and community as non-verbal signs of grouping identities that allow individuals to integrate cultural constructs. Tuan (1977) suggests architectural qualities articulate spatial hierarchies in stratified societies, and these stratifications correlate directly with cost of housing stocks, which means housing value is arguably one of the best indicators of economic segmentation. Patterns and determinants of differentiation among immigrants, however, have not yet been analyzed in-depth.

A larger discussion about formation of cities in contemporary contexts presents a new challenge. Based on discussions and explanations of the formation of industrial cities a century ago, ecological models as explanations did not appear compatible with the Marxist perspective. Ecological models emphasize the importance of observing social dynamics and interactions, which result in segmented outcomes by sociological attributes such as race, ethnicity, gender, class, and foreign-born status. Marxist theorists such as Soja (2000) declare such explanations to be simple, offering capitalist motives to be more significant. The neo-Marxist perspective takes this concept of derivation of identity through place further, arguing place inequality is the basis for social inequality and stratification (Harvey 1977; Logan and Molotch 1987), with urban slums as a prime example of intentional spatial planning by capitalists (Soja 2000). Lindstrom (1997) suggests place identity establishes social order and solidarity not through interactions, but "through shared understanding of the strength of urban or suburban boundaries" (35). If perceptions of neighborhoods depend on income level and racial ethnic compositions (Can 1998), variations in spatial formations of ethnic communities must influence larger residential patterns. "Spatial relations between various social groups" (Freeman 2009: 2079) is an aspect of community formation similar to other urban phenomena such as gentrification that was underexplored until recent years.

III. Methods

In the process of determining individual interactions, the operating definition and scope of ethnic community applied in this study is that of a relatively small scale with specific measures. While a sense of community defies geographic boundaries and includes a large volume of individuals who share commonalities (Brint 2001), a set of social networks and organization affiliations identified in this study focuses on interactions and participation with specific motives rather than mere recognition and acknowledgement of similarities and familiarities with other individuals or emotional attachments toward ethnic identity. Combining these two levels of study, I argue that variation in interactions within each ethnic community is tied intimately to overall economic activities of the host society, which in this case is reflected in housing markets and residential patterns.

As of 2006, 12.5% of the U.S. population were foreign born,[2] a proportion rapidly approaching the composition a century ago of 14.7% (Portes and Rumbaut 2006). Growth of Latino and Asian populations, whose increases for the past several decades stem largely from immigration (CMAP Regional Snapshot 2008), is particularly significant in American metropolitan areas where formation of ethnic communities influences demographic compositions (Frey and Farley 1996), local economies and labor markets (Chiswick 1986), politics (Lowe 1996; Nakanishi 1985-86; Vigil 1994), media (Rodriguez 1999; Wong 1978), and culture (Alegria, Takeuchi, Canino, Duan, Shrout, Meng, Vega, Zane, Vila, Woo, Vera, Guarnaccia, Aguilar-gaxiola, Sue, Escobar, Lin, and Gong 2004; Okihiro 1994; Sanchez 1993; Wei 1993). In addition to a wave of a diverse Asian immigrant population, elimination of quotas through a legislative act in 1965 reserved for South and Central America diversified Latino immigrants from largely Mexican, Puerto Rican, and Cuban immigrants to nationalities from many more

[2] American FactFinder, American Community Survey, 2005-7: U.S. Census Bureau

countries in the region (Alcoff 2000). This shift in immigration policy and increasing immigration from Asia and Latin America, in turn, led to changes in ethnic and racial compositions in the United States over the following 40 years. As a result, there has been a push to reconsider understanding of ethnic and racial experiences from a U.S. black/white, dichotomous, paradigmatic view to a broader one that reaches beyond race, skin-tone, and phenotype (Bonilla-Silva 1997; Gans 1999; Reardon 2009). Even when these additional ethnic groups were considered in recent years, the impact of immigrants, particularly on American urban dynamics, remains unclear. The conventional method of comparison—using volume, concentrations, and proportions of racial/ethnic groups within a geographic unit—assumes the presence of a co-ethnic community only when there is a larger number in concentration. Yet the conventional method fails to capture the presence and influence of immigrants when the members of these communities are scattered and the density of physical concentrations diminishes. To examine the impact of social networks on ethnic communities and their spatial arrangement, this study addresses two research questions: how do immigrant experiences influence development and accumulation of social capital, and is there significant variation in this accumulation of social capital that indicates segmentation?

This chapter provides a background of Chicago and its surrounding areas as a venue that offers opportunities for immigrants to develop social capital and make decisions on residential selection. The region's unique history, economic structure, and residential patterns contribute to ways in which immigrants navigate their daily lives. Backgrounds of three selected ethnic groups follow this historic review. While these groups are unrepresentative of immigrants from over 190 countries, they vary greatly in size, history, demographic and economic compositions, and residential patterns in that they represent the wide diversity that exists in the region. The last

section of the chapter describes two datasets used for analysis: the Chicago Ethnic Community Study (CECS) and the American Community Survey (ACS).

a. Background

The 1893 World's Fair in Chicago depicted American industrial cities based on grand plans for growth and beautification, modeled after European cities[3] (Gallion and Eisner 1986). At the time, Chicago was described as the most American of cities (Miller 1997). Grandiose portrayal, however, was far from the reality of American cities, dirty and filled with problems (Frazier, Margai, and Tettey-Fio 2003), and Chicago was no exception to crime, poverty, and corruption. As industrial cities east of the Mississippi River became the backbone of the U.S. economy toward the end of 19th century, factories attracted European immigrants and racial minorities from the south, which led to new urban landscapes that included ethnic ghettos and "negro districts" (Frazier, Margai, and Tettey-Fio 2003). Many of the African American and Mexican workers were hired to break strikes in steel and packinghouse industries during the late 1910s and early 1920s, creating conflicts with European immigrant workers.

Taking advantage of its geographic location that connects east and west, Chicago became an industrial hub for an era. It boasted one of the best transport and logistics infrastructures in the world, with rapidly expanding railroads and easy access to waterways. About the same time, with mass migration of black populations from the south into northern industrial cities like Chicago (Drake and Cayton [1945] 1993) and Detroit (Deskin 1972), many cities responded with promotion of segregation practices and regulations to alleviate racial tensions (Massey and Denton 1993). In cities where a large number of immigrants and blacks changed demographic

[3] Chicago's Burnham Plan in 1908, commissioned by civic leaders of the Commercial Club of Chicago and drafted by landscape architect Daniel Burnham, became a model for urban development globally for the following several decades.

compositions rapidly, zoning was a tool to segregate black and ethnic neighborhoods physically from native areas (Coyle 1993). As sociologists began to study these phenomena, the ecological model of the city became prevalent in academia where "urban growth and expansion were explained through the application of the natural concepts of physical science" (Frazier, Margai, and Tettey-Fio 2003: 111).

As one of the world's alpha cities (Beaverstock, Smith, and Taylor 1999; Hales and Pena 2012), Chicago served as a model for urban development and planning for scholars, policymakers, urban planners, and social scientists for the past century.[4] Though many studies once portrayed Chicago as representative of a typical mid-western city, two unique attributes set Chicago apart when studying immigration and ethnic communities. First, Chicago always consisted largely of immigrants, and had never been a city dominated by a white, Anglo-Saxon Protestant population as was the case in many large industrial cities in the eastern part of the country. One-hundred fifty years ago, during its infancy, approximately one-half of Chicago's population was comprised of immigrants (Koval and Fidel 2006). Second, Chicago represents one of the few cases among major U.S. cities where successful transformation from an industrial, manufacturing economy to a post-industrial, service-oriented economy occurred, and where large-scale citywide urban decay that ensued in such cities as Detroit, Cleveland, and Buffalo was avoided. Prior to this transformation, the beginning of the 20th century encountered mass migration followed by the Great Depression, which lasted over a decade; World War II and the Korean War, conflicts that persisted close to a decade between the two wars; and an interruption in large-scale immigration into the United States, which lasted several decades (Koval and Fidel 2006). A quota system coupled with a massive economic depression during 1930s offered

[4] The 2012 Global Cities Index (GCI) developed by AT Kearney and the Chicago Council on Global Affairs ranks Chicago as number 7 in global influence out of 66 cities.

limited economic opportunities for immigrants, and subsequently diminished the overall number of immigrants entering the country only to experience dramatic increases from passage of the Hart-Cellar Act of 1965, with much greater diversity than European immigrants. With a declining manufacturing sector in many U.S. cities, deterioration of American cities reached its peak in the 1960s and 1970s. In Chicago, this process began immediately after World War II when the central business district, retailers, and remaining manufacturing jobs fled to suburbs (Berry, Cutler, and Draine 1976; McDonald 1984). The decline meant restructuring of physical landscapes of entire metropolitan areas, and massive rearrangement of residential selection.

Suburbanization of Chicago's metropolitan areas was not only a residential shift, but also a geographic restructuring of labor forces. Between 1960 and 2000 the manufacturing sector declined 50% within city limits while the in the immediate suburban counties it doubled (Koval 2006). Urban decay and population loss did not reach a point of massive population loss as they did in other former industrial cities due largely to industry diversification. Demographic and economic balances were sustained with a steady flow of non-manufacturing job opportunities and incoming immigrants.

Spatial distribution of immigrants in the Chicago area can be categorized into three types: (1) expansion of city neighborhoods into contiguous suburbs (e.g., northwestern and southwestern suburbs for Poles; western suburbs for Mexicans); 2) relocation from an area, typically an inner-city location to another, typically suburban, location (e.g., Lawrence Avenue to suburban Niles and Glenview for Koreans); 3) scattered distribution of an ethnic group in various locations (e.g., Chinese in Chinatown in the city and Westmont in the suburbs; Mexicans in downtown areas of regional cities such as Waukegan, Elgin, Aurora, and Joliet). The growth of the Latino and Asian populations, whose recent increases stem largely from immigration

(CMAP Regional Snapshot 2008), became particularly important in a number of American metropolitan areas where the formation of ethnic communities had significant influences not only on demographic compositions of these but also local economies and labor markets (Chiswick 1986), politics (Lowe 1996; Nakanishi 1985-86; Vigil 1994), media (Rodriguez 1999; Wong 1978), and cultures (Alegria et al. 2004; Okihiro 1994; Sanchez 1993; Wei 1993). In addition to the wave of diverse Asian immigrant populations, the elimination of quotas from the South and Central Americas diversified Latino immigrants from largely Mexican, Puerto Rican, and Cuban immigrants to nationalities from many more countries (Alcoff 2000). Such rapidly increasing immigration by Asian and Latinos diversified populations in the United States and forced black/white dichotomy models of sociological, economic, and political analyses to be reconsidered (Gans 1999).

By the 1980s, European immigrants were eclipsed by those from non-western European countries (Parrillo 1996). Immigration reform in 1965 also brought immigrants with particular skill sets in large numbers into the United States. Initially, these new labor forces were largely brought in through provisions that allowed temporary laborers "when a supply of willing and able domestic workers [were] not available" (Portes and Rumbaut 2006: 22). For example, Asian Indians who entered the country immediately after 1965 "almost entirely consisted of doctors, scientists, engineers, academics, and other professionals" (Rangaswamy 2006: 129). Such patterns of selective migrations had been the story of immigration for the country since they brought sugar cane and other agricultural, railroad, and trade workers over its history. However, not all skills were transferable immediately (Jasso, Massey, Rosenzweig, and Smith 2005), and while many wage earners entered the country seeking economic opportunity, family sponsorships subsequently became an important concept for immigrant groups. This new wave

of immigrants with different skill sets and credentials than in the past led to new paths of economic mobility for immigrants, and began to create the notion of model minority for some. Although the concept of model minority initially focused on the question of why some immigrants made economically successful adjustments, it ultimately questioned deficiencies of other racial/ethnic minorities in the United States, and questioned motivations toward upward mobility. These immigrants attempted eradication of racial boundaries with whites through increased intermarriages (Gans 1999), but they often failed to confront nativistic racism (Kim 2008).

By the end of the 2000s, Chicago metropolitan areas consisted of approximately 8.4 million residents, an increase of 3.3% from 2000 and a 15% increase from 1990. Mentioned above, steady population growth in the area is attributed to transition to a post-industrial economy[5] through investments in diverse industries and subsequent economic opportunities that sustained a steady rate of immigration to the region. The area's population includes close to 1.6 million immigrants (18.7% of the population), whose arrival prevented population loss in the city for the past two decades. The proportion of immigrants became greater than that of the African American population (18.1%) but smaller than the Latino population (20.2%). Spatial distribution of immigrants in the Chicago area can be categorized into three types: (1) expansion of city neighborhoods into contiguous suburbs (e.g., northwestern and southwestern suburbs for Poles; western suburbs for Mexicans), (2) relocation from one area (typically inner-city) to another (typically suburban) (e.g., Lawrence Avenue to suburban Niles and Glenview for Koreans; Devon Avenue to Naperville for Indians and Pakistanis), and (3) scattered distribution of one ethnic group in various locations (e.g., Chinese in Chinatown in the city and Westmont in

[5] According to World Business Chicago, as of 2012, the region's economy is comparable to that of 20th largest nation in the world.

the suburbs; Mexicans in downtown areas of regional cities such as Waukegan, Elgin, Aurora, and Joliet).

In addition to a racially and ethnically diverse population, this area also contains robust human capital. Eighty-five percent of the residents over 25 years old graduated from high school, and over a third (34.3%) hold college degrees or more. This large proportion of college-educated residents, however, does not necessarily provide equitable economic outcomes; 9.8% of households earn less than $15,000 per year while 10.8% earn more than $150,000. Focusing on those who are impoverished, 4.6% of the region's households live below the poverty level. Extreme cases of poverty are confined to Cook County, and are primarily in the city; 50 of 1,343 census tracts in Cook County have 50% or more of households below poverty, and some neighborhoods or census tracts contain as much as 89% of households living under such conditions.

i. Chinese Community in Chicago

On completion of the transcontinental railroad and due to growing legal discrimination and harassment in California (Steiner 1979), many Chinese migrated eastward in the 1870s to major cities like Chicago, New York, and Boston with the intention of staying there in the short-term. Opportunities led this predominantly male workforce to work long hours at menial and dangerous jobs in agriculture, railroads, and other manufacturing to support families back in China. With under 200 residents in 1880, the Chinese population in Chicago grew steadily to 2,353 in 1920. According the estimates made between 2005-09, the Chinese population in Chicago's six-county area is estimated to be 87,619, 18.6% of the Asian population and 1% of the total population. Most Chinese immigrants came from China (PRC), Taiwan, or the Hong

Kong Special Administrative Region of China. Consequently, their cultural, behavior, and residential patterns are vastly fragmented.

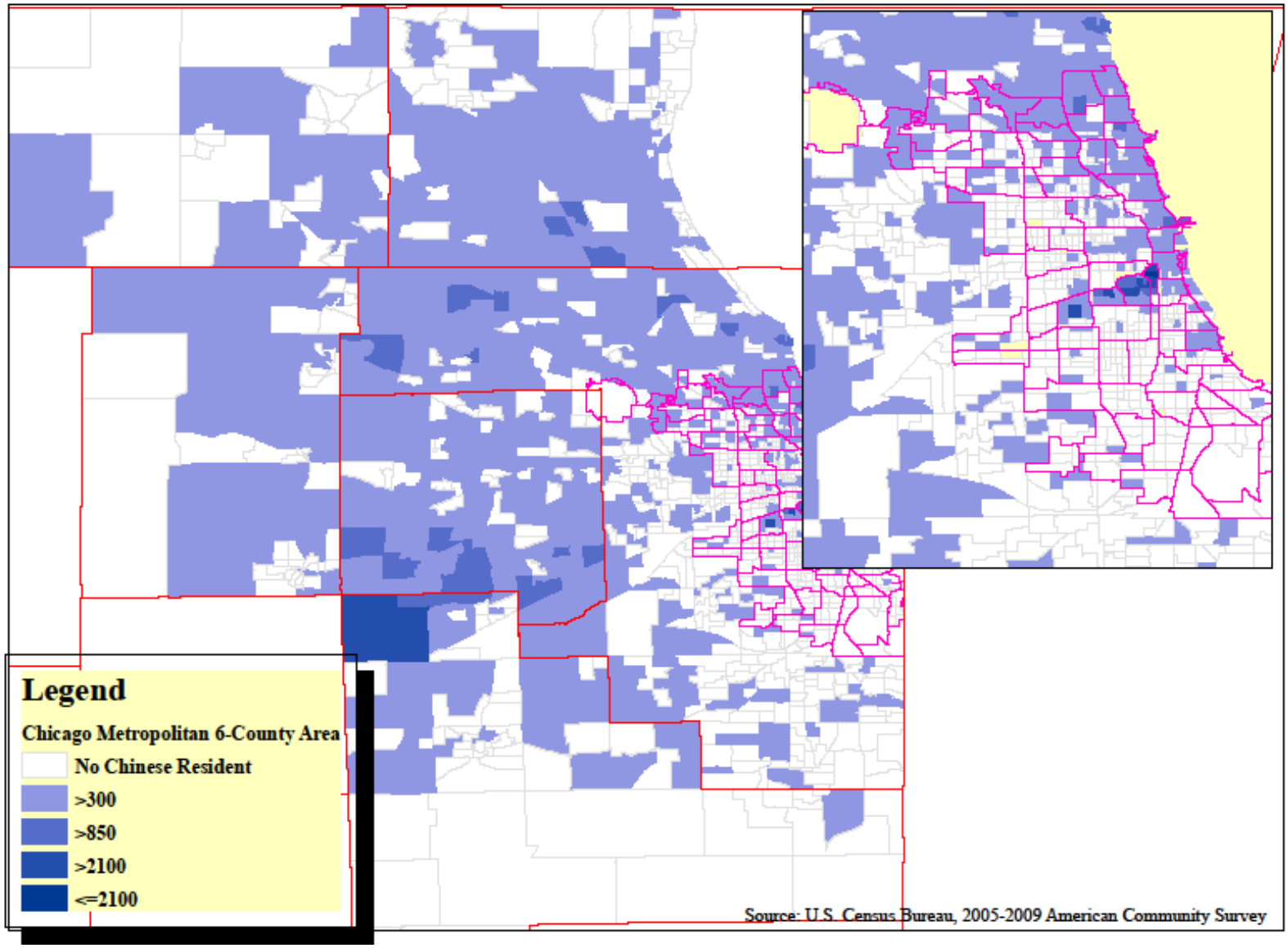
While Chinese residents are dispersed throughout the area, the largest and most widely known ethnic concentration is located in Chinatown, which formed to fulfill commercial and social needs in downtown Chicago, which was without a visible residential concentration during the late 1800s. This pocket of concentrated resources was relocated to an area south of downtown in the early 1900s, where it sits today. The neighborhood, largely comprised of speakers of the Toisan dialect of Cantonese, was initially confined to a few city blocks surrounded by multiple highways, railroads, the Chicago River, and public housing for decades, has become an economically thriving, densely populated neighborhood, and a tourist attraction in recent years.

Balanced growth of the Chinese community through immigration over time corrected gender imbalances of the past, and reduced a need for traditional family associations in the community, while the need for social service organizations for counseling, training, and education increased during the 1980s and 1990s. Subsequently, a range of Chinese professional, business, cultural, and social organizations, and even media outlets, developed as the community expanded around Chinatown (Moy 1995).

Unlike its modest beginnings a century ago, this rapidly expanding area now has a large residential concentration of Chinese population (Figure 1). The only Chinese-majority census tracts in the region are found in Chinatown and its recent westward expansions into neighboring Bridgeport, McKinley Park, and Brighton Park. This path of expansion follows the path of Irish, Italian, and eastern European immigrants from the previous generation that made up the historically working class during the height of manufacturing economy in the city (Bae 2001).

This recent movement is significant in that despite citywide white flight that lingered for the past several decades, these neighborhoods persistently retained sizable pockets of white ethnic groups until Mexican and Chinese communities expanded into respective neighborhoods. It is worth noting that other, smaller pockets of concentrations are found in major university campuses in the area including the University of Chicago in Hyde Park, Illinois Institute of Technology adjacent to Chinatown, University of Illinois at Chicago on near west side, and Northwestern University in Evanston; most of these are settlements include Chinese who are Mandarin, Taiwanese or English speakers. While concentrations and numbers are not as high as those in the city, small pockets of suburban concentrations can be found in Aurora (Lake and Will Counties) and such affluent suburbs as Hoffman Estates, Vernon Hills and Buffalo Grove on the northwestern part of the region.

Figure 1. Number of Chinese Residents by Census Tract



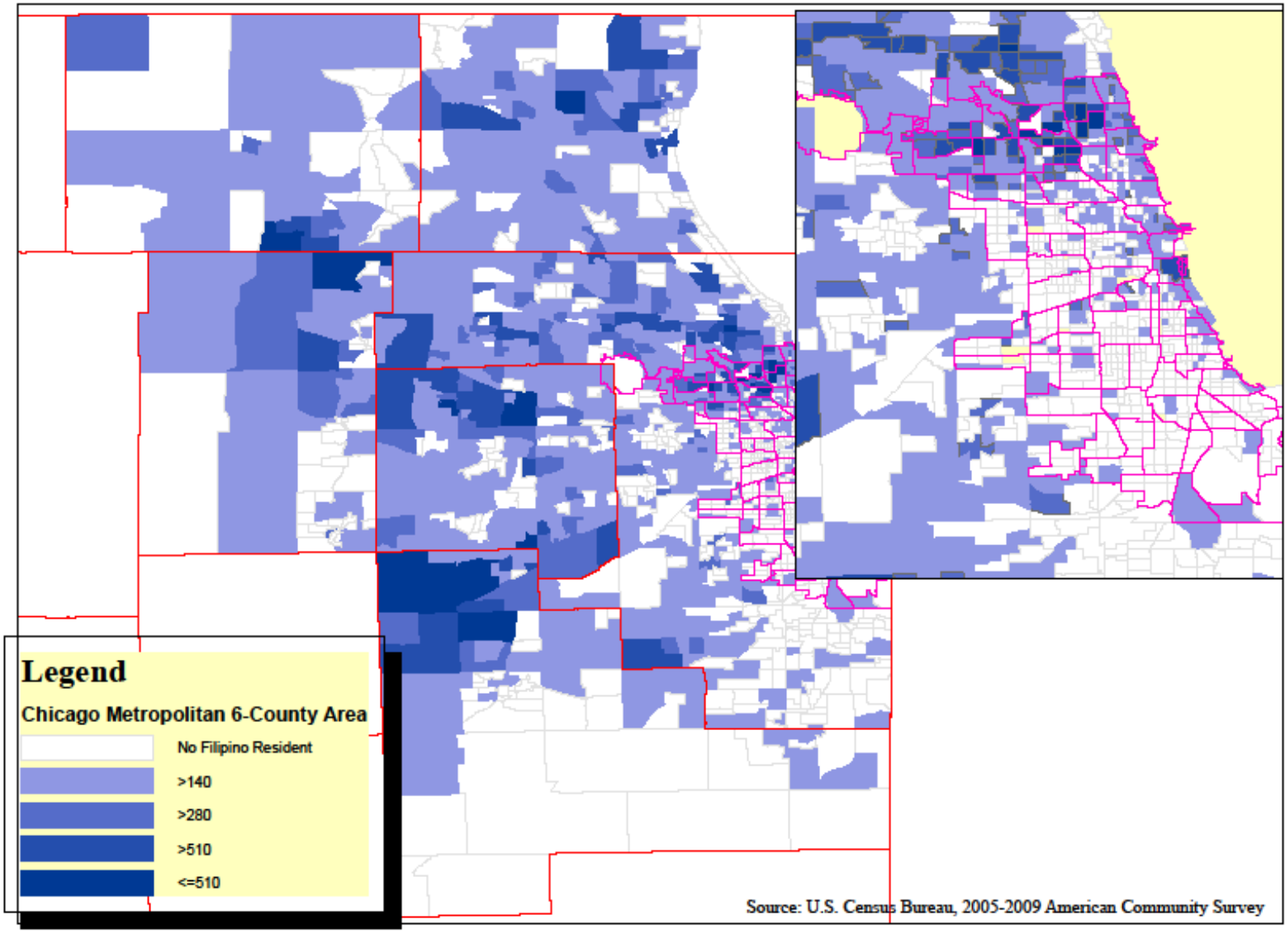
ii. Filipino Community in Chicago

Filipinos arrived in the United States as early as the 1700s in Louisiana (Chan 1982), largely as pensionados, the privileged classes of Filipino society seeking higher education (Baldoz 2004). By the late 1800s, Chicago became a prominent destination. Since then, the Filipino population remained small, and despite being nationals from a colonial possession, they were not permitted to become naturalized citizens until 1946 (Esguerra 2011). Despite a fragmented population by region in the Philippines, Filipino immigrants immediately formed various organizations on arrival by occupations, schools attended or graduated from in the Philippines, religious affiliations, political beliefs, and personal interests. In Chicago, even an umbrella organization to coordinate these organizations for Filipinos was formed in the late 1940s called the Filipino American Council of Chicago (FACC). The influence of these organizations persists as transnationalism increased their visibility and connectivity.

Considering the importance of abundant and diverse labor forces for economic growth, immigration has always functioned as a device to control labor supply, particularly for those occupations in high demand but short supply. This mechanism to control the labor supply was accomplished by shifting immigration policies to attract immigrants with skills and professions that suffer labor-market shortages. As a result, immigrant populations in the post-industrial economy bifurcated into concentrations of hour-wage jobs in the service sector and professionals in select sectors such as education, technology and medicine/healthcare. Filipino immigrants fulfilled the needs of the American labor market largely with female nurses and other healthcare-related workers. Given the training and skills required for those occupations, this specialized form of migration required individual and organization networks across the globe from hospitals and government agencies to professional organizations (Choy 2003).

Chicago's Filipino community is sustained largely through links of complex actions that encompass organization activities and individual occupations. Despite numerous and active organizations that include human rights organizations such as the Alliance of Filipinos for Immigrant Rights and Empowerment (AFIRE), this group does not have a visible and symbolic commercially central area comparable to that of Chinatown, nor are there residential concentrations associated with an ethnic group. Instead, small pockets of Filipino residents are found in sections of ten contiguous neighborhoods on the far north side of the city, and the first ring of suburbs immediately north of those areas, including Skokie, Niles, and Glenview (Figure 2). Four additional suburban Filipino concentrations exist, though they are proportionately smaller, including Gurnee in Lake County, Carpentersville, Huntley, and Lake in the Hills in Kane and McHenry Counties, Glendale Heights and Addison in western DuPage County, and Naperville and Aurora in the southern part of DuPage County. The Filipino population in Chicago's six-county area is estimated to be 100,055, 21.2% of the Asian population and 1.2% of the total population.

Figure 2. Number of Filipino Residents by Census Tract



iii. Mexican Community in Chicago

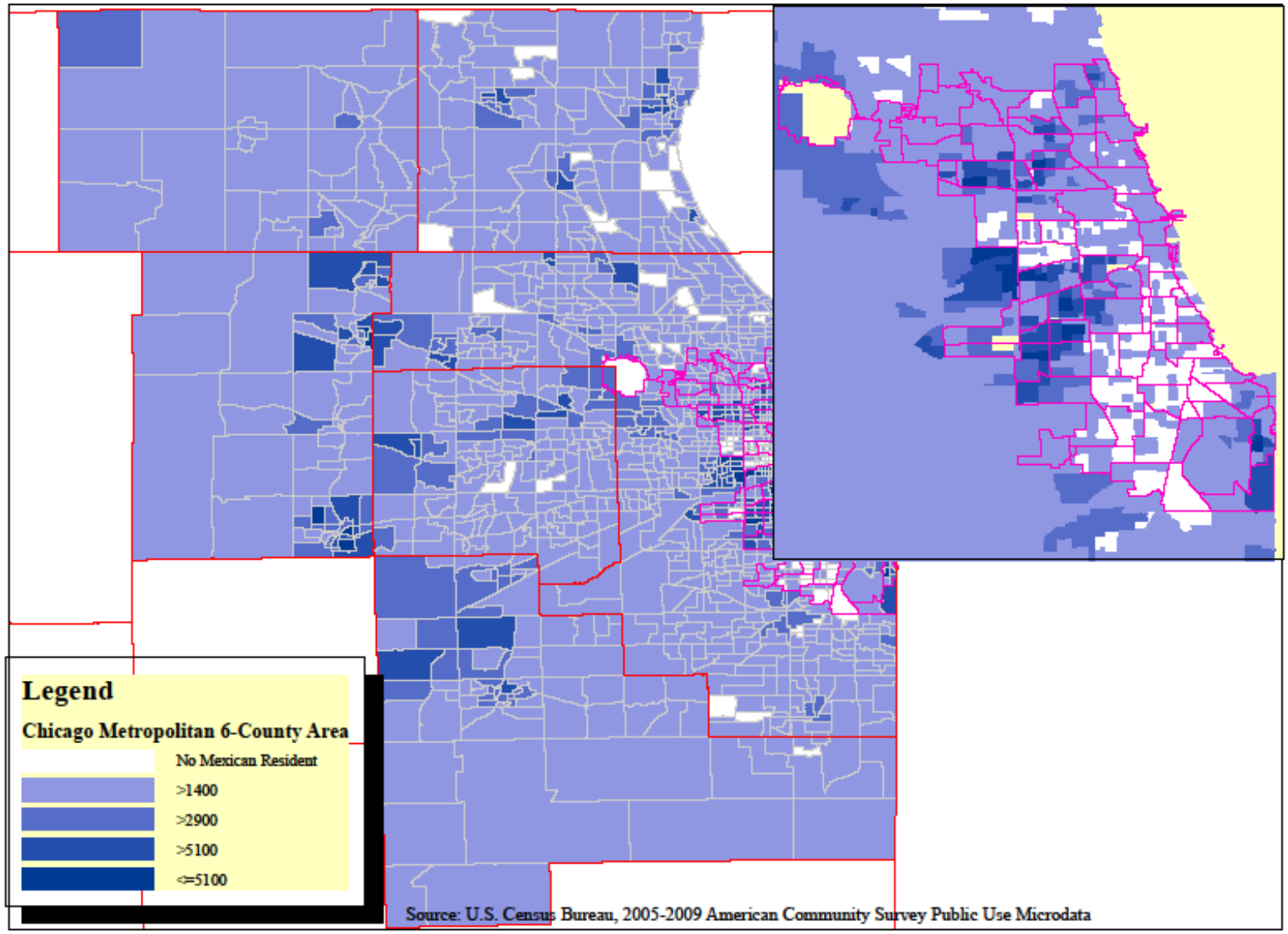
The initial wave of Mexican migration to Chicago began in the early 1900s, triggered by the economic, social, and political turbulence in Mexico that led to displacements, which coincided with a rise of demand in industrial and agricultural employment in the United States (Arredondo 2008). Demand for labor accelerated the rate of migration during the 1920s when structural chains of recruitment were established and led to Mexican exemption from the 1924 Immigration Act[6] restrictions.

Today, the Mexican population in Chicago's six-county area is estimated to be 1,328,657, 78.8% of the Hispanic population and 15.9% of the total population. Following a path established by eastern European immigrants a generation prior, rapid and massive expansions of Mexican neighborhoods in Chicago began immediately southwest of the downtown area in Pilsen and moved westward to Little Village neighborhood, which spanned to the city's western border. The momentum for this commercial and residential movement reached the first ring of suburbs of Cicero and Berwyn as these municipalities gradually became predominantly Latino despite initial resistance (Cárdenas 2002). Commercial growth of the Little Village neighborhood was so large that the area recently became the second largest source of sales tax revenue for the city outside of Magnificent Mile, a shopping district located downtown[7]. Lesser-known, large pockets of Mexican neighborhoods exist in South Chicago and Rogers Park in the city, and downtown Elgin, Carpentersville, and North Aurora in the suburbs (Figure 2). Highwood in Lake County is particularly interesting given it is located in the most affluent county in the region and is surrounded by historically upper-middle municipalities.

[6] Also known as the Johnson–Reed Act, it established an annual quota of any nationality at 2% of immigrant residents of that nationality in the United States as of 1890.
[7] http://www.suntimes.com/news/politics/11321662-418/mayor-says-26th-street-in-little-village-is-citys-second-magnificant-mile.html.

Diversity and a large volume of organizations within the Mexican community indicate a robust capacity to support community members and the ability to bridge to the host society. For example, one of the most active organizations in Chicago that serves as a conduit function is the Hispanic Democratic Organization (HDO) that, along with a number of churches with large Latino congregations, has mobilized Latino voters since the early 1990s, frequently in support of Mayor Richard M. Daley and candidates who endorse him (Bennett 2006). This organization influence extends to the national level where organizations such as the Mexican American Legal Defense and Educational Fund (MALDEF) are engaged prominently in education, immigration, employment practices, and voting rights. Perhaps most importantly at the local level, religious institutions play a key role in neighborhoods where they not only provide education and social services, they also function as a conduit to civic engagement as seen during an immigrant rights march in May 2008.

Figure 3. Number of Mexican Residents by Census Tract



b. Data

This study uses two datasets with two units of analysis in which one is nested within the other. These two datasets link geographically, but only economic and demographic compositions and tendencies are discussed in analyses without regard for specific locations of respondents to ensure respondent confidentiality for those who participated in the CECS. Similar to most other studies that evaluate macro-level phenomena, studies of residential patterns in the United States rely on data collected by or on behalf of government agencies such as the U.S. Census Bureau. While government data often capture socioeconomic characteristics of individuals and households in the nation, these data neither obtain adequate information from marginalized populations—including those disadvantaged economically or those culturally and linguistically isolated—nor collect behavioral information that elaborates on causality. The difficulty of measuring these groups increases at smaller geographic levels where the likelihood of errors in estimates increases and the confidentiality of individuals who belong to numerically small groups are threatened. Consequently, lack of detailed information on these marginalized groups means they are often excluded from macro-level analyses. Using the Chicago Ethnic Community Survey (CECS) and aggregated American Community Survey (ACS) for five years (2005 to 2009) from the U.S. Census Bureau, this project first focuses on social networks of first-generation immigrants from three select ethnic groups—arguably one of the marginalized groups often neglected when it comes to evaluating impact on community formations. Second, the impact of ethnic communities on residential patterns is measured using characteristics of residential areas for those individuals as proxies for neighborhoods.

i. Chicago Ethnic Communities Survey

This project examines immigrants in three ethnic groups from the CECS conducted in 2007: Mexicans, Filipinos, and Chinese.[8] While consideration for Mexican immigrants in the study is warranted given the group's size and subsequent influence, separate subsamples of Filipino and Chinese immigrants among Asians is significant. In numerous studies, Asians in the United States are grouped as one, given the group's small size. However, rapid growth in the population for the past several decades and a growing global impact from a number of Asian countries forced scholars to recognize differences among Asian groups (Logan 2001).

The survey includes components of ethnic groups seldom measured such as social networks based on social interactions and contexts, characteristics of those networks such as gender, ethnicity, and education, organization affiliations and their types (e.g., ethnic, pan-ethnic, American, religious, etc.), motivations for migration, and religion. In addition to demographic and socioeconomic variables, the survey also includes spatial identifiers linkable to geographic data by residency.

In 2007, data were collected from the six-county area around Chicago—Cook, DuPage, Kane, Lake, McHenry, and Will Counties—using a Multistage Probability Proportionate to Size (PPS) sampling method. Although this area is smaller than the Chicago Primary Metropolitan Statistical Area (PMSA) defined by the U.S. Census Bureau, it is the most commonly studied local unit of geography for the area during the past several decades. Typically, the Census Bureau bases expansion of an MSA on pre-established guidelines[9] in terms of population growth and contiguity. Despite rapid expansion of suburban areas that incorporated additional counties during the past several decades, the land-use pattern of the region indicates areas beyond these

[8] The Ukrainian sample in the CECS was excluded from this project due to a failure to collect a spatial identifier.

[9] See http://www.census.gov/acs/www/data_documentation/custom_tabulation_request_form/geo_def.html for geographical definition.

six counties increasingly deviate from the appearance and composition of the Chicago metropolitan landscape, particularly in those counties included as parts of recently updated Chicago MSAs but that cross state borders into Wisconsin and Indiana[10].

The study was initially designed to obtain 100 urban (City of Chicago) and 100 suburban interviews among subjects aged 18 or older and born in Mexico, China, or the Philippines, but geographic distribution of the final sample varied slightly by ethnic group. Respondents were given the option to be interviewed in English, Mandarin, Cantonese, Spanish, or Tagalog; two-thirds of the interviews were conducted in non-English languages. To reduce biases in inferential statistics, a Post Stratification Weighting Procedure was applied by raising weights of sub-groups (gender and education) underrepresented in the sample, and reducing weights of those overrepresented (Appendix I). To calculate post-stratification weights, Public Use Micro Samples from the Census Bureau and Population Center at University of Minnesota for 2005 through 2009 (IPUMS) were used to estimate the two key demographic characteristics.

Social networking was measured using identification of persons by activities based on economic or social needs (Appendix II). Activities ranged from daily activities such as seeking advice for a major change in life (Question 22), help around the house (Question 23), and visiting for a chat (Question 26) to economic activities such as borrowing money (Question 24) and shopping (Question 25). A residual activity category was captured by asking about other individuals found helpful. Organizational affiliations were measured by a list of organizations and their names, activities, and locations.

A major limitation of CECS is that the sample includes far fewer ethnic groups to generalize across all immigrant populations. Acquisition of ethnically and geographically

[10] See "Chicago, Indiana" by K. Kim (http://www.beachwoodreporter.com/politics/chicago_indiana_1.php) for historic changes in geographic definitions of Chicago and surrounding areas.

diverse samples is a costly operation that is not accomplished easily with small-scale resources, especially considering increasingly diverse and complex immigrant populations. Given the complexity of survey items that measured social networks and organization affiliations, a greater sample size is subsequently more challenging. Having an ample number of respondents from three ethnic groups that are vastly different with regard to histories and socioeconomic backgrounds, one can test differences in interaction patterns within and across groups, and gauge variations. Another limitation is the survey's limited scope of activities based on residency, which do not include economic activities that stem from workplaces. Argued by Portes and Jensen (1992), in a study of immigrants and ethnic groups, residential concentrations and concentrations of ethnic firms that compose ethnic enclave lead to evaluations of two components of ethnic communities. Despite the long history and contribution Chicago has made to the social sciences for the past century, local history, social, political, and economic dynamics of each metropolitan area make generalizability of the study uncertain and replication in other locales desirable.

ii. American Community Survey

The ACS is an on-going, nationwide survey conducted by the U.S. Census Bureau that captures demographic, social, economic, and housing data. The questionnaire includes questions on individual characteristics such as age, sex, race/ethnicity, income, education, disabilities, veteran status, language spoken at home, mode of commute to work, occupation, access to health insurance, and vehicles availability, and household characteristics such as location, tenure, home ownership status and expenses, and housing type and value (http://www.census.gov/acs/www/data_documentation /public_use_microdata_sample/). Results

of this annual survey are released in single-year and multi-year estimates. As a replacement of the long-form in the decennial census, ACS collects household and individual-level data from 1 in 40 addresses, approximately 250,000 households every month (U.S. Census Bureau 2009).

Generating estimates at small geographic levels such as a census tract or block group requires 5-year aggregated ACS data. The ACS used in this analysis is based on an estimated census-tract level population and household characteristics collected from January 1, 2005 to December 31, 2009. Census tracts are small, statistical subsets of a county that typically contain between 2,500 and 8,000 persons in varying sizes, depending on the density of housing formation. Residents within each census tract are intended to be homogeneous with respect to socioeconomic characteristics and living conditions. Based on results from a decennial census, these census tracts are subject to revisions, and some census tracts are split due to sizable population growths while others are combined as a result of population declines. The census tract boundaries applied to ACS during this period are from Census 2000.

There are two types of data that can be used from ACS: summary tables and the aforementioned Public Use Microdata Sample (PUMS) file. Summary tables incorporate monthly responses collected from the ACS to estimate select demographic and economic characteristics in an aggregated geographic unit as small as a census block and as large as a state. The primary advantage of the summary tables is that estimates are made at small geographic units such as census tracts, interpreted loosely as neighborhoods. However, estimates provided in the summary tables cannot be manipulated to segment or extract groups of individuals due to large standard errors and to guarantee confidentiality. For example, while the summary tables provide estimates for immigrants or foreign born populations at the census-tract level, they do

not provide estimates for Mexican immigrants at that level. Mexicans born in both the United States and Mexico at the census tract are available in the summary tables.

The PUMS file is a subsample of ACS at individual- or housing-unit levels, employed in previous immigrant analyses (Borjas 1986; 1990; Portes and Jensen 1992; Sanders and Nee 1987). Since each record in the PUMS file is comprised of direct responses from ACS questionnaires and are weighted according to demographics, the file can be used to extract any group of individuals. For example, a Mexican immigrant (determined by birthplace) population that could not be estimated above using the summary tables can be estimated using the PUMS file. To preserve confidentiality, the PUMS file cannot be used to estimate small geographic units such as census tract. The smallest geographic unit possible in the PUMS file is PUMA of which there are 52 in the six-county Chicago metropolitan area. In comparison, ACS summary tables contain 1,837[11] census-tract level estimates of the same area.

To harness the strengths of both types of census data, the PUMS file provided descriptive statistics and quality assurance in the weighting procedure, and the summary tables determined neighborhood conditions in the Hierarchical Linear Modeling (HLM) portion of analysis. Using summary tables, CECS was linked to multiyear ACS (2005 to 2009) on demographic and economic characteristics at the census-tract level. Since the survey was conducted in 2007, multiyear estimates between 2005 and 2009 contained census-tract level estimates closest to those matching neighborhood experiences and conditions of residents at the time of CECS.

[11] The number of census tracts for the six-county area included 16 census tracts in Cook County whose population is estimated to be zero. These census tracts were excluded from all analyses.

IV. Analysis

a. Variables

i. Dependent Variables

Following the Durkheimian tradition of measuring structural variables, models are intended to measure individual-level community formations and outcome measures are categorized into two categories: social leverage and social support measures (Small 2007). Social leverage measures include (1) number of social ties, (2) access to human capital measures through number of social ties with college degrees, and (3) number of organization affiliations. Social networks with college education isolate one aspect of multiplexity in one's relationships to explore the influence of human capital and credentials. Similar to overall social ties, organization affiliations are "essential for social capital formation and civic community building" (Newton 1999, p.15), but with institutional legitimacy that allows gauging broader impacts such as community robustness. Social support measures focused on development of internal measures of (4) co-ethnic ties and (5) co-ethnic affiliations or nationality organizations. In this analysis, social networks are individuals with whom respondents interact to enhance quality of living, life chances, or economic advancement. Organization affiliations represent institutional reliance for acquisition of emotional, social, or economic needs.

Table I. Descriptive Statistics of the Dependent Variables

	Chinese				Filipino				Mexican			
Variables	**Min.**	**Max.**	**Mean**	**SD**	**Min.**	**Max.**	**Mean**	**SD**	**Min.**	**Max.**	**Mean**	**SD**
Number of social ties	0	9	4.47	2.28	0	9	5.57	2.47	0	9	4.65	2.51
Number of organizational affiliation	0	6	1.28	0.65	0	6	1.54	0.98	0	4	1.57	0.71
Number of co-ethnic ties	0	9	4.26	2.31	0	9	4.84	2.38	0	9	4.30	2.37
Number of social ties with college education	0	9	3.05	2.38	0	9	4.50	2.33	0	9	1.16	1.44
Number of Nationality Organizations	0	3	0.21	0.54	0	5	0.41	0.69	0	3	0.20	0.49

ii. Independent and Control Variables

At the individual level, the models control for attributes known to influence social networks: gender (Fernandez and Harris 1992; Tigges, Browne, and Green 1998), age (Ajrouch, Antonucci, and Janevic 2001; Cantor, Brennan, and Sainz 1994; Hawkley and Cacioppo 2007), and education (Fischer 1982; McPherson, Smith-Lovin, and Cook 2001; Tigges, Browne, and Green 1998). Models were tested separately for each ethnic group, and used immigrant experiences known to influence the breath and density of social networks: number of years in the United States and citizenship status (Jasso, Massey, Rosenzweig, and Smith 2005).[12] Urbanity (urban/suburban) was added as an individual-level spatial measure. While demographic and economic attributes found in extant research are controlled by isolating immigrant experiences, one can estimate distinct paths and characteristics in which networks form among immigrant populations.

Using these individual-level attributes, five dependent variables were tested again with the impact of those attributes varying by geography to examine the impact of spatial heterogeneity more closely. Previous studies find that ethnic communities serve as economic and social incubators for new members (Choi 2010; Light and Rosenstein 1995; Lin 2011; Odé 2002; Sassen 1998), but rarely is a question posed with regard to sustained influences of these communities and longevity of membership. The underlying assumption of these ethnic communities is that members who integrate or assimilate with the host society abandon former social structures and neighborhoods in favor of those elements and surroundings that offer greater advantages and opportunities. Spatially, such movement has been understood as gravitation toward enhanced and safer environments and living conditions, and this line of

[12] Impacts of the control variables are discussed further in Appendix XI.

thinking is evident when individuals scatter from ethnic concentrations; a simple measure of density has been used as the primary indicator of adaptation to a host society.

To follow conventional geographic mapping strategy of identifying ethnic communities (Alba, Logan, and Crowder 1997), one of the key aspects of spatial components is to measure density, which in this study was measured with degrees of concentration. Given the multifaceted contents of urban environments that can have overlapping characteristics in a confined space, additional sets of variables measuring diversity are necessary. Measuring diversity, Hall and Lee (2009) call for more precise definitions that gauge varying degrees of diversity across multiple categories in addition to presences of a single group per measure (e.g., percent black and percent foreign born). To address these problems in previous studies, this project supplemented single-component measures with those that gauge complex dynamics across groups.

Table II. Descriptive Statistics of the Individual Level Independent Variables

	Chinese				Filipino				Mexican			
Variables	**Min.**	**Max.**	**Mean**	**SD**	**Min.**	**Max.**	**Mean**	**SD**	**Min.**	**Max.**	**Mean**	**SD**
Female	0	1	0.66	0.48	0	1	0.60	0.49	0	1	0.62	0.49
College Degree	0	1	0.48	0.50	0	1	0.76	0.43	0	1	0.04	0.20
Urban	0	1	0.55	0.50	0	1	0.50	0.50	0	1	0.51	0.50
Age	19	84	41.50	12.29	19	85	49.78	15.185	20	85	51.92	15.317
Years in US	0	59	16.67	10.9	0	57	21.31	11.878	0	70	20.12	11.552
US Citizenship	0	1	0.26	0.44	0	1	0.59	0.49	0	1	0.79	0.40

Exploring neighborhood conditions that influence social networks, Small (2007) points out the complexity of interpreting impacts on individual-level results due to unobserved heterogeneity that may be the factors of residential selection. This analysis explores precisely those factors using HLM to evaluate neighborhood-level (Level II) indicators as proxies for motives. Social networks, spatial variations of those networks, and affiliations explain

intentions, capacities, and limitations of residential selection. While the degree to which social networks impact the selection process directly is not estimated, just as these networks impact occupations, health, and other aspects of individuals' lives, it is reasonable to make a link between social interactions and residential selection. Given rising economic inequalities in both the nation and the region (Rodgers and Lazere 2004), measuring diversity of both economic and demographic components must be considered to gauge variations in neighborhood conditions.[13] These neighborhood-level measures primarily gauge the following compositions and conditions: demographic diversity, economic/class diversity, and presence of African American, immigrants, poverty, and co-ethnic groups. Economic conditions consist of economic diversity using household income (Appendix III) and housing value (Appendix IV). Human capital measures use diversity in education attainment (Appendix V) and percentage of college graduates in the neighborhood (Appendix VI). Economic constructs are measured by presence of poverty in terms of percentage of all households in a given census tract (Appendix VII). Demographic diversity gauges presences of racial and ethnic groups (Appendix VIII), blacks/African Americans (Appendix IX), and immigrants/foreign-born populations (Appendix X).

[13] A study by Rodgers and Lazere (2004) ranks Chicago 15th in income inequality of 40 major metropolitan areas.

Table III. Descriptive Statistics of the Neighoborhood Level Independent Variables

		Total (n=1,821)				Chinese (n=33)				Filipino (n=82)				Mexican (n=77)			
	Variables	**Min.**	**Max.**	**Mean**	**SD**	**Min.**	**Max.**	**Mean**	**SD**	**Min.**	**Max.**	**Mean**	**SD**	**Min.**	**Max.**	**Mean**	**SD**
Measures of Demographic Concentration	Percent Black	0.000	1.000	0.252	0.359	0.000	1.000	0.095	0.235	0.000	0.981	0.080	0.135	0.000	0.994	0.113	0.219
	Percent Co-Ethnic																
	Percent Chinese	0.000	0.828	0.012	0.050												
	Percent Filipino	0.000	0.174	0.010	0.019												
	Percent Mexican	0.000	0.976	0.153	0.211									0.002	0.976	0.330	0.280
	Percent Foreign Born	0.000	1.000	0.173	0.146	0.000	0.825	0.126	0.211	0.000	0.084	0.025	0.023	0.002	0.976	0.327	0.281
	Percent Naturalized among Foreign Born															0.390	0.180
Measures of Economic Concentration	Percent College Graduate	0.000	0.941	0.325	0.226	0.000	0.767	0.433	0.202	0.014	0.860	0.405	0.219	0.014	0.820	0.256	0.195
	Percent Below Poverty	0.000	0.890	0.046	0.137	0.000	0.669	0.280	0.158	0.007	0.560	0.290	0.134	0.000	0.577	0.298	0.168
Measures of Diversity	Racial/Ethnic Diversity	0.000	1.585	0.670	0.351	0.000	1.585	0.863	0.347	0.000	1.578	0.932	0.319	0.000	1.578	0.800	0.321
	Educational Diversity	0.000	0.973	0.654	0.134	0.339	0.889	0.652	0.147	0.249	0.889	0.687	0.159	0.252	0.889	0.689	0.110
	Diversity in Household Income	0.000	0.821	0.527	0.083	0.343	0.740	0.536	0.081	0.268	0.741	0.558	0.072	0.268	0.631	0.505	0.065
	Diversity in Housing Value	0.000	0.781	0.319	0.101	0.000	0.599	0.327	0.136	0.092	0.532	0.315	0.080	0.145	0.641	0.316	0.086

Source: U.S. Census Bureau, 2005-2009 American Community Survey

Descriptive statistics suggest respondents to CECS reside primarily in those neighborhoods similar to regional averages in demographic and economic compositions, with a few notable exceptions (Table III). First, presences of African Americans are substantially smaller among areas where CECS respondents reside across all three ethnic groups (9.5% for Chinese; 8% for Filipinos; and 11.3% for Mexicans) than the regional proportion of 25%. Overall, respondents to CECS from all three ethnic groups tend to reside in racially/ethnically homogeneous areas, and have substantially higher proportions of households below poverty (9.6% for Chinese; 10% for Filipinos; and 13.6% for Mexicans) than the regional proportion of 4.6%. Areas with CECS respondents tend to have a higher proportion of immigrants (28% for Chinese; 29% for Filipinos; and 29.8% for Mexicans) than the region as a whole (17.3%). Variations in these attributes are examined in a later section to determine whether these conditions influence social interactions.

b. Hypotheses

Through six hypotheses, this research evaluates ways in which immigrants' social networks are impacted by unique experiences of immigrants and variations in characteristics of residency by social networks, which are interpreted as use of resources in the housing market. The initial model tests hypotheses at the individual level and focuses on the impact of immigrant experiences on social networks. Accumulation of social networks tests not only an individual's ability to navigate but also gauges aggregate capacity of an ethnic community to offer diversified means of accumulating social capital. This analysis tests a series of hypotheses based on Wellman et al. (1988), Holton's (1994) concept of community ties and bonds, and Tillie's (2004) suggestion to measure an ethnic group's social capital through a variety of organization

activities. The first two hypotheses test at the individual level whether unique experiences of being an immigrant impact social networks and organization affiliations. The first hypothesis tests whether social support—measured by co-ethnic ties and nationality organization affiliations—decline with an increase in years spent in the United States. The second hypothesis tests the impact of U.S. citizenship on social networks; those with U.S. citizenship will have greater social leverage—measured by overall social networks and organization affiliations—than those not naturalized. Based on a spatial assimilation approach (Massey and Denton 1985), the third hypothesis tests whether those respondents residing in the city where an ethnic enclave is located have greater social support but lesser social leverage than those who reside in suburban areas, where those who no longer require ethnic community support are likely to reside. Confirmation of this hypothesis merits further analysis into the spatial component.

Current literature analyzes ethnic communities in terms of numerical, spatial concentrations of residence (Logan, Zhang, and Alba 2002), varying degrees of social capital or networks (Zhou and Bankston III 1994) without spatial components, or descriptive characterizations of a space (Li 1998). Recognizing that formation of community cannot occur in isolation and that housing consumption behaviors cannot be understood without consideration of the environment (Jasso, Massey, Rosenzweig, and Smith 2005), this study expands the premise of spatial components in the latter hypothesis. The hypotheses concerning spatial components begin with the impact of demographic concentrations. Based on assimilation tradition, the fourth hypothesis tests whether an increase in social leverage results in avoidance of co-ethnic concentrations. Increased social support is likely to occur in co-ethnic concentrations. Expanding on avoidance, if enhancement in social networks indicates upward mobility, those able to do so are likely to avoid not only co-ethnic concentrations, but also those

areas comprised of higher proportions of immigrants and/or racial minorities. Therefore, the fifth hypothesis tests whether those with greater social networks—measured by both social leverage and social support—avoid those areas concentrated with immigrants and/or racial minorities, particularly African Americans. Given a wide continuum of economic diversity, one cannot simply assume avoidance of one group or characteristic translates to homogeneity. Hence, the sixth hypothesis tests whether enhancement in social networks increases gravitation toward highly educated and affluent areas, with avoidance of impoverished areas. Ultimately, this hypothesis tests whether social leverage forms primarily in demographically and economically homogenous areas.

c. The Models

The initial phase of the analysis begins with evaluating individual-level data from the CECS. All outcome measures use Hierarchical Generalized Linear Models (HGLM) with the assumption of Poisson distribution for predicting counts (Raudenbush and Bryk 2002; Small 2007). Each Model at the individual level (Level I) takes the form:

$$n_i = \beta_0 + \beta_1(Gender)_1 + \beta_2(Age)_2 + \beta_3(Education)_3 + \beta_4(Yrs\ in\ US)_4 + \beta_5(US\ Citizenship)_5 + \beta_6(Urbanity)_6 + \epsilon$$

where each of the five dependent variable for individual *i* is a function of the aforementioned six demographic and socioeconomic traits and immigrant experiences. These models take on the hierarchical nature but only control for individual-level attributes, and Level II effects remain fixed to isolate variability. That is, the impact of independent variables is assumed equal across areas in the region, and each coefficient is interpreted as a unit of change that impacts the

predicted number of ties or affiliations in an average neighborhood/census tract. The next phase tests for variance components, which determine whether this assumption holds. In the last phase of analysis, using coefficients from the initial phase at the neighborhood level (Level II), the model takes the form:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\%\ African\ American)_j + \gamma_{02}(\%\ Co - Ethnic)_j$$
$$+ \gamma_{04}(Racial/Ethnic\ Diveristy)_j + \gamma_{05}(Educational\ Diversity\ )_j$$
$$+\ \gamma_{06}(\%\ College\ Graduate)_j +\ \gamma_{07}(Income\ Diversity)_j$$
$$+ \gamma_{08}(Housing\ Value\ Diversity)_j + \gamma_{09}(\%\ Below\ Poverty)_j$$
$$+ \gamma_{10}(\%\ Foreign\ Born)_j +\ \epsilon$$

where the predicted number of ties (or the other four dependent variables) for a respondent in the average neighborhood or census tract is a function of seven neighborhood-level predictors. HLM regresses the intercepts and the slopes in level I (β_{0j}) on these census tract-level covariates. By grand-mean centering, covariate γ_{00} is interpreted as the covariate-adjusted average of the dependent variables at Level I.

d. Findings

i. Individual Immigrant Experience

Table IV shows the effect of immigrant experience on each dependent variable, controlling for gender, age, and education. Results indicate that immigrant experience contributes negatively to variation in social support for Filipino respondents, but have the opposite impact on others. As hypothesized, social support declines significantly for Filipino

respondents as co-ethnic networks diminished with additional years spent in the United States (β= -0.007). However, both measures of social support increased significantly for Chinese respondents (β= 0.006 for social ties and β= 0.031 for nationality organizations). Even for social support measures, the magnitude in which membership in nationality organizations increased was far greater (β= 0.031) than the increase in co-ethnic social ties (β= 0.006). Results for Chinese respondents indicate that the assimilation model, which assumes greater distance from one's ethnic community over time, is not necessarily the case among contemporary immigrants in the United States.

Table IV. Coefficients for Individual Level Fixed Effects by Ethnic Group

		Chinese					
	Depedent Variable	**Female**	**Age**	**College Degree**	**US Citizenship**	**Years in US**	**Urban**
Social Leverage	**Number of social ties**	0.000	0.004**	0.038	0.147	0.006***	-0.220**
		(0.000)	(0.002)	(0.064)	(0.103)	(0.002)	(0.096)
	Number of social ties with college education	-0.125	0.005	0.807***	0.170	0.008*	-0.416***
		(0.105)	(0.003)	(0.104)	(0.128)	(0.005)	(0.112)
	Number of organizational affiliation	0.081	-0.004	0.348**	0.036	0.013**	0.748***
		(0.230)	(0.009)	(0.135)	(0.142)	(0.006)	(0.214)
Social Support	**Number of co-ethnic ties**	0.113	0.002	0.028	0.206*	0.006**	-0.119
		(0.094)	(0.002)	(0.088)	(0.105)	(0.002)	(0.113)
	Number of Nationality Organizations	0.021	0.003	0.993***	-0.693**	0.031***	0.930***
		(0.399)	(0.015)	(0.366)	(0.322)	(0.008)	(0.258)
		Filipino					
		Female	**Age**	**College Degree**	**US Citizenship**	**Years in US**	**Urban**
Social Leverage	**Number of social ties**	0.014	0.003*	0.051	-0.231***	-0.003	-0.232***
		(0.058)	(0.002)	(0.062)	(0.068)	(0.002)	(0.087)
	Number of social ties with college education	0.048	0.004*	0.289***	-0.329***	-0.003	-0.305***
		(0.058)	(0.002)	(0.078)	(0.098)	(0.003)	(0.111)
	Number of organizational affiliation	0.136	0.003	0.202	-0.346	-0.011	-0.286
		(0.163)	(0.007)	0.237	(0.254)	(0.006)	(0.254)
Social Support	**Number of co-ethnic ties**	0.064	0.002	0.089	-0.106	-0.007**	-0.252***
		(0.063)	(0.002)	(0.100)	(0.081)	(0.003)	(0.091)
	Number of Nationality Organizations	0.288	0.002	0.362	0.151	-0.007	-0.039
		(0.194)	(0.008)	(0.237)	(0.296)	(0.007)	(0.284)
		Mexican					
		Female	**Age**	**College Degree**	**US Citizenship**	**Years in US**	**Urban**
Social Leverage	**Number of social ties**	0.215***	-0.001	0.103	-0.086	0.003	0.166*
		(0.068)	(0.003)	(0.151)	(0.091)	(0.003)	(0.090)
	Number of social ties with college education	0.512***	-0.001	0.590	-0.307	0.008	-0.192
		(0.189)	(0.004)	(0.459)	(0.210)	(0.007)	(0.191)
	Number of organizational affiliation	-0.364*	0.022***	0.602***	0.414**	-0.011	0.008
		(0.205)	(0.005)	(0.214)	(0.210)	(0.008)	(0.137)
Social Support	**Number of co-ethnic ties**	0.170**	-0.001	-0.031	-0.115	-0.001	0.219**
		(0.081)	(0.003)	(0.170)	(0.094)	(0.003)	(0.096)
	Number of Nationality Organizations	-0.248	0.043***	0.412	0.850*	-0.024	0.231
		(0.426)	(0.010)	(0.847)	(0.444)	(0.015)	(0.265)

*** p<0.01

**p<0.05

* p<0.10

The second hypothesis concerning a positive impact of U.S. citizenship on social leverage is confirmed for Mexican respondents, who reported greater numbers of organization affiliations with U.S. citizenship, and Filipino respondents, whose social ties and ties with

college graduates increased. In addition, acquisition of U.S. citizenship had a mixed impact on social support measures for Chinese respondents; they gained co-ethnic networks but lost nationality organization affiliations. This differentiated impact between social ties, which influences quality of living, life chances, and economic advancement, and organization affiliations, which gauges institutional reliance for various needs, may indicate that within Chinese ethnic communities in Chicago, those who naturalize have diminished needs for a structural element of ethnic community while emotional and personal ties remain important.

The third hypothesis preliminarily tests those respondents residing in the city to have greater social support but less social leverage than those who reside in suburban areas. Results were partially supported by Chinese and Filipino respondents, for whom suburban residents had greater social leverage through significant greater social ties (β= -0.220 for Chinese and β= -0.232 for Filipino) and college educated ties (β= -0.416 for Chinese and β= -0.305 for Filipino). However, social leverage of a different type was found among Chinese residents in the city through organization affiliations (β= 0.748) versus suburban counterparts. This distinction between social networks and organization affiliations is explored further later in the analysis.

For Mexican respondents, urban residents had greater social leverage in terms of social networks (β= 0.166) and having greater social support through greater co-ethnic ties (β= 0.219). Differences in findings across ethnic groups reflect differences in spatial arrangements: social support persists from physical concentrations (i.e., Chinatown in the city) for a group that has a distinct pocket of residential concentration. A similar level of social leverage beyond ethnic community can also be obtained in urban areas for a group that has a much larger size and greater numbers of concentrated areas (e.g., various Mexican concentrations throughout the city). Results of this urban/suburban dichotomy are linked to spatial elements later in the analysis.

If aggregate-level accumulation of social capital is an indicator of robustness of an ethnic community, then the Chinese community in Chicago displays an intimate, communal link between immigrant experiences and an ability to increase social capital. Conversely, for Filipino immigrants, the closer residents are to an association with American contexts (i.e., U.S. Citizenship and years in US), the fewer the co-social ties and nationality organization affiliations, suggested by assimilation theory. However, the same American contexts for Mexican immigrants yielded an increase in organization ties, which indicates the path of becoming an American is a structural process rather than an effort made by individuals. Such institutional reliance is evident throughout many Mexican neighborhoods in the Chicago area where one can commonly encounter non-profit or religious organizations that offer various classes or workshops from learning English and financial literacy to preparation for American citizenship tests. In addition to being different in composition and history, saliency of different attributes for different ethnic groups also indicates different stages of community formation. While the Mexican community has greater resources to offer a larger population, for a smaller community such as Filipino immigrants, greater reliance on individual efforts to become Americans may be necessitated by a lack of institutional support due to smaller size, thereby placing emphasis on personal networks.

To investigate the hypothesis on the spatial element further, an additional analysis was required prior to expanding multilevel analysis. As is the case with most multilevel models, the initial models began with a tentative model that assumes heterogeneity in Level I error that is variance, or σ^2 (Raudenbush and Bryk 2002). The second set of hypotheses tests for this assumption made in Level I during the first phase. In these particular models, perhaps the most important reason to test for heterogeneity is to prevent erroneous treatment of Level I predictors

as fixed across geographic areas (Raudenbush and Bryk 2002). Since standard error estimates in the variance component calculated for multilevel models assumes probability samples across levels, and given that both CECS and ACS are probability samples with one sample (CECS) nested within the other (ACS), interpretation of variance components is appropriate. Variance components "gauge the magnitude of the variation" (Raudenbush and Bryk 2002: 71) for the estimate of each dependent variable. If variance is significant in this fixed-effects model, social networks vary within each group. Conversely, small standard errors indicate more consistent effects of independent variables across geographic locations (Timberlake and Iceland 2007). With the Level I equation intact, the intercept varies in Level II while the effects of all other attributes remain fixed:

$$\beta_{0j} = \gamma_{00} + \epsilon$$

If there is significant variance for the coefficient, the corresponding independent variable(s) are substantially different by location.

The variance components suggest that all three types of social ties for Chinese and Filipino respondents and educated ties for Mexican respondents have significant variation within each group (Table V). In addition to the individual-level findings that show significant variation between urban and suburban residents, further analysis is warranted to determine the impact of spatial arrangements.

Table V. Variance Components of the Fixed Effect Models by Ethnic Group			
Depedent Variable	**Chinese**	**Filipino**	**Mexican**
Number of social ties	0.022*	0.04756***	0.02108
Number of organizational affiliation	0.0001	0.07334	0.00009
Number of co-ethnic ties	0.0392**	0.0398***	0.01966
Number of social ties with college education	0.0211*	0.0780***	0.1105**
Number of Nationality Organizations	0.0316	0.00123	0.00173
*** p<0.01			
**p<0.05			
* p<0.10			

ii. Spatial Impact

Linking individual-level data to aggregate-level characteristics that are spatially defined using HLM, the model derived in this phase assumes spatial heterogeneity, an assumption of varying impact across space. Multilevel modeling, a method of combining individual and aggregate characteristics within the same overall model, was used to account for spatial heterogeneity (Goldstein 1987). This last phase of the analysis identifies ecological determinants for social networks and organization affiliations. Table 6 exhibits the coefficients associated with neighborhood conditions.

Results indicate that among the three ethnic groups tested, Chinese respondents were most sensitive to ecological conditions of the host society. Filipino respondents and Mexican respondents were least impacted by the conditions. Considering the level of sensitivity to ecological conditions relates disproportionately to an ethnic community's size, further study is required to determine the impact of population size and the conditions of the host society.

The fourth hypothesis that tests whether an increase in social leverage results in avoidance of co-ethnic concentration was confirmed among Filipino respondents only. Their

organization affiliations were higher for those who resided away from co-ethnic concentrations (γ = -17.313). However, two elements concerning Filipino respondents are noteworthy. First, unlike the other two ethnic groups, concentrations of Filipinos in the Chicago area are substantially lower. While Chinese and Mexicans reach as high as 82.8% and 97.6% of census tracts, respectively, the highest proportion for the census tract identified in the analysis was 17.4%. Second, those who reside in higher co-ethnic concentrations experience substantially fewer nationality organization affiliations. This increase in both organization and nationality organization affiliations bear contextual significance in Chicago areas in which Filipinos are known to be highly active in organization activities, and there are no obvious ethnic concentrations for them in comparison to the ways other ethnic groups form. In fact, a lack of residential concentration reflects the description offered by Bach (1993) in contemporary urban ethnic concentrations, which overlap across ethnic groups and result in lower concentrations of one group in an area.

Table VI. Coefficients for Neighborhood Level Fixed Effects by Ethnic Group

	Chinese									
	Demographic Concentration				conomic Concentratio		Measures of Diversity			
Depedent Variable	**Percent Black**	**Percent Co-Ethnic**	**Percent Foreign Born**	**Percent Naturalized**	**Percent College Graduate**	**Percent Below Poverty**	**Racial/Ethnic Diversity**	**Educational Diversity**	**Income Diversity**	**Diversity in Housing Value**
Number of social ties	0.296	0.9295*	-1.413***	0.163	0.005	-2.159	0.247	2.213**	-0.153	-0.066
	(0.540)	(0.535)	(0.469)	(0.323)	(0.008)	(1.340)	(0.200)	(0.804)	(1.052)	(0.727)
Number of social ties with college education	-2.347	1.288***	-0.872	-0.388	0.019	-1.872	0.681***	3.568**	-0.124	-0.245
	(1.812)	(0.404)	(0.670)	(0.373)	(0.012)	(1.355)	(0.216)	(1.275)	(1.177)	(0.912)
Number of organizational affiliation	-0.621	7.422***	-6.221***	0.580	-0.195***	-22.217***	-0.018	-9.728**	9.198***	-2.575*
	(4.157)	(2.025)	(1.907)	(1.040)	(0.058)	(5.204)	(0.725)	(4.506)	(2.752)	(1.296)
Number of co-ethnic ties	0.417	0.978**	-1.513***	0.001	0.013	-2.362	0.105	3.028***	-0.612	0.104
	(0.498)	(0.520)	(0.419)	(0.382)	(0.010)	(1.523)	(0.235)	(1.003)	(1.229)	(0.749)
Number of Nationality Organizations	3.414	12.197***	-4.841	-0.713	-0.196***	-25.516***	0.313	-9.334	11.735***	-4.116
	(3.391)	(2.711)	(2.931)	(1.240)	(0.064)	(7.720)	(0.980)	(5.676)	(3.171)	(2.475)
	Filipino									
	Demographic Concentration				conomic Concentratio		Measures of Diversity			
	Percent Black	**Percent Co-Ethnic**	**Percent Foreign Born**	**Percent Naturalized**	**Percent College Graduate**	**Percent Below Poverty**	**Racial/Ethnic Diversity**	**Educational Diversity**	**Income Diversity**	**Diversity in Housing Value**
Number of social ties	-0.506	-4.965	-0.088	-0.123	0.006*	-0.439	0.000	-0.149	0.102	-1.284*
	(0.331)	(3.262)	(0.280)	(0.307)	(0.004)	(0.926)	(0.221)	(0.399)	(0.722)	(0.646)
Number of social ties with college education	-0.397	-4.097	-0.118	-0.159	0.000	-1.600	0.424	-0.480	1.080	-1.325*
	(0.427)	(3.968)	(0.329)	(0.443)	(0.005)	(1.109)	(0.271)	(0.618)	(0.957)	(0.717)
Number of organizational affiliation	-1.486	-17.313***	-0.312	0.986	-0.013	0.200	0.962*	-0.976	0.518	-0.095
	(1.007)	(6.094)	(0.634)	(0.792)	(0.011)	(2.096)	(0.545)	(1.312)	(2.017)	(1.652)
Number of co-ethnic ties	-0.272	-2.237	0.003	-0.274	0.005	-0.727	0.150	-0.351	-0.240	-0.623
	(0.319)	(2.880)	(0.332)	(0.420)	(0.004)	(0.961)	(0.218)	(0.582)	(0.969)	(0.701)
Number of Nationality Organizations	-0.678	-14.584**	-1.057	1.454	-0.010	-0.925	1.010*	-0.009	2.005	-0.889
	(1.037)	(7.064)	(0.852)	(0.991)	(0.014)	(2.002)	(0.553)	(1.553)	(2.504)	(2.193)
	Mexican[1]									
	Demographic Concentration				conomic Concentratio		Measures of Diversity			
	Percent Black	**Percent Co-Ethnic**	**Percent Foreign Born**	**Percent Naturalized**	**Percent College Graduate**	**Percent Below Poverty**	**Racial/Ethnic Diversity**	**Educational Diversity**	**Income Diversity**	**Diversity in Housing Value**
Number of social ties	-0.133	0.120	-0.286	0.578	-0.007	0.132	0.080	0.362	-0.750	1.160**
	(0.265)	(0.280)	(0.280)	(0.386)	(0.004)	(0.456)	0.171	(0.522)	(0.722)	(0.573)
Number of social ties with college education	-0.618	0.070	0.050	0.296	0.000	-0.140	-0.038	-0.979	1.179	0.272
	(0.636)	(0.608)	(0.725)	(0.951)	(0.010)	(1.246)	(0.375)	(1.036)	(1.950)	(1.554)
Number of organizational affiliation	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A
Number of co-ethnic ties	-0.132	0.129	-0.323	0.749*	-0.007	0.247	-0.017	0.506	-1.203	1.586**
	(0.300)	(0.320)	(0.279)	(0.416)	(0.005)	(0.475)	(0.192)	(0.562)	(0.767)	(0.627)
Number of Nationality Organizations	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A

*** p<0.01
**p<0.05
* p<0.10
1 Lack of variation in Dependent variables led to failure to produce results for organizational affiliations

Results opposite to those suggested by the hypothesis were found among Chinese respondents, whose social leverage increased among those who reside in higher levels of co-ethnic concentration. Specifically, more organization affiliations were found among those in proximity to higher levels of co-ethnic residents. If organizations provide institutional reliance for acquisition of emotional, social, or economic needs, and if the role of organizations as an indicator of community strength is similar to that envisioned by Fennema (2004), results point to a collectively robust mechanism within an ethnic enclave and Aldrich et al.'s (1985) protected markets as a function of ethnic community. The spatial arrangement found among Chinese respondents expands thoughts on socio-spatial constructions of ethnic communities (Li 1998), tied intimately to degrees and types of social networks. Even when these interactions occur in isolation such as co-ethnic ties and affiliations with nationality organizations, advantages cultivated from these internal interactions are transferrable as access to socially desirable residency locations. The opposite result between Filipino and Chinese respondents suggests varying ways in which communities form based on distinct needs and backgrounds. This is precisely the distinction that needs to be made; for some ethnic groups, spatial residential dispersal does not necessarily mean declining or dissolution of ethnic community.

The fifth hypothesis, testing whether those with greater social leverage avoid areas concentrated with immigrants and/or African Americans, was confirmed partially for Chinese respondents. This finding, salient in social ties and organization affiliation, is particularly significant when combined with other findings. At the individual level, organization affiliation was higher among suburban respondents; at the neighborhood level, organization affiliation was higher in areas with higher levels of co-ethnics. In summary, these results extend the discussion

on ethnic concentrations in suburban areas (Li 1998; Logan, Zhang, and Alba 2002) by linking individual traits that drive formation.

For Mexican respondents, co-ethnic ties increased in those areas with higher proportions of naturalized immigrants ($\gamma = 0.749$). Similar to formation of social leverage for Filipino respondents, the result for Mexican respondents reflects complexity of urban arrangements where co-ethnic ties do not cultivate away from ethnic concentration, but instead in areas with diverse compositions. In this case, characterization of those areas is specified further in areas with higher proportions of naturalized immigrants. A study is needed to determine whether immigrants belonging to any ethnic group and who naturalize gravitate to particular neighborhoods rather than their own respective ethnic concentrations.

In a region with a 25% African American population, all three groups in the CECS sample reside in areas that have small African American population. However, Mexicans with greater ties to college-educated individuals was the only group whose residential pattern showed avoidance of black populations. This finding requires careful elaboration to interpret. While Mexican immigrants who lack ties with high levels of human capital lived closer to greater proportions of African Americans, Chinese and Filipino respondents did not display any variation when it comes to presences of African Americans because nearly all respondents resided in areas with fewer blacks. This finding reinforces the need for a study that investigates segregation beyond black-white comparisons.

The sixth hypothesis, testing whether social leverage increases gravitation toward highly educated and affluent areas and avoidance of impoverished areas, was confirmed partially for Chinese respondents. Number of organization affiliations increased with avoidance of areas with high levels of poverty. While the large coefficient value for poverty ($\gamma = -22.217$) indicates the

significance of this attribute, another significant condition, percent of college graduates and its negative coefficient (γ = -0.195), suggests poverty avoidance does not necessarily place respondents in affluent areas. Filipino respondents also showed social leverage (i.e., social ties) gravitates them to areas with greater proportions of college education (γ = -0.006).

Chinese respondents displayed the greatest degree of association with economic conditions as both overall (γ = -22.217) and nationality (γ = -25.516) organization affiliations associated negatively with poverty. Combined with finding that those with higher levels of organization affiliations reside in co-ethnic neighborhoods (γ = 7.422), the magnitude of coefficients suggests strategic selection of ethnic concentrations on evaluation of the host society's ecological conditions. Overall organization affiliation associated with relatively homogenous education levels of residents (γ = -9.728) and housing values (γ = -2.575), which describe affluent areas.

While the social leverage and support distinction yielded mixed results, two types of social network measures in the study displayed distinct spatial patterns. All three types of social networks for Chinese respondents were greater for those residing in educationally homogenous areas, typically affluent areas (γ = 2.213 for overall social networks; γ = 3.568 for educated ties; γ = 3.028 for co-ethnic ties). Contrarily, greater organization ties were found in characteristically opposite areas with education heterogeneity (γ = -9.728) but economic homogeneity (γ = 9.198 for household income). Unlike social network measures, a combination of these coefficients did not characterize affluent areas. Such distinct spatial patterns found among Chinese respondents indicates establishing social networks and organization affiliations serves unique functions for individuals, even within the same ethnic group. There are two possible explanations for this distinction. Variation in residential patterns by social ties shows

that the structure of the Chinese community in the Chicago metropolitan area lends itself to robust opportunities for members to develop social capital depending on needs. SES segments the social network mechanism within the Chinese community, so those in need of social support gravitate toward organizations that fulfill their needs; those able to acquire social leverage reside in more affluent areas.

The pattern of segmented social networks is reflected across ethnic groups. Social networks (γ = -1.284) and college-educated networks (γ = -1.325) for Filipino respondents associated positively with those areas that have homogenous housing values, which tend to indicate affluent neighborhoods. However, Mexican respondents' social networks (γ = 1.160) and co-ethnic networks (γ = 1.586) associated positively with areas with heterogeneous housing values, which tend to be densely populated with a variety of housing options. While indicators for impoverished areas were not significant, social networks for Mexican respondents developed in areas qualitatively different from the other groups.

Given Chinese respondents demonstrated the most robust dependence on spatial arrangement of the host society, formation among Chinese respondents—and its relationship to neighborhood conditions—merits further discussion. Coefficients suggest the conditions that have the greatest impact on organization affiliation were economically driven factors. Those with greater organization ties associated with areas away from poverty (γ = -22.217) with relatively higher proportions of Chinese (γ = 7.422) but lower proportions of other immigrants (γ = -6.221). Area characteristics also indicated relatively homogenous education levels of residents (γ = -9.728) and their housing values (γ = -2.575), outcomes consistent with Logan and et al.'s (2002) definition of ethnic community (as opposed to ethnic enclaves) in which similar degrees of ethnic concentrations such as ethnic enclaves form in more desirable areas based on

preference. It is important to note that Logan et al. (2002) make the distinction urban/suburban where areas that are more desirable tend to be suburban areas. Level-I analysis indicated that development of organization affiliations tended to form in urban areas, and social ties associated with suburban areas.

Combining results from both levels suggests social networks and organization affiliations fundamentally serve disparate purposes for different members within a community. While social and economic mobility create in-group parity within an ethnic community (Greeley 1976; Lieberson 1980), this geographically vast and diversified mechanism to enhance networks or affiliations may be a sign of a robust ethnic community where various means of social interactions allow memberships to develop social capital. Lack of a physical residential concentration and highly active organization activities among Filipino immigrants creates entirely different forms of community. Higher degrees of organization affiliations and nationality organization affiliations associated negatively with co-ethnics. However, sustained co-ethnic networks, despite spatial dispersal, signifies that for some ethnic groups, lack of physicality should be decoupled from consideration for assimilation, as considered in the past (Dunn 1998; Massey and Denton 1985). Given the history of the Filipino community in the Chicago area, which never suggested a physical concentration, institutional reliance appears to be the way for this community to sustain membership.

V. Conclusion

Contemporary immigration has dramatically different dynamics and operations than in the past when individuals enjoyed little institutional support or community mechanisms. Even in a contemporary context, ethnic community is often treated as though it still takes on the traditional form of *Gemeinschaft*, a grouping based on sense of shared familiarity through mutual bonds, concerns, and support (Harris 2001). Incorporating social networks and organization affiliations highlights functions of ethnic community beyond sentiment and emotional support that are persistent, internally stratified, and fluid with external elements. Given these challenges to previous findings, four major points arise from this analysis: (1) while signs of the assimilation model and physically dense ethnic concentrations persist, consideration of deviations from these traditional concepts of ethnic community is evident through sustained influence, despite a decrease in density; (2) classification of interactions (e.g., personal ties versus organization affiliations) distinguish qualitatively disparate functions that contribute to a wide range of measures for robustness of a group; (3) spatially, some ethnic groups depend heavily on neighborhood conditions of the host society when developing social leverage, as was the case with Chinese and, to a lesser degree, Filipinos in this study. Mexican immigrants were far less impacted by neighborhood conditions when developing leverage. Varying levels of dependency and limited movement by immigrants suggest potential spatial stratifications that reach beyond race/ethnicity or SES; (4) mobility out of ethnic concentrations does not necessarily indicate upwardly mobile movement or place individuals in affluent or economically or demographically homogenous neighborhoods, but rather diverse areas. This finding in a metropolitan area known for severe racial segregation means members of ethnic communities contribute to easing segregation, creating a more diverse environment collectively.

Findings support a number of previous studies of social networks and space. A link found between social networks and spatial stratification expands the role of social networks previously defined by Coleman (1988a) and their varying impact by race and ethnicity (Ajrouch, Antonucci, and Janevic 2001; Fischer 1982; Klinenberg 2002; Marsden 1987; Small 2004; Small 2007; Tigges, Browne, and Green 1998). Development of social leverage segments some ethnic communities and reinforces societal market values. As Fischer (1982) suggests, various scopes and types of social and institutional ties are what makes up the quality of life in a community, and diversified functions found in the analysis may be the glimpse of such communities among immigrants.

Results also support Piselli's (2007) argument that network analysis examines social relations that define and redefine places and their values. For some ethnic groups, concentrations of individuals or organizations remain a crucial element to function. For others, individual preferences of residential selection, regardless of physical concentrations, decrease density but do not necessarily decrease involvement. Similarly, while results support the argument made by Portes and Jensen (1992) that residential concentrations and concentrations of ethnic firms that compose ethnic enclave lead to evaluations of two components of ethnic communities, the two spatialities of residents and organizations are tied intimately. For some ethnic groups, proximity between the two components are required; for others, physical concentration is not a prerequisite to maintenance of ethnic communities.

The latter case of ethnic community should expand research to study locally dispersed communities. Unlike the Chicago School on urban neighborhoods that subscribes to the concept that common localized territorial boundaries with organization activity and population characteristics are necessary to maintain social order (Gans 1962; Kornblum 1974; Suttles 1968;

Wirth 1938), order appears sustainable with boundaries when it comes to social interactions. Further study is required to determine whether advancement in technology eliminates the need for physically confined urban contexts that provide rich informal bonds of primary groups at the level of everyday exchanges, reciprocity, emotional support, and normative control (Bott 1957). To answer this question, measurement of social networks must include a means of communication and gauge whether interactions occur face-to-face or through technological devices (e.g., Internet, mobile communications, etc.). Space can be a device that bonds community, and spatial relationships occur with or without density in the conventional, physical sense. Despite technological advancements believed to defy spatial gaps, localities, and regions, they still play important roles in community formation.

Findings from this study suggest local-level policy measures and services are more spatially robust in their coverage. For example, a capacity to serve English language learners is often confined to a large, urban school district, while fragmented suburban school districts are faced with rapidly diversifying student populations with limited resources. A regional or state entity that focuses on flexible allocation of resources and deployment of personnel serves the entire region better. Just as academic research should consider spatial components that are appropriate to subjects, public policy should define appropriate services beyond traditional levels and based on suitable spatial scopes of residents.

Appendices

Appendix I. Post-stratification Weighting Procedure

The purpose of this weighting procedure was to reduce bias when inferring survey findings to the population by raising weights of subgroups underrepresented in the sample and reducing weights for those overrepresented in the sample. To calculate a post-stratification weight, the Public Use Micro Sample (PUMS) from the Census Bureau and the Population Center at the University of Minnesota for 2005 to 2007 was used for two key demographics. The following variables were considered for weighting the Ethnic Community Survey:

Gender

The Chicago Ethnic Communities Survey contains a disproportionate number of female respondents for all ethnic groups except Ukrainians in comparison to the PUMS distribution.

Table VII. Comparison in Gender Distribution Between Ethnic Communities Survey (Unweighted) and PUMS

Ethnic Group Recode		CECS		PUMS	
		Frequency	Percent	Frequency	Percent
Mexico	Male	73	38.2	385,517	56.3
	Female	118	61.8	298,983	43.7
	Total	191	100.0	684,500	100.0
Ukraine	Male	42	41.6	8,423	44.7
	Female	59	58.4	10,415	55.3
	Total	101	100.0	18,838	100.0
China/Taiwan/Hong Kong	Male	68	34.3	26,909	47.4
	Female	130	65.7	29,884	52.6
	Total	198	100.0	56,793	100.0
Phillippines	Male	79	39.5	33,288	42.4
	Female	121	60.5	45,224	57.6
	Total	200	100.0	78,512	100.0

Education

The sample size did not allow for segmentation by education beyond the dichotomy of “college or more” and “less than college degree” (Table VII).

Table VIII. Comparison in Educational Attainment between Ethnic Community Survey (Unweighted) and PUMS

Ethnic Group Recode		CECS Frequency	CECS Percent	PUMS Frequency	PUMS Percent
Mexico	Less than College Degree	183	95.8	653,218	95.4
	College Degree or More	8	4.2	28,298	4.1
	Total	191	100.0	681,516	99.6
Ukraine	Less than College Degree	30	29.7	28,490	50.2
	College Degree or More	71	70.3	23,865	42.0
	Total	101	100.0	52,355	92.2
China/Taiwan/Hong Kong	Less than College Degree	104	52.5	35,662	45.4
	College Degree or More	94	47.5	42,183	53.7
	Total	198	100.0	77,845	99.2
Phillippines	Less than College Degree	48	24.0	9,786	51.9
	College Degree or More	152	76.0	8,624	45.8
	Total	200	100.0	18,410	97.7

Weight factors were calculated as post stratification weights, and the weighted gender distribution reflected identical proportions for Mexicans and Filipinos, within 0.2% for Chinese and within 1.5% for Ukrainians.

Table IX. Gender Distribution in Ethnic Communities Survey (Weighted)

Ethnic Group Recode		Frequency	Percent	PUMS
Mexico	Male	108	56.3	56.3
	Female	83	43.7	43.7
	Total	191	100.0	100.0
Ukraine	Male	45	44.9	44.7
	Female	56	55.1	55.3
	Total	101	100.0	100.0
China/Taiwan/Hong Kong	Male	90	45.7	47.4
	Female	108	54.3	52.6
	Total	198	100.0	100.0
Phillippines	Male	85	42.4	42.4
	Female	115	57.6	57.6
	Total	200	100.0	100.0

The weighted distribution for education was identical to that of PUMS for all four ethnic groups.

Table X. Educational Attainment in Ethnic Communities Survey (Weighted)

Ethnic Group Recode		Frequency	Percent	PUMS
Mexico	Less than College Degree	**183**	**95.8**	**95.8**
	College Degree or More	**8**	**4.2**	**4.2**
	Total	**191**	**100.0**	**100.0**
Ukraine	Less than College Degree	**54**	**53.2**	**53.2**
	College Degree or More	**47**	**46.8**	**46.8**
	Total	**101**	**100.0**	**100.0**
China/Taiwan/Hong Kong	Less than College Degree	**108**	**54.4**	**54.4**
	College Degree or More	**90**	**45.6**	**45.6**
	Total	**198**	**100.0**	**100.0**
Phillippines	Less than College Degree	**92**	**45.8**	**45.8**
	College Degree or More	**108**	**54.2**	**54.2**
	Total	**200**	**100.0**	**100.0**

Appendix II. Social Network Portion of Chicago Ethnic Communities Survey

SOCIAL NETWORKS

Now let's talk about people you know. I am going to read you a list of different issues that come up in people's lives. Then I will ask you about people ***outside of your household***, to whom you might turn in dealing with that issue. We are interested in those people who are close to you, and could help you to solve or deal with the issue, ***regardless of where they live***.

Just give me the person's initials, first name, or relationship to you. We don't need names.

INTERVIEWER: IF R SAYS NO ONE OUTSIDE OF THE HOUSEHOLD, CHECK THE SPACE AVAILABLE FOR THAT OPTION.

22. Suppose you need advice with a major change in your life, for instance changing jobs or moving to another area. Whom would you ask for advice if such a major change occurred in your life?

Remember that we want to talk about people ***outside of your household, regardless of where they live***.

☐ ***CHECK HERE IF R SAYS NO ONE OUTSIDE OF THE HOUSEHOLD.***

23. Suppose you need help with jobs around the house, for instance holding a ladder or moving furniture. Whom would you ask for this kind of help?

Remember that we want to talk about people ***outside of your household, regardless of where they live***.

☐ ***CHECK HERE IF R SAYS NO ONE OUTSIDE OF THE HOUSEHOLD.***

24. Suppose you need to borrow a large sum of money. Whom would you ask?

Remember that we want to talk about people ***outside of your household, regardless of where they live***.

☐ ***CHECK HERE IF R SAYS NO ONE OUTSIDE OF THE HOUSEHOLD.***

25. With whom do you go out once in awhile, for instance shopping, going for a walk, going to a restaurant or to a movie?

Remember that we want to talk about people ***outside of your household, regardless of where they live***.

☐ ***CHECK HERE IF R SAYS NO ONE OUTSIDE OF THE HOUSEHOLD.***

26. With whom do you have contact at least once a month, by visiting each other for a chat, a cup of coffee, or a drink?

Remember that we want to talk about people ***outside of your household, regardless of where they live***.

☐ ***CHECK HERE IF R SAYS NO ONE OUTSIDE OF THE HOUSEHOLD.***

27. Besides the people you have just mentioned, are there any other people that are helpful to you, or with whom you have regular contact, that you might also turn to?

Remember that we want to talk about people ***outside of your household, regardless of where they live***.

Yes ..... 1 ➔ **GO TO Q.28**
No ..... 2 ➔ **GO TO Q.29**

28. IF YES, *SPECIFY*

INTERVIEWER INSTRUCTIONS

USING THE SOCIAL NETWORK DETAILS GRID **LOCATED ON THE INSIDE BACK COVER FLAP**, ENTER THE RESPONSES FOR **Q.29 THROUGH Q.37** FOR PERSON 1 THROUGH PERSON 9.

IF THE R NAMED FEWER THAN 9 PEOPLE FOR THE FIVE SOCIAL NETWORK SCENARIOS, THAT'S OK.

IF R NAMED MORE THAN 9 PEOPLE FOR THE FIVE SOCIAL NETWORK SCENARIOS, ENTER THE FIRST PERSON FOR EACH SCENARIO IN THE GRID AND THEN THE SECOND PERSON FOR EACH SCENARIO, UP TO A MAXIMUM OF 9.
IF R DIDN'T NAME ANY PERSON WHO WAS NOT A MEMBER OF THE HOUSEHOLD FOR A GIVEN SCENARIO, INDICATE THAT BY ENTERING A CHECK MARK IN THE SPACE PROVIDED FOR THAT OPTION.

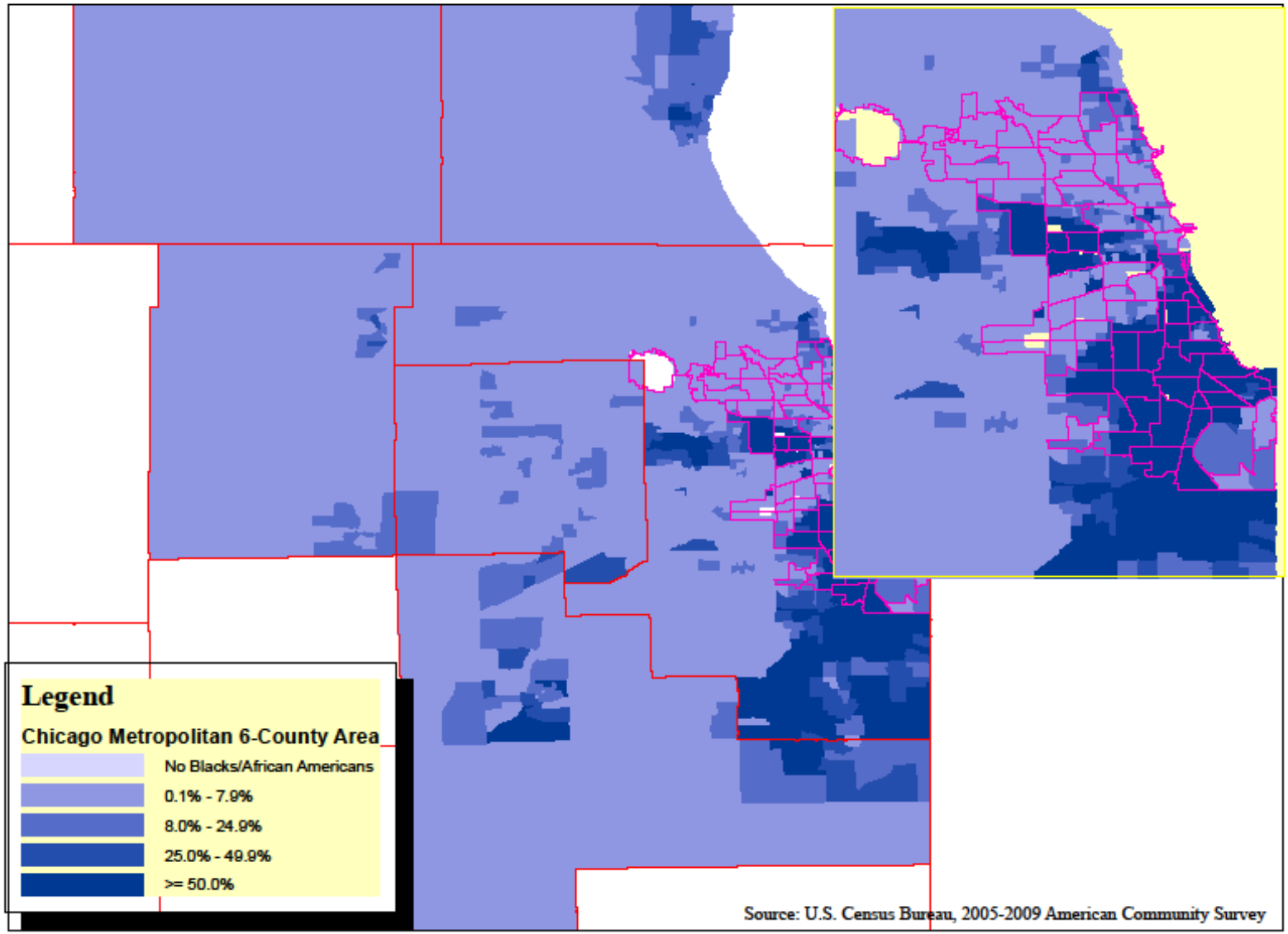
IF R DIDN'T NAME ANYONE OUTSIDE THE HOUSEHOLD FOR ANY OF THE SCENARIOS, GO TO Q.39

Appendix III. Percent of Blacks/African Americans

While indices measuring varying degrees to which economic and racial/ethnic groups are present, some groups are worth isolating to gauge impact. Historically, presence of African Americans has been associated highly and negatively with an area's racial/ethnic heterogeneity (Small 2007). The most likely scenario for the association is what scholars refer to as white flight in which white residents move away from incoming black residents. The impact of African Americans has not been measured for other groups, including immigrants and their ethnic communities. Isolating presences of blacks allows hypothesizing whether ethnic communities emulate patterns of America's middle class and avoid African Americans, or offer a different form of settlement that disregards their presences.

In Chicago, presence of African Americans is perhaps the most densely concentrated and contiguous pattern of all demographics (Figure 4). Higher proportions of African Americans are found on the west and south sides of Chicago, similar to the historic pattern identified as early as 1940s by Drake and Cayton ([1945] 1993). The largest expansion of African Americans occurs to the south of the city to suburban municipalities in southern Cook and Will Counties. Maywood and Bellwood, two western suburbs in Cook County, experienced their own white flight during a period of economic transition when white residents in the 1960s were replaced by African American residents by the 1990s. In outer-ring suburbs, outside of small concentrations found in Waukegan and Joliet—two regional cities that sustained their development until they recently became more suburban landscapes as Chicago's suburban ring expanded—there are no other black concentrations in the region.

Figure 4. Percent Black/African American by Census Tract



Appendix IV. Percent of Foreign-born

The number of immigrant concentrations in the Chicago metropolitan area includes either areas made up entirely of Latino immigrants or areas comprised of Latino immigrants along with other ethnic groups. The exception is Chinatown in the southeast corner of the city, bordering Indiana, known as the East Side and the southwestern part of the city (i.e., Pilsen and Little Village) that extends to the first ring of suburbs in Cicero and Berwyn, comprised entirely of a Latino population with a large proportion of immigrants. The far north area in Rogers Park, West Ridge, Lincoln Square, and Albany Park contains Latino immigrants and immigrants from Asian countries and the Middle East. Concentrations on the northwest side by Belmont-Cragin and Jefferson Park, comprised of Mexican and Polish immigrants, and southwest concentrations that extend from Brighton Park and New City to Archer Heights, include more diverse Chinese, Polish, and Arab immigrants.

Figure 5. Percent Foreign Born by Census Tract

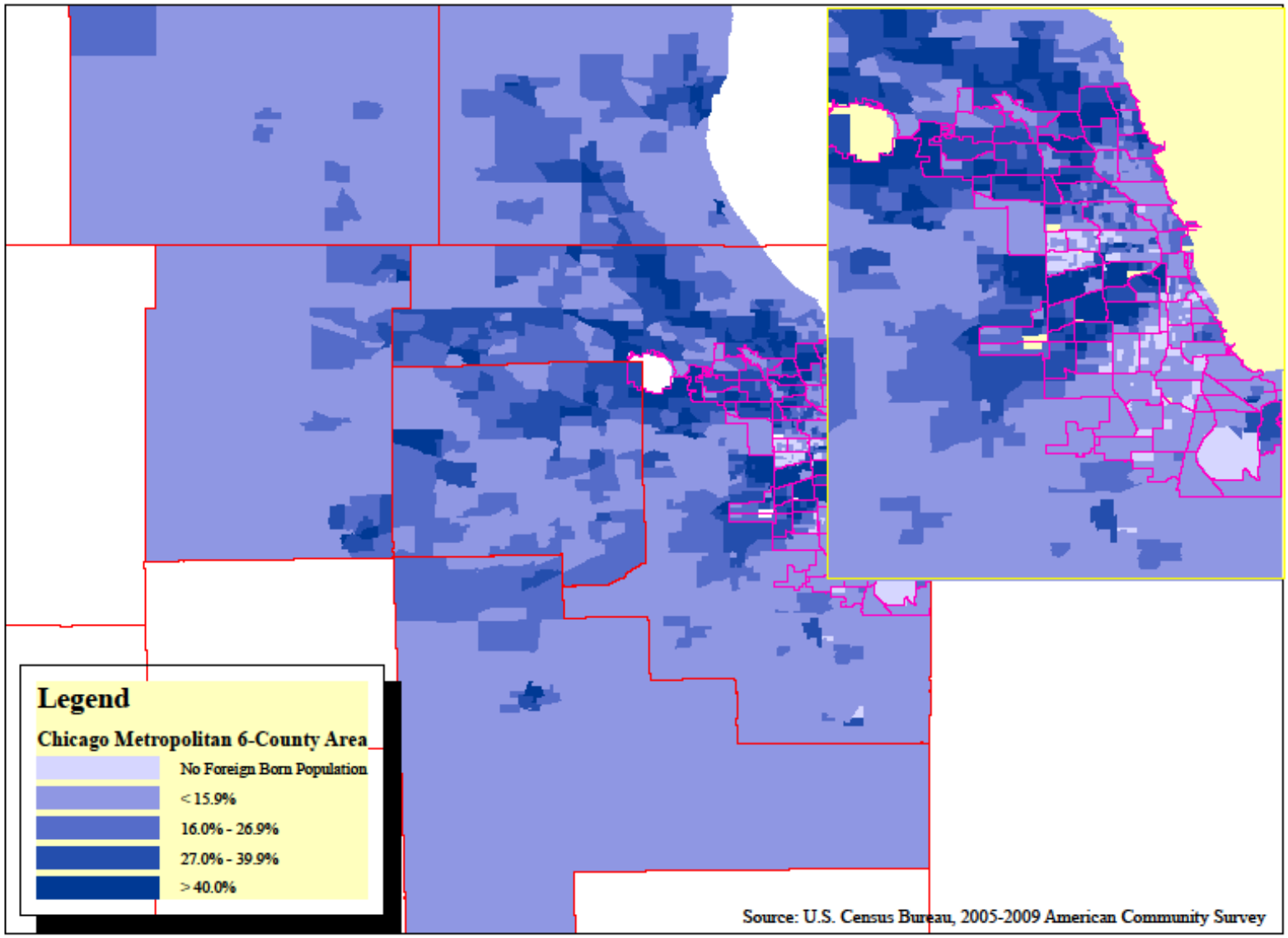
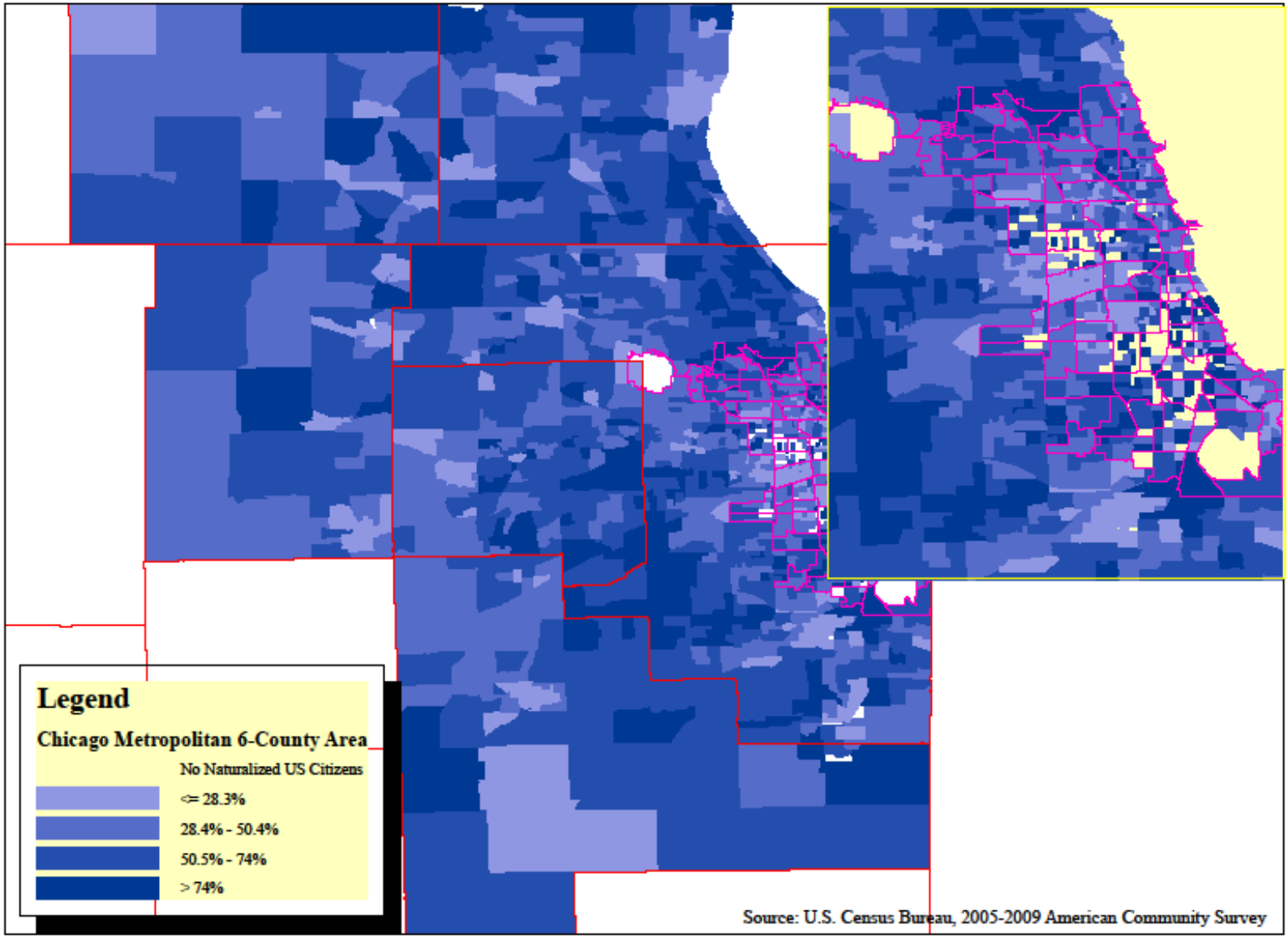


Figure 6. Percentage Foreign Born Who Are Naturalized by Census Tract

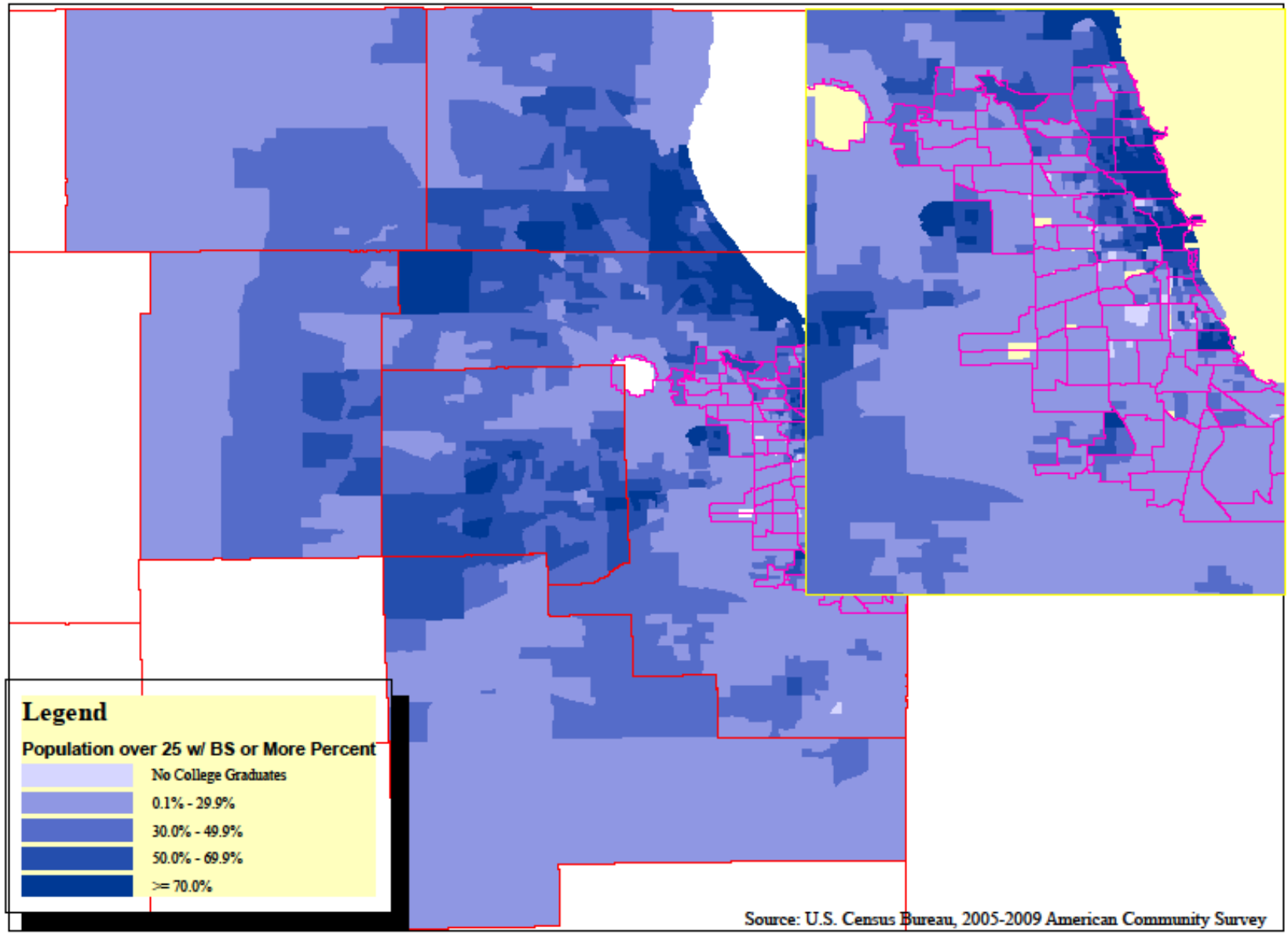


Appendix V. Percent of College Graduates

As a supplementary measure of diversity in education attainment, percentage of college graduates in a neighborhood isolates the concentration among those with high human capital. A high proportion of college graduates tends to be found largely in areas heterogeneous in terms of education attainment. Conversely, areas homogeneous in education level tend to be composed of those without college degrees.

The distribution of college graduates in the Chicago metropolitan area shows neighborhoods composed of predominantly college graduates—or greater than 70% of residents—are confined to 5 of 77 communities, including 4 contiguous neighborhoods on the north side along Lake Michigan (i.e., Loop, Near North Side, Lincoln Park, and Lakeview) and Hyde Park on the south side (Figure 7). In the suburbs, concentrations are found in highly affluent areas in north shore (i.e., Evanston, Kenilworth Winnetka, Glencoe, Highland Park, and Lake Forest), northwest Cook County (i.e., Barrington Hills and South Barrington), and eastern DuPage County (i.e., Hinsdale).

Figure 7. Percent College Graduates by Census Tract

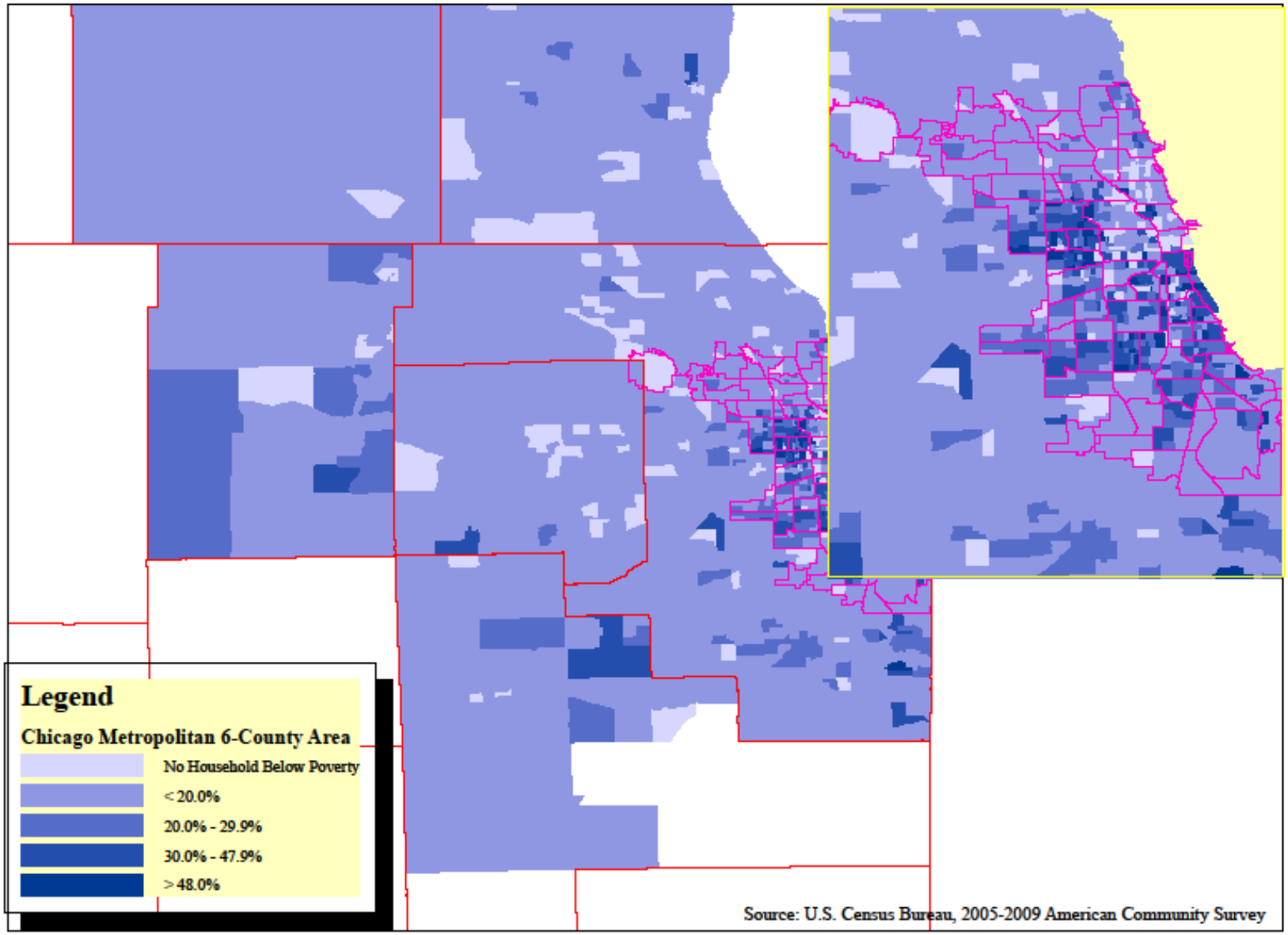


Appendix VI. Percent below Poverty

While earlier stages of ethnic communities have been thought of as being highly concentrated with poor or working-class people, the degree to which economic mobility contributed to the living conditions of more recent immigrant settlements has not been explored thoroughly. To isolate the link between poverty and ethnic communities, percent in poverty was included as an independent variable to supplement the economic variable measuring class variation.

Despite years of efforts to scatter what was once highly dense concentrations of poverty, residents whose household incomes are below the poverty line in the Chicago area are confined to the west side, which has the largest concentration of poverty, including the south and southwest sides of the city (Figure 8). While suburban areas do contain small pockets of concentrated poverty, concentrations in Waukegan (Lake County), Calumet City, South Holland, and Ford Heights (Will County) are substantially smaller than comparable areas of the city.

Figure 8. Percent Below Poverty by Census Tract



Appendix VII. Diversity Measure of Race/Ethnicity

Racial/ethnic diversity measured the extent to which racial and ethnic groups are present in a census tract. Using six racial categories defined by the Census Bureau with non-Hispanic individuals, a single category for all multiracial categories, and a Hispanic category, racial diversity was calculated using the Entropy Index (H_n)[14], yielding a higher value "when all [racial] groups are present in equal proportions and lower values when one group is dominant" (Freeman 2009):

$$H_n = \sum_{\gamma=1}^{n} p_{\gamma * t} \log(\frac{1}{p_{\gamma * t}})$$

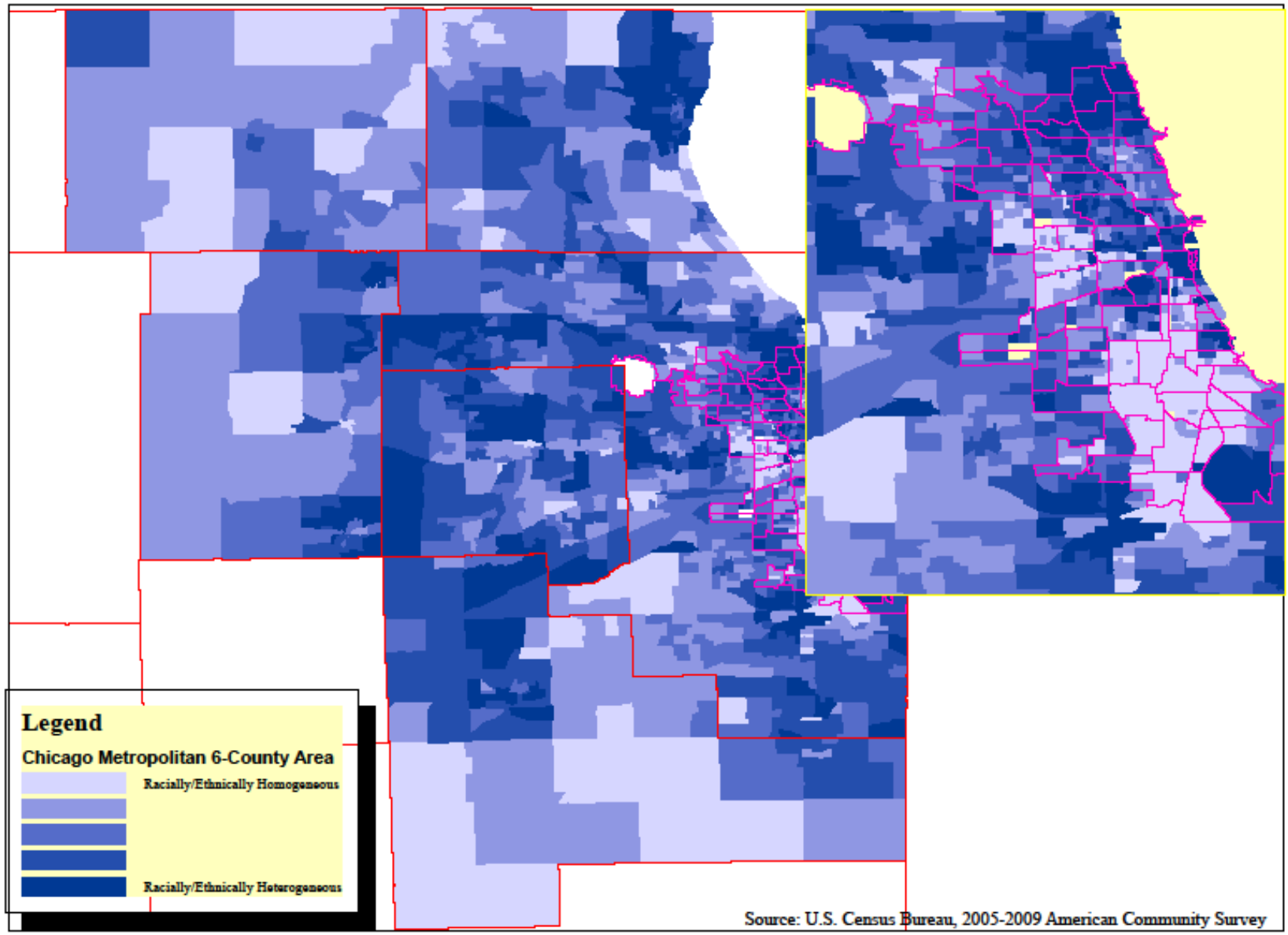
where, $p_{\gamma * t}$ represents the proportion of a population for racial group (γ) in census tact *t*. An index value of 0 indicates the presence of only one group while the maximum value (log of the number of racial groups), or 1.792 in this case, indicates equal representation of all groups.[15] In future studies, as the proportion of multiracial individuals increases, counting mixed individuals will become increasingly crucial for ethnic groups that have a high rate of intermarriages.

Chicago's historic pattern of racial segregation is documented well (Acock 2005; Drake and Cayton [1945] 1993; Massey and Denton 1993). The primary focus of previous studies, however, is on white-black segregation, appropriate for the times. As noted above, rapid and large increases in Latino and Asian populations require reconsideration of the topic with a wider range of groups. Recent landscapes of racial/ethnic homogeneity look quite different from the past. While historically black neighborhoods remain on the west and south sides of the city, immediately south of the west side black concentration and west of the south side black

[14] Also referred to as Shannon Index or Thiel's H (Iceland 2004).
[15] In order to avoid calculating the natural logarithm of zero, all the groups with zero population at census tract level have been converted to 0.000001
(http://cdu.mimas.ac.uk/materials/unit14/44_calculating_the_entropy_index.html).

concentration are Latino concentrations that have similarly high degrees of homogeneity (Figure 9). Outside of those densely Latino populations, increased Latino and Asian populations in the area resulted in increased diversity in many neighborhoods (e.g., Lincoln Park and Bridgeport) and suburban municipalities (e.g., Schaumburg, Elgin, and Waukegan) that had previously been homogenous.

Figure 9. Racial/Ethnic Diversity by Census Tract



Appendix VIII. Diversity Measure of Education Attainment

The same index of ordinal variation used for household income and housing value to measure diversity was used to gauge human capital through education attainment of adults over the age of 25 in a census tract:

$$H_{edd} = \frac{1}{k-1}\sum_{k=1}^{k-1} 4c_k(1-c_k)$$

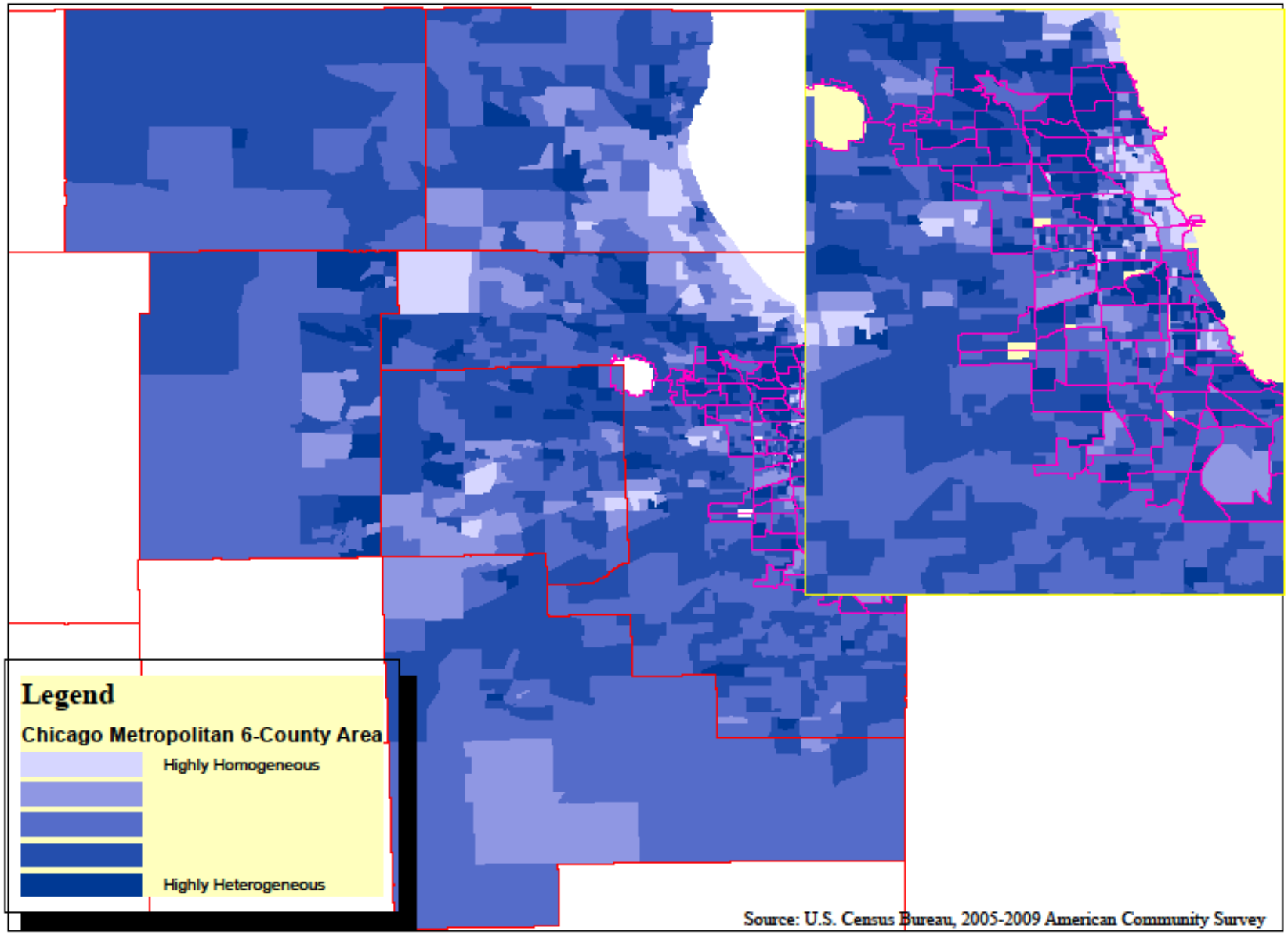
where *k* indicates four ordinal categories (less than high school, high school graduate/GED, some college including associate degree, and college graduate or more) and $c_k$again indicates cumulative proportion of the population up to that education level or lower.

As indicated in the descriptive statistics (Table III), while racial/ethnic segregation is acknowledged widely in the Chicago metropolitan area, education attainment appears to be just as polarizing of a measure as racial composition for the area. The way in which human capital is distributed in the Chicago area indicates that highly homogeneous areas tend to be densely populated, primarily with college graduates. Areas are highly gentrified immediately north of downtown Chicago along Lake Michigan from Loop to Lakeview, and there are affluent suburbs such as Barrington Hills, Hinsdale, Western Springs, and the entire north shore suburbs along Lake Michigan. Other areas with similar homogeneity in human capital are neighborhoods or suburban municipalities that contain an elite university campus such as Hyde Park with the University of Chicago or Evanston with Northwestern University (Figure 10).

Heterogeneous areas in the city are largely concentrated immediately west of gentrified neighborhoods in Lincoln Square, North Park, Irving Park, Logan Square, and Westown. It is possible that high levels of heterogeneity in education attainment signify eventual gentrification since all of the areas listed above have experienced large influxes of young professionals in

recent decades. Similarly, heterogeneity in the suburbs is also found in proximity to affluent, homogeneity of education attainment areas: Park City, Waukegan, Mundelein, Round Lake, and Wheeling to the north of Chicago and Carpentersville and Elgin to the northwest. Given a large degree of polarity, education attainment functions as a proxy for SES while serving a different function than do housing value or household income. A complete explanation of gentrification requires identification and motivation of actors who participate in the phenomenon (Hamnett 1991). Whether one applies a structural (Smith 1982; 1986) or cultural (Beauregard 1986; Ley 1986; Moore 1982) argument for gentrification, movement of first immigrants in relation to gentrification remains unexplained.

Figure 10. Diversity in Educational Attainments by Census Tract



Appendix IX. Diversity Measure of Household Income

The first economic diversity was gauged as household income of the area. All economic attributes in a neighborhood, or at the census-tract level, were measured using ordinal measures of diversity, which accommodate hierarchical categories. Using ten ordinal housing value categories in 2009 dollars from the ACS (less than $10,000; $10,000 to $14,999; $15,000 to $24,999; $25,000 to $34,999; $35,000 to $49,999; $50,000 to $74,999; $75,000 to $99,999; $100,000 to $149,999; $150,000 to $199,999; $200,000 or more), the index of ordinal variation[16] (Berry and Mielke Jr 1994; Kvalseth 1995) was calculated, where the maximum value of 1 is reached when a population is polarized between the highest and lowest categories in a tract, and the minimum 0 is reached when a given area is composed evenly among all categories (Freeman 2009):

$$H_{ecd} = \frac{1}{k-1}\sum_{k=1}^{k-1} 4c_k(1-c_k)$$

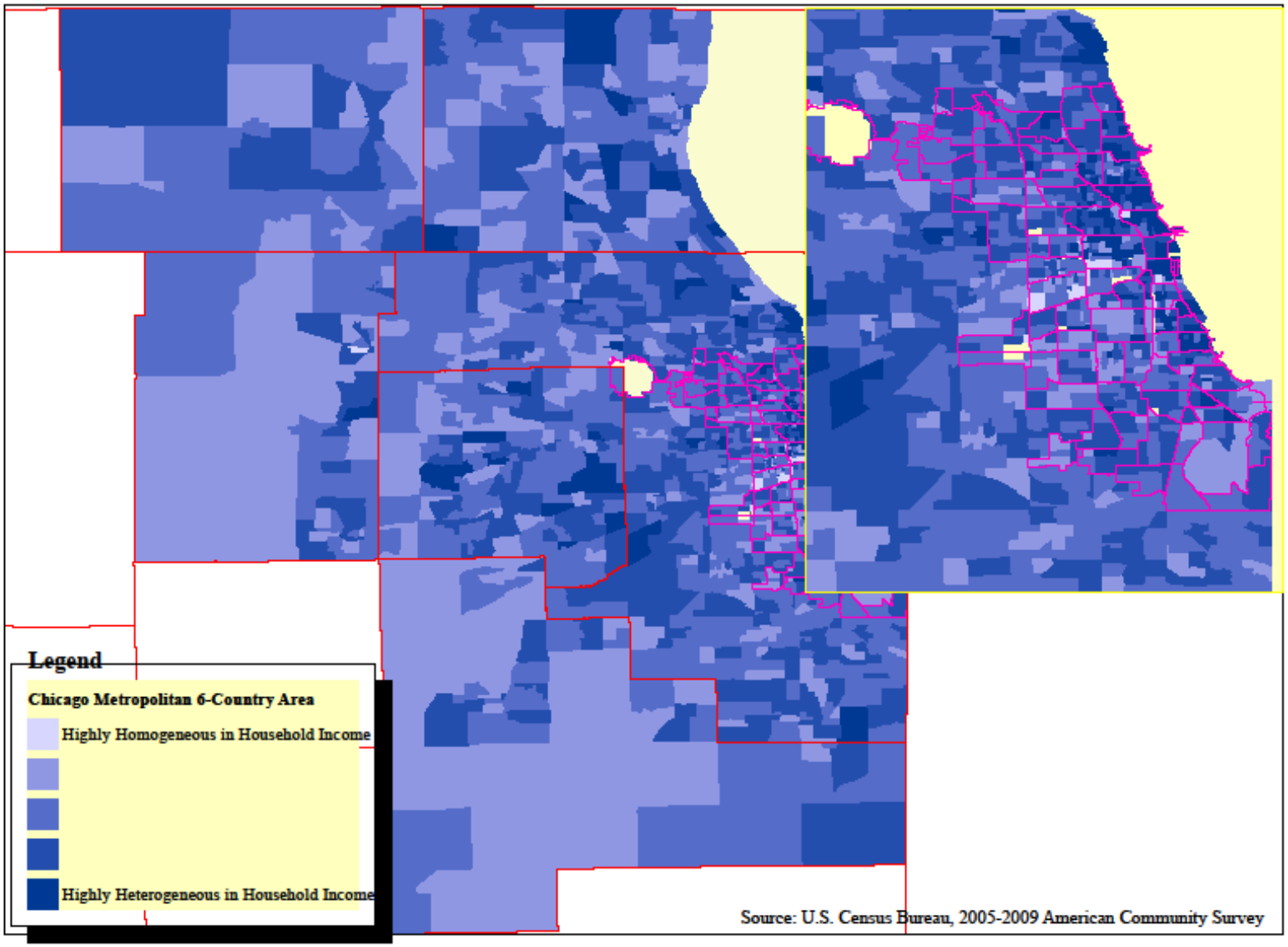
where k is the number of housing value categories (eight in this case) and c_k is the cumulative proportion of the population up to that housing value level or lower.

The concept of homogeneity by household income takes on different characteristics when spatial consideration is incorporated since urban and suburban areas showed three segmented patterns. In Chicago, areas homogeneous in terms of household income tend to be farther from Lake Michigan in south and southwestern parts of the city, with the exception of South Chicago, a neighborhood that borders Indiana where eastern European immigrants settled for manufacturing jobs largely in the steel industry until a massive number of Latinos replaced them in recent decades. Despite a severe decline in the manufacturing sector, these neighborhoods retained the largest number of jobs in that sector in the area, including an automobile plant.

[16] This index is also referred to as Ordinal Variation Ratio Index *R* (Reardon 2009).

Considering that all of the homogenous areas in the city tend to be working-class neighborhoods, homogeneity centered on lower levels of household income. Contrarily, a similar degree of homogeneity in suburban areas can vary in income level. While they are most commonly found in middle class outer rings and new suburbs such as Plainfield, Romeoville, and Crest Hill in Will County, Sugar Grove, Elburn, and Campton Hills in Kane County, a similar degree of homogeneity is also found in highly affluent north shore suburbs such as Lake Forest and Winnetka (Figure 11). Qualitative differences in homogeneity across the metropolitan area indicate severe separation among the area's residents by class.

Figure 11. Diversity in Household Income by Census Tract

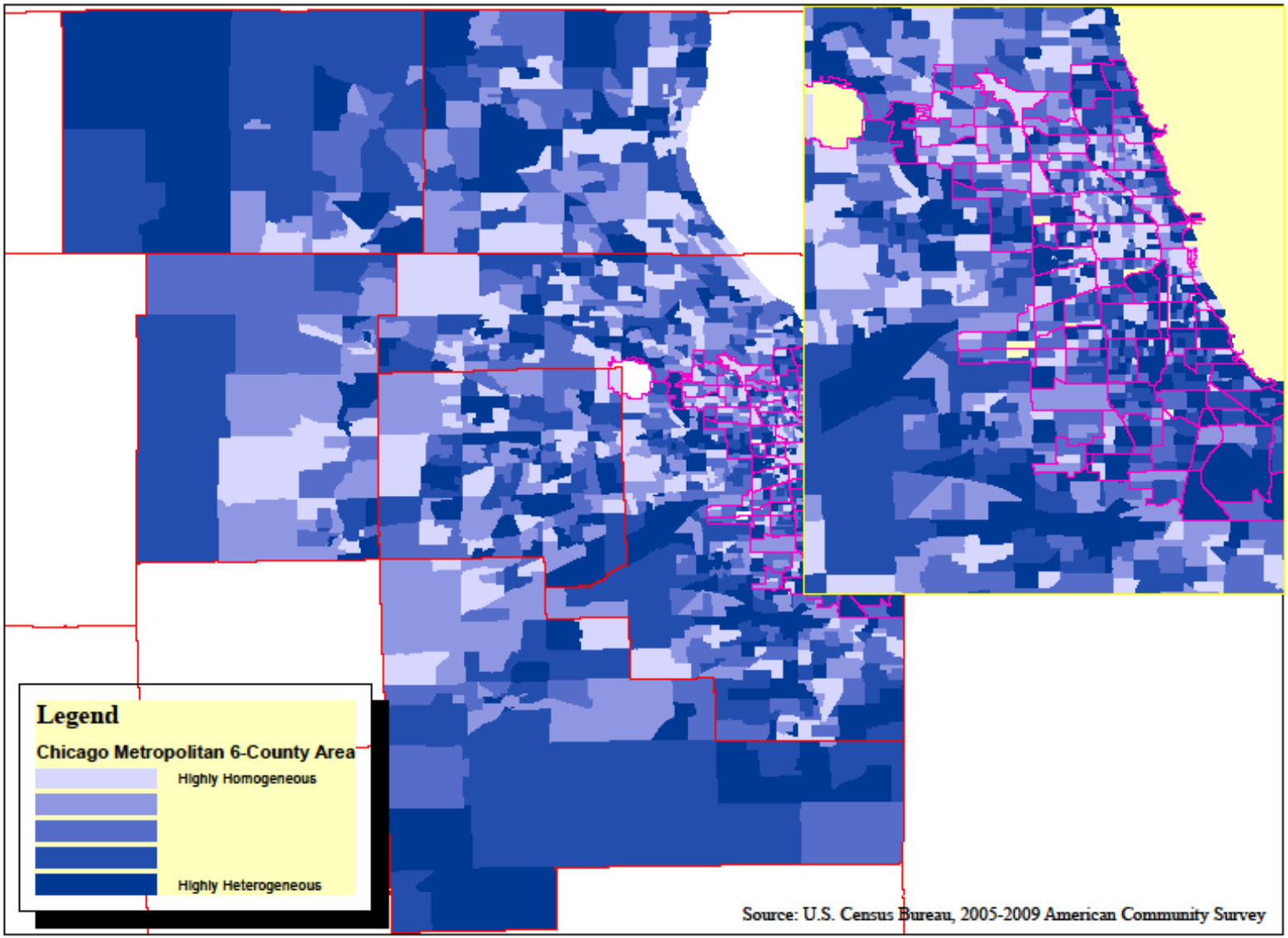


Appendix X. Diversity Measure of Housing Value

Applied to housing value, the index of ordinal variation approximates accessibility and desirability. For many Americans, home ownership was long considered a reflection of economic status and a fail-proof, long-term investment. As collective mobility increased among racial/ethnic minorities, researchers focusing on residential segregations subsequently refined research questions to examine more complex issues such as black-on-black gentrification (Patillo-McCoy 1999), suburbanization of minorities and immigrants (Hall 2009; Li 1998), and the impact of migration patterns (Frey and Liaw 1998). While capturing and quantifying the condition that resulted from these events require much more in-depth research, measuring economic diversity of an area based on housing values partly gauges degrees in which once-homogenized areas—both affluent and impoverished—diversified. ACS uses eight ordinal housing value categories in 2009 dollars (less than $50,000; $50,000 to $99,999; $100,000 to $149,999; $150,000 to $199,999; $200,000 to $299,999; $300,000 to $499,999; $500,000 to $999,999; $1,000,000 or more).

A homogenous area can be economically disadvantaged when housing values are collectively low, as is the case near the west side of Chicago. It can also be a highly affluent area when housing values are collectively high, as is the case in the north shore suburbs of Chicago, an area immediate north of Chicago along Lake Michigan. A heterogeneous area can be densely populated when a variety of housing options is available from studio condominiums to single-family homes, as is the case along Lake Michigan on the entire north side of Chicago. It can be a suburban landscape when older housing stocks are mixed with new developments, as in a number of municipalities, including Aurora, Bloomingdale, Buffalo Grove, Ford Heights, and Lake in the Hills (Figure 12).

Figure 12. Diversity in Housing Value by Census Tract



Appendix XI. Discussion of Control Variables

While gender did not play a role in social dynamics for Chinese and Filipino immigrants, gender yielded different modes of social interactions for Mexican immigrants. For Mexican women, interactions with others were greater than for males as shown with greater social ties, co-ethnic ties, and social ties with college education. Mexican male immigrants had greater organization ties. These findings on disparity by types of social ties and affiliations are consistent with findings by Fernandez and Harris (1992) and Fischer (1982), who uncovered gender differences in social ties. The gender difference found among Mexican respondents is significant in that there were uneven compositions, with men historically outnumbering women via labor migrations of mostly young men. Age had a positive impact on all three groups. While the number of social ties increased with age for Chinese respondents, social ties and ties with college education increased with age for Filipino respondents. For Mexican respondents, a positive impact of age was reflected in organization affiliation in both overall affiliation and nationality organizations. While impact of age on social networks was negative (Ajrouch, Antonucci, and Janevic 2001; Hawkley and Cacioppo 2007) in previous studies, a possible explanation may be linked to structurally intimate ethnic community environments that prevented a decline in social networks with age found in mainstream American society. Consistent with other studies that found education attainment significant (Fischer 1982; McPherson, Smith-Lovin, and Cook 2001), respondents' college education increased social ties with college education but only for Filipino and Chinese immigrants. For Chinese respondents, nationality organizations increased with education. Given a low proportion of college graduates within Mexican communities, the minimal impact of human capital among Mexican respondents may indicate the limited role and capacity of human capital in some communities. College

degrees may not necessarily provide blanket assurances for enhancing social networks. For Filipino and Chinese immigrants, SES may stratify social interactions similar to the way mainstream society operates. Further research is required to examine whether this similarity leads to interactions that are more fluid with individuals outside a community.

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