

PLACE MATTERS FOR HEALTH IN COOK COUNTY:

Ensuring Opportunities for Good Health for All

A Report on Health Inequities in Cook County, Illinois



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A Report on Health Inequities in Cook County, Illinois

Prepared by the
Joint Center for Political and Economic Studies Health Policy Institute
and the Cook County, IL, Place Matters Team

In Conjunction With the
Center on Human Needs, Virginia Commonwealth University
Virginia Network for Geospatial Health Research

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FOREWORD

Place matters for health in important ways, according to a growing body of research. Differences in neighborhood conditions powerfully predict who is healthy, who is sick, and who lives longer. And because of patterns of residential segregation, these differences are the fundamental causes of health inequities among different racial, ethnic, and socioeconomic groups.

The Joint Center for Political and Economic Studies and Cook County, IL, PLACE MATTERS team are very pleased to add to the existing knowledge base with this report, “Place Matters for Health in Cook County: Ensuring Opportunities for Good Health for All.” The report, supported by a grant from the National Institute on Minority Health and Health Disparities (NIMHD) of the National Institutes of Health, provides a comprehensive analysis of the range of social, economic, and environmental conditions in Cook County and documents their relationship to the health status of the county’s residents.

The study finds that social, economic, and environmental conditions in low-income and non-white neighborhoods make it more difficult for people in these neighborhoods to live healthy lives.

The overall pattern in this report – and those of others that the Joint Center has conducted with other PLACE MATTERS communities – suggests that we need to tackle the structures and systems that create and perpetuate inequality to fully close racial and ethnic health gaps. Accordingly, because the Joint Center seeks not only to document these inequities, we are committed to helping remedy them.

Through our PLACE MATTERS initiative, which is generously supported by the W.K. Kellogg Foundation, we are working with leaders in 24 communities around the country to identify and address social, economic, and environmental conditions that shape health. We look forward to continuing to work with leaders in Cook County and other communities to ensure that every child, regardless of their race, ethnicity, or place of residence, can enjoy the opportunity to live a healthy, safe, and productive life.

Ralph B. Everett
President and CEO
Joint Center for Political and Economic Studies

PREFACE

Chicago and the surrounding suburbs have historically been segregated by race and class.¹ This fact has not changed over time, despite the often heroic efforts of organizers and activists, from the well-known to the unsung. For the past two decades the Chicago metropolitan area has been one of the worst in the United States in terms of disparate neighborhood conditions for blacks and Latinos compared to whites.² Racial residential segregation concentrates poverty along racial lines. According to a recent report (using 2000 data), “Black families, even those with a higher income, tend to live in high-poverty neighborhoods, while white families with lower incomes are more likely to live in higher income neighborhoods. [While] nearly 75% of poor white children live in neighborhoods in which the poverty level is $\leq 10\%$,” less than 5% of poor black children live in low-poverty neighborhoods.³ This exposure to neighborhood poverty is similar for Hispanic children. According to the Institute of Medicine, this segregation is a national pattern: “Black and Hispanic children consistently live in neighborhoods with much higher poverty rates than white children.”⁴

Metropolitan Chicago is a regional center of organizations and individuals active in a multifaceted and vibrant food movement designed to combat one of the negative consequences of concentrated poverty: inadequate access to healthy foods and the resultant detrimental impact on health outcomes. In the Chicago area, there is a debate about the definition of goals for this movement and how to best achieve them. The Cook County PLACE MATTERS Team and Steering Committee has identified some values to serve as guideposts: racial equity, social justice, and empowerment of voices usually not heard in the policy-making process. Cook County Place Matters’ focus is on access to food and food justice. However, it also recognizes the importance to health equity of transportation, housing, employment, education, health care, and meaningful participation of Cook County residents in the democratic process. Together, these are the resources necessary for good health—resources that are distributed unequally in metro Chicago. This unfair geographic distribution is why *Place Matters*.

The Cook County PLACE MATTERS team recognizes that much work and many contributions have preceded this report. A selection of other resources is listed in the accompanying box. Cook County PLACE MATTERS is grateful for the valuable contributions to its thinking made by the other 15 PLACE MATTERS teams around the United States. Together, we have created a learning community committed to taking action on the social determinants of health.

Previous Chicago-area studies and reports on food justice

1. “Finding Food in Chicago and the Suburbs: The Report of the Northeastern Illinois Food Security Assessment, Report to the Public,” by Daniel Block, Noel Chávez, and Judy Birgen (2008).
2. “A Comparison of the Availability and Affordability of a Market Basket in Two Communities in the Chicago Area,” by Daniel Block and Joanne Kouba (2005).
3. “Food Deserts in Chicago: A Report of the Illinois Advisory Committee to the United States Commission on Civil Rights” (2011).
4. “Food Sovereignty, Urban Food Access, and Food Activism: Contemplating the Connections Through Examples From Chicago,” by Daniel R. Block, Noel Chávez, Erika Allen, and Dinah Ramirez (2011).
5. “Food Access in Suburban Cook County,” prepared by the Chicago State University Community Assistance Center (2011).
6. “Examining the Impact of Food Deserts on Public Health in Chicago,” by Mari Gallagher Research and Consulting Group (2006).
7. “Food Insufficiency in Urban Latino Families,” by Noel Chávez, Sharon Telleen, and Young Ok Rhee Kim (2007).
8. “Community Food Insecurity Data,” by the Greater Chicago Food Depository (2011).
9. “Behind the Kitchen Door: The Hidden Costs of Taking the Low Road in Chicagoland’s Thriving Restaurant Industry.” Restaurant Opportunity Centers United and Chicagoland Restaurant Industry Coalition (2010)
10. “Family Food Access Report: When We Have Better, We Can Do Better,” by Angela Odoms-Young and others.
11. “‘You Have to Hunt for the Fruits, the Vegetables’: Environmental Barriers and Adaptive Strategies to Acquire Food in a Low-Income African American Neighborhood,” by Shannon Zenk and others (2011).

EXECUTIVE SUMMARY

Place matters for health in important ways. Research demonstrates that neighborhood conditions—the quality of public schools, housing conditions, access to medical care and healthy foods, levels of violence, availability of exercise options, exposure to environmental degradation—powerfully predict who is healthy, who is sick, and who lives longer. And because of patterns of residential segregation, these differences are the fundamental causes of health inequities among different racial, ethnic, and socioeconomic groups. This study examines the relationships between health, community characteristics, and food access in Cook County, IL, and attempts to address specific questions raised by the Cook County PLACE MATTERS Team:

- What is the relationship between community-level measurements of socioeconomic status—that is, wealth, income, and/or education—and access to healthy food?
- What is the relationship between access to nutritious food and the amount spent for nutritious food?
- What is the relationship between access to different types of food providers and health outcomes?

The study drew the following conclusions:

- Between 2005 and 2009, the Index of Dissimilarity for Cook County between the black and white populations was 80.8% at the census tract level.⁵ The higher the index, the more segregated the area. The Index of Dissimilarity between white and Hispanic populations in Cook County was 60.2%,⁶ which is similar to the state index.
- Cook County is segregated by race and class, as shown in Maps 2 and 3, while pockets of poverty exist throughout the county.
- Educational opportunities and attainment are stratified by race and ethnicity.
- More than a quarter of Cook County census tracts experience persistent poverty, meaning that at least 20% of households have been in poverty for two decades; 162 census tracts have had at least 20% of residents in poverty for five decades.
- In Cook County in 2007 the premature death rate for black residents was 445.9 per 100,000 persons; for white residents the rate was 179.5; for Hispanic residents it was 141.3.
- People living in areas with a median income greater than \$53,000 per year had a life expectancy that was

almost 14 years longer than that of people living in areas with a median income below \$25,000 per year.

- Most of the census tracts with low educational attainment and low food access are located in the southern portion of Cook County, which has a high concentration of minority communities.
- Residents in the quintile with the least access to chain supermarkets and large independent grocers have an average life expectancy that is approximately 11 years shorter than residents in the quintile with the highest access to such food providers.

The overall pattern suggests that socioeconomic conditions in neighborhoods of concentrated poverty, which are predominantly African American and Latino, make it more difficult for people in these communities to live healthy lives. It is unacceptable in the world's wealthiest society that a person's life can be cut short by more than a decade simply because of where one lives and factors over which he or she has no control. Clearly, there is a strong moral imperative to enact policies to redress the inequities of the past, as well as current inequities, in ways that will improve health for all. But, there also is a powerful economic incentive. A study released by the Joint Center for Political and Economic Studies in 2009 found that direct medical costs associated with health inequities among African Americans, Hispanics, and Asian Americans approached \$230 billion between 2003 and 2006. When indirect costs, such as lowered productivity and lost tax revenue resulting from illness and premature death, were included, the total cost of health inequities exceeded \$1.24 trillion.⁷ Thus, for both moral and economic reasons, we must address health inequities and their root causes now.

Recommendations

In “Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health,” issued in 2008, the World Health Organization called for three changes to eliminate health inequities. These changes serve as a framework for the following specific policy recommendations, some of which may be outside the scope of this report, which focuses on access to food and food justice. However, the PLACE MATTERS Team hopes that these recommendations will help to guide champions of health equity in metropolitan Chicago as they seek to influence change at the applicable level of government—municipal, county, state, and federal.

1. Implement the World Health Organization recommendations

- a. Improve daily conditions.
- b. Tackle the inequitable distribution of power, money, and resources.

- c. Measure and understand the problem and assess the impact of action.

2. Track health inequities

- a. Health departments and other agencies should monitor health inequities and make the data available to the public. Health departments need to have funding adequate to the task of collecting, analyzing, and presenting data related to inequities. Health departments need infrastructure and capacity sufficient to draft and implement actions to address health inequities. Local health departments should have sufficient capacity to conduct Health Impact Assessments.
- b. Race/ethnicity/class/gender data should be collected to monitor health inequities.⁸
- c. Funding for the U.S. Census and the American Community Survey should be strengthened.

3. Strengthen infrastructure for collection of data on food retail outlets

- a. Investigate a classification system for restaurants by service level that would allow for a clearer mapping of all (rather than just chain) restaurants by type.
- b. Fund local health departments to perform a nutrition survey of a sample of restaurants and other food retail outlets in low- and high-food-access communities.

4. Implement a public financing program to provide financial “seed money” to stimulate healthy food retail in neighborhoods with low food access

- a. The state of Illinois should create a financial seeding agency to raise capital to invest in communities.
- b. Sufficient funds should be available to address the need for increased food retail outlets in the entire Chicago metro area.
- c. A broad range of food retail outlets should be eligible for funding, including small stores, co-ops, and nonprofit enterprises.
- d. Multiple options are needed to increase access to food:
 - i. Promote the development of a variety of small and large innovative retail projects that provide high-quality food in areas with low food access.

- ii. Assist in the improvement in diversity, quality, and affordability of the food products that smaller providers sell.

- e. Support food sovereignty. The voices and aspirations of neighborhood residents need to be reflected in solutions to hunger and poor nutrition. Too often policy decisions are made without the meaningful participation of the people affected by the problem. Efforts to organize and inform residents are necessary so that they have the tools to make informed decisions about food system failures. Examples of concerns include working conditions, pay and career advancement, accountability, and opportunities for local wealth creation and employment.

- f. Food policy councils at the municipal, regional, and state level need to be supported.

5. Ensure workplace justice for workers throughout the food chain.

Workers in the restaurant industry, for example, experience unsafe working conditions. The pay is often less than that needed to feed a family. And women and people of color are disproportionately represented in lower-paid positions⁹.

6. Address persistent poverty by engaging multiple sectors.

Governmental agencies with responsibilities for health, housing, transportation, education, nutrition, employment, the environment, and other sectors must identify and implement actions to eliminate persistent poverty. People living in such places need to act collectively, through organized intentional actions, to achieve a fair distribution of society’s resources.

INTRODUCTION

[I]nequities in health [and] avoidable health inequalities arise because of the circumstances in which people grow, live, work, and age, and the systems put in place to deal with illness. The conditions in which people live and die are, in turn, shaped by political, social, and economic forces.

World Health Organization Commission on the Social Determinants of Health (2008)

Place matters for health. Where one lives may be the most important factor in determining health outcomes. And because of our history of racial oppression and the legacy of that oppression in residential patterns today, the intersection of place and race in the persistence of health disparities looms large.

Health outcomes are influenced by several factors—the quality and extent of medical care one receives, individual behaviors such as those that affect nutrition or exercise, and institutional policies and social structures that are beyond the control of individuals. Choices, tastes, and preferences are shaped by, and to a significant degree are determined by, income and occupation.¹⁰ The present mainstream emphasis on educating individuals about “lifestyle choices” is deceptive: It inaccurately presumes that how much money or other resources one has is irrelevant.

To a significant degree, all of these factors are a function of where one lives, works, and plays. In poor neighborhoods the availability of medical care, healthy foods, and exercise options are scarce and the levels of exposure to environmental degradation and violence are high. These conditions are powerful predictors of more sickness and shorter lives.

Thus, in neighborhoods of concentrated poverty, defined as neighborhoods in which 30% of the households live at or below the poverty level (approximately \$22,000 per year for a family of four), there are fewer family physicians and even fewer medical specialists, hospitals are likely to be less well-equipped, and clinics and emergency rooms are likely to be more crowded and to be served by overworked and often less-experienced personnel. Furthermore, because families are poor, they are less likely to have health insurance or own a car or have the transportation necessary to access better medical care. Therefore, illnesses are left untreated for too long, leading to more serious conditions; the quality of care for serious conditions such as cardiovascular problems and cancer often is inadequate and reflective of a lack of cultural understanding; and dental and sight problems may be ignored, leading to more serious problems and, in the case of children, affecting their ability to learn in school.

While people make personal choices with regard to behaviors that influence health, such as healthy eating and exercise, these choices are often severely limited for those living in neighborhoods of concentrated poverty. Adopting a healthier diet requires access to supermarkets or farmers’ markets that sell fresh produce. These are sorely lacking in poor neighborhoods, and lack of transportation is a limiting factor in accessing such establishments in other neighborhoods. Regular physical activity requires a conducive, built environment and access to safe parks, pedestrian routes, and green space for residents to walk, bicycle, and play. These facilities are far less likely to be available in poor, densely populated neighborhoods. Thus, conditions such as obesity and diabetes, often the products of poor diets and lack of exercise, are more frequent among residents of poor neighborhoods.

Institutional policies and practices beyond the control of individuals also play a significant role in health outcomes. Environmental pollutants from aging and unhealthy housing (often with peeling, lead-based paint), nearby factories and smokestacks, and toxic waste dumps are far more prevalent in poor neighborhoods, as well as in predominantly African American and Hispanic American neighborhoods, largely because of persistent racism in the institutions of our society and because the residents of these neighborhoods do not have the political or economic clout to resist the decisions of policy makers. Thus, children growing up in these neighborhoods are more likely to ingest lead—and experience subsequent cognitive development problems—and all residents are at higher risk for asthma and other conditions that are a product of these pollutants. All are at risk as well from higher levels of violence.

In addition, access to a quality education and access to good jobs are severely limited in neighborhoods of concentrated poverty. Thus, people living in these neighborhoods not only are at much greater risk for health problems, but the difficulties in obtaining a good education and a decent job at a living wage can create a vicious cycle that perpetuates poor health.

The impact of these factors falls far more heavily on people of color, particularly African Americans and Hispanic Americans. Because of our history of racial oppression and the resulting patterns of residential segregation, poor nonwhite families are far more likely to live in neighborhoods of concentrated poverty than are poor white families. The following are among the reasons that account for this situation:

- The wealth gap has made it difficult for African Americans and Hispanic Americans to become home owners and to sustain home ownership. The wealth gap had its origins in slavery, was augmented by intentionally discriminatory government policies in the century that followed the end of slavery, and now actually is widening due to the disproportionate targeting of nonwhite families by predatory lenders.

- Negative racial stereotypes, which arose largely as a way to justify slavery and Jim Crow racism and that tend to demonize all nonwhite Americans, have, in the minds of many white Americans, stamped nonwhites, particularly African Americans and Hispanic Americans, as undesirable neighbors.
- Blatantly discriminatory mortgage underwriting policies of the Federal Housing Administration that denied mortgages to nonwhite families during the housing boom following World War II, augmented by the policy of “redlining” in predominantly nonwhite neighborhoods, institutionalized residential segregation by locking nonwhite families out of suburban home ownership and locking them into high-rise rental apartments in government-created ghettos in the inner cities.
- The discriminatory implementation of the GI Bill following World War II made it far more difficult for African American veterans to obtain mortgage loans or loans for a college education or to start a small business.
- By some estimates racial disparities in the provision of health care have caused nearly a million premature deaths (886,000) among African Americans.
- By some estimates 90,000 African Americans die prematurely each year due to inferior health care.
- In the case of Hispanic American immigrant families, health outcomes have actually deteriorated the longer they are in this country, and the health outcomes of succeeding generations have deteriorated as well.¹¹

In many ways the situation in Cook County and Chicago mirrors that of similar metropolitan areas throughout the country. Chicago was a primary destination for many African American families who came north during the mid-20th century seeking better jobs and more freedom, and it has been a primary destination for immigrants from neighboring countries to our south. This influx of nonwhite people, combined with white flight and the racially discriminatory tools mentioned earlier—redlining, steering, blockbusting, and predatory lending—have severely exacerbated residential segregation. Today, Chicago remains hyper-segregated, with little change in neighborhood composition except where gentrification has increased the white population and driven out low-income and nonwhite residents. Suburban Cook County has seen its population in poverty increase between 2000 and 2010. There was significant population growth of communities of color and a decrease in the white population.¹²

These segregated housing patterns have created significant racial and ethnic divisions and disparities, particularly in health outcomes. For example, our study found that in seven of the eight Chicago neighborhoods that have the lowest life expectancy (ranging from 68.9 years to 71.5 years), the percentage of African Americans living in these neighborhoods ranges from 77.4% to 98.5%. In six of these neighborhoods the population is more than 93% African American. In these same neighborhoods, the percentages of those living below 150% of the federal poverty level (\$22,314 for a family of four) range from 33.0% to 66.2%. In the eight neighborhoods with the highest life expectancy (ranging from 82.8 years to 84.5 years), the percentage of African Americans ranges from 1.1% to 33.4%, with six of these neighborhoods having African American populations under 10%.

Children are especially vulnerable, with more than 75% of all black children in metro Chicago living in neighborhoods with poverty rates in excess of 90%. On the other hand, more than 85% of all white children in metro Chicago live in neighborhoods with poverty rates under 10%.

Not surprisingly, neighborhoods of high poverty tend to trap their residents in an ongoing cycle of poverty and poor health. A report issued by the Leadership Council for Metropolitan Communities in 2005¹³ noted that the “highest opportunity”

Despite enactment of the Fair Housing Act of 1968 and subsequent legislation that was designed to create equal opportunity for fair and integrated housing and home ownership, patterns of residential segregation have persisted, due in large part to ongoing racially biased practices such as redlining, steering, blockbusting, and predatory lending. The migration of African American families north during the mid-20th century seeking greater job opportunities and freedom from the stifling Jim Crow practices of the South, combined with white families leaving the cities for the more spacious suburbs (encouraged both by favorable mortgage terms not available to nonwhite families and by construction of interstate highways that have facilitated commuting), intensified these racially biased practices and more fully embedded residential segregation in society. More recently, the situation has been exacerbated by resistance to immigration from Latin American countries. Thus, despite the growth of the nonwhite middle class, particularly the African American middle class, nonwhite families have remained disproportionately clustered in poor inner-city neighborhoods.

The health outcomes have been predictable:

- Life expectancy for black men in the U.S. is 68.8 years vs. 75.1 years for white men.
- Life expectancy for black women in the U.S. is 75.6 years vs. 80.3 years for white women.
- Black infant mortality is more than twice that of whites.

communities in the Chicago area had 34 times as many jobs created within a 10-mile radius between 1995 and 2000 as the “lowest opportunity” communities. It further noted that the lowest-opportunity communities had a tax capacity of \$871 per household compared to \$2,813 for the highest-opportunity communities, and it found that 94% of African American residents and 83% of Hispanic American residents lived in low-opportunity communities. This segregation by race and class is driven in part, the report found, by the fact that households with limited incomes were virtually forced into these low-opportunity communities by limited housing options: 87% of the housing affordable to households earning poverty-level incomes was located in low-opportunity communities.

One of the key characteristics of these low-opportunity communities is limited access to nutritious foods. Previous national and local studies have demonstrated a relationship between limited access to healthy foods and abundant access to poor food sources, which in turn can lead to adverse health outcomes such as obesity, cancer, and cardiovascular disease.¹⁴ The *Chicago Sun-Times* addressed this issue in a newspaper article that begins: “The greens are wilted, with brownish edges. The oranges are bruised and yellowing. Bunches of bananas have started turning brown and spotty....”¹⁵ This same article noted that it found this unappetizing situation in one of the few grocery stores with a relatively large produce section in a predominantly African American and low-income community that had only one chain supermarket for 117,000 residents.

As our study has found, this lack of access to nutritious foods is common in predominantly nonwhite, low-income communities, which are, for the most part, low-opportunity communities. And they are a significant factor in one’s inability to eat healthy foods and in the health outcomes that are a consequence of this inability.

The purpose of the study from which the *Sun-Times* quote derives was “to make connections between food access, respect, and activism.” The following paragraph from this study sums up the situation in Chicago’s nonwhite communities:

Two of the case study areas were predominantly African American and expressions of lack of respect and inequality were common in views of food security expressed by each community. Englewood, with its sister community of West Englewood on Chicago’s mid-South Side, is over 97% African American. In 2000, 54.1% of Englewood children and 43.8% of West Englewood children lived in poverty, far above the Chicago rate of 28.1%. Riverdale is an extremely isolated community surrounded by industrial land on Chicago’s far South Side.... Riverdale was 96.6% African American in 2000, and is the poorest Chicago community,

with a median household income in 2000 of just \$13,178. Sixty-eight percent of its children lived in poverty....[These] communities show high rates of disease and negative environmental factors. In 2004, Englewood and West Englewood had the highest rates of positive lead tests (13%) among children of Chicago communities, and were two of the top three communities in all-cancer mortality rates, and two of the top four communities in homicide rates. Food access in both the communities is low. Despite the opening of a full service supermarket in West Englewood in 2006, this is the only full service supermarket in an area with a combined population of about 85,000. The mean distance to the nearest large market from Englewood addresses in 2007 was 1.41 miles. There were no full-services supermarkets in Riverdale and the mean distance to the nearest large store was 3.65 miles, by far the highest in the city.

There have been some public sector efforts in Chicago to address residential segregation and, by extension, access to nutritious foods. Among them is the Chicago Housing Authority’s “Plan for Transformation,” the goal of which “is to rehabilitate, redevelop and/or tear down public housing units to improve the quality of the housing, promote mixed-income communities and redefine the relationship between the Chicago Housing Authority (CHA) and the tenants in these units.” The CHA web site states that the “Plan for Transformation goes far beyond the physical structure of public housing. It aims to build and strengthen communities by integrating public housing and its leaseholders into the larger social, economic and physical fabric of Chicago.” The plan was approved by the Department of Housing and Urban Development and funded, and it began in 2000 with a target completion date of 2007. However, it has had very limited success, with former CHA residents tending to move from one disadvantaged neighborhood to another—and in the process losing social networks that had helped to sustain them. The plan is now scheduled to be completed by 2015, but the realization of its goals is in serious question.

At the community level there have been substantial efforts over a period of many years by community-based organizations such as Fresh Moves¹⁶ to address this concern as a way to narrow health disparities in the Chicago area. According to the article referenced above, *Food Sovereignty, Urban Food Access, and Food Activism*, “in Chicago and elsewhere, residents and activists often see and experience racial and economic inequalities through the variety of stores and other food access sites available in their community.” It claims that the concept of “food sovereignty”¹⁷ may apply particularly well in Chicago because many community-based action groups in the city are still

rooted in the work of [Saul] Alinsky,” the noted 20th century community organizer from Chicago, and in the work of many others who, both historically and currently, have engaged in developing grassroots power in the Chicago area.

It is in this context that the Joint Center’s Health Policy Institute undertook to study the relationships between health, community characteristics, and food access in Cook County, Ill. and to address specific questions raised by the Cook County Place Matters team:

- What is the relationship between community-level measurements of socioeconomic status—that is, wealth, income, and/or education—and access to healthy food?
- What is the relationship between access to different types of food providers and health outcomes?

The study found that:

- People living in areas where a higher percentage of the population was non-Hispanic white have significantly longer life expectancies than people living in areas where a higher percentage of the population is non-Hispanic black. Similarly, owner-occupied housing and higher levels of wealth and educational attainment are associated with longer life expectancies.
- In Cook County, life expectancy across census tracts varies by as much as 33.3 years, from a high of 95.0 years to a low of 61.7 years.
- People living in areas with a higher percentage of whites and, to a lesser degree, Asian Americans have significantly greater access to chain supermarkets and more nutritious foods, and this access is associated with longer life expectancies.
- People in Cook County communities with the least access to nutritious foods (that is, neighborhoods in the bottom 20% of communities based on measures of healthy food access) have an average life expectancy that is more than 12 years shorter than the communities with the highest access (that is, neighborhoods in the top 20% of healthy food access).

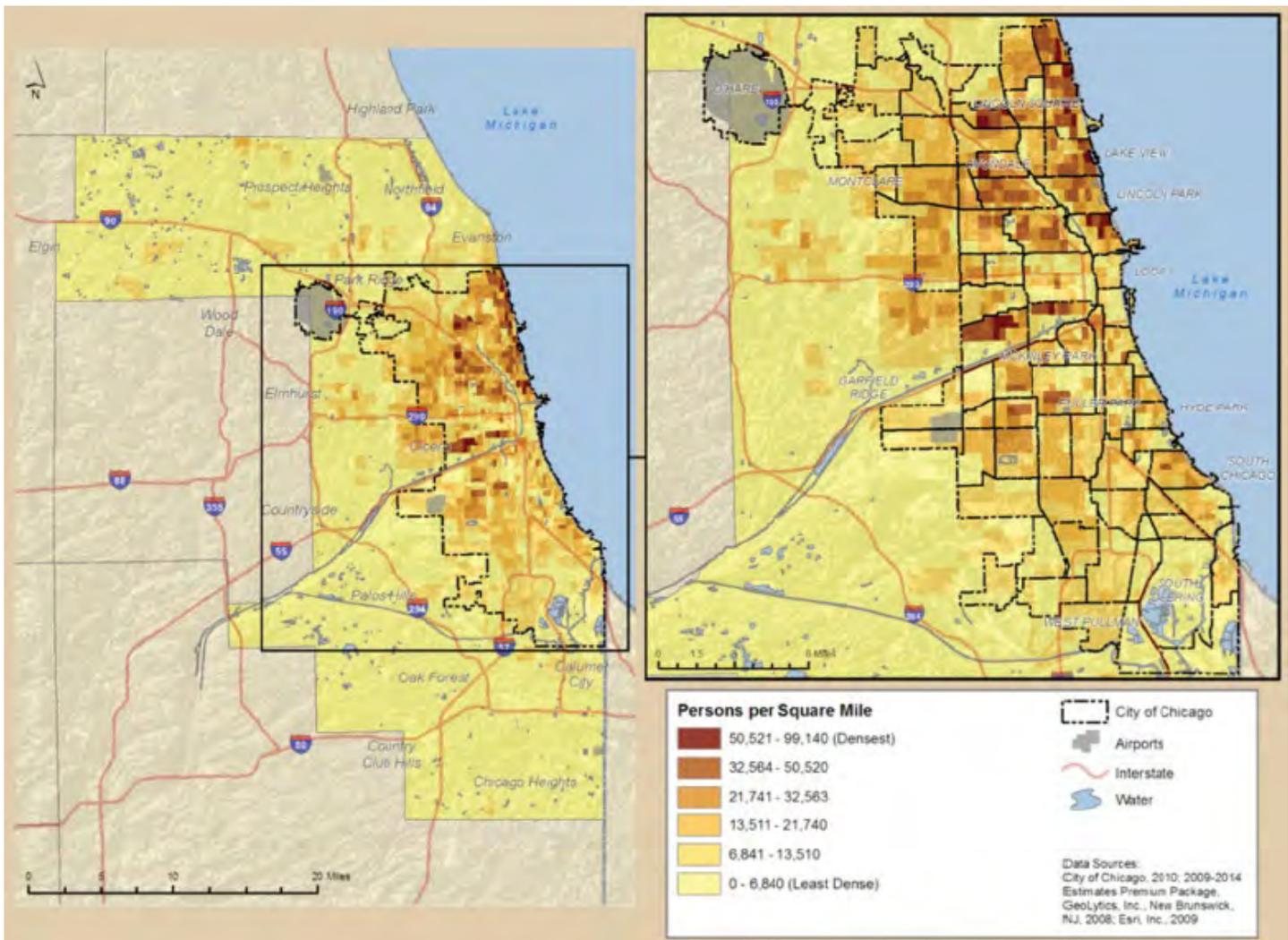
Although researchers cannot say with certainty that these neighborhood conditions cause poor health, the overall pattern suggests that the clustering of social, economic, and environmental health risks in low-income and nonwhite neighborhoods, which are populated predominantly by African American and Hispanic American families, constrains opportunities for people in these neighborhoods to live healthy lives. These place-based patterns are neither arbitrary nor benign. As noted earlier, they reflect the lack of opportunity in the communities where blacks and Latinos live in metro

Chicago, as well as present racial and class discrimination, and they represent serious challenges to health and equity in Chicago now and in the future.

It is our hope that the information contained in this report will support and supplement earlier reports and will add to the ammunition that community-based organizations and others can use to address inequitable access to healthy food and to significantly narrow health disparities in the metropolitan Chicago area.

Part I of this report provides background information about Cook County, including population data, health outcomes, socioeconomic conditions, and community characteristics. Part II examines the relationship between various neighborhood characteristics and food access indicators and health outcomes, including premature mortality and mortality due to heart disease and stroke. Part III discusses possible implications for the observed relationships. Appendix A presents detail about the data and methods that were used in preparing this report.

Map 1: Population Density by Census Tract, Cook County and Chicago (2009)



I. Background: Population, Community Characteristics, and Health in Cook County

Population

Cook County is located in the northeastern corner of Illinois and is bordered by Lake Michigan. The metropolitan area is third largest in the United States after New York and Los Angeles. In 2009, its population of 5,287,037 was more than 40% of the total population of Illinois (12,910,409).¹⁸ Cook County is characterized by dense population within the Chicago city limits, particularly in the northeast portion of the city along the shore of Lake Michigan. The population becomes less dense in the suburban areas farther away from the city. Over half of Cook County's population is located in the city of Chicago, which is also the county seat. The overall population density in Cook County was 5,598.3 persons per square mile in 2009.

Black and Hispanic residents each comprise nearly one quarter of the total population; Asians comprise 5.8%. These proportions are larger than those seen either in the state of Illinois or in the nation (see Table 1 and Figure 1).

Racial and ethnic population densities vary widely across Cook County. The Index of Dissimilarity¹⁹ is a measure of residential segregation that explains the percent of the population that would have to move in order to achieve a completely integrated²⁰ community. The higher the index, the more segregated the area. Between 2005 and 2009, the Index of Dissimilarity for Cook County between the black and white populations was 80.8% at the census tract level,²¹ which ranks it third behind Milwaukee and Detroit as the most segregated of all large U.S. metropolitan areas; by comparison, the state of Illinois had an index of 75.1%.²² The Index of Dissimilarity between white and Hispanic populations in Cook County was 60.2%,²³ which is similar to the state index.

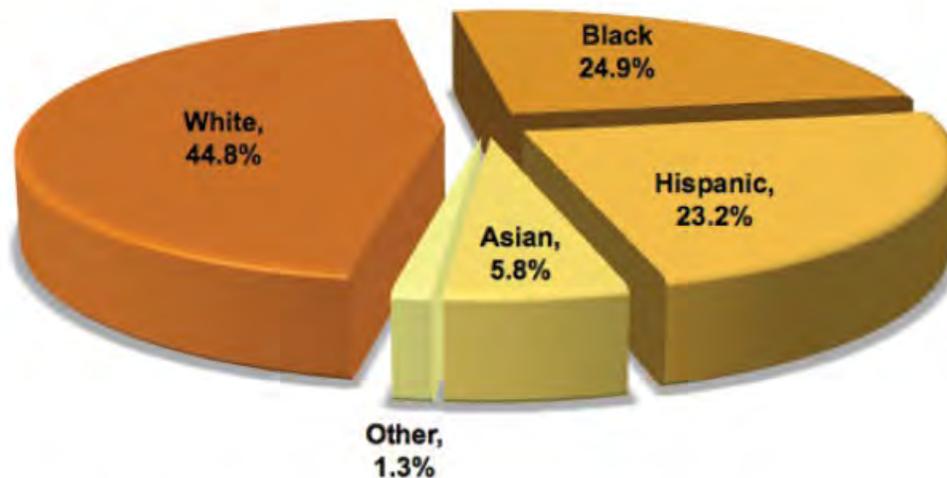
Table 1. Demographic Characteristics of Cook County, Illinois, and the United States

	Cook County	Illinois	United States
Population (2009)_(a)	5,287,037	12,910,409	307,006,556
Population Density (2009)_(b)	5,598.3	232.7	86.7
Race/Ethnicity (2009)_(a)			
White	44.8%	64.4%	64.9%
Black	24.9%	14.4%	12.1%
Hispanic	23.2%	15.3%	15.8%
Asian	5.8%	4.3%	4.4%
Other	1.3%	1.6%	2.8%
Foreign Born (2009)_(a)	20.6%	13.5%	12.5%

(a) Source: U.S. Census Bureau, 2009 American Community Survey

(b) Source: 2009 Geolytics Projection

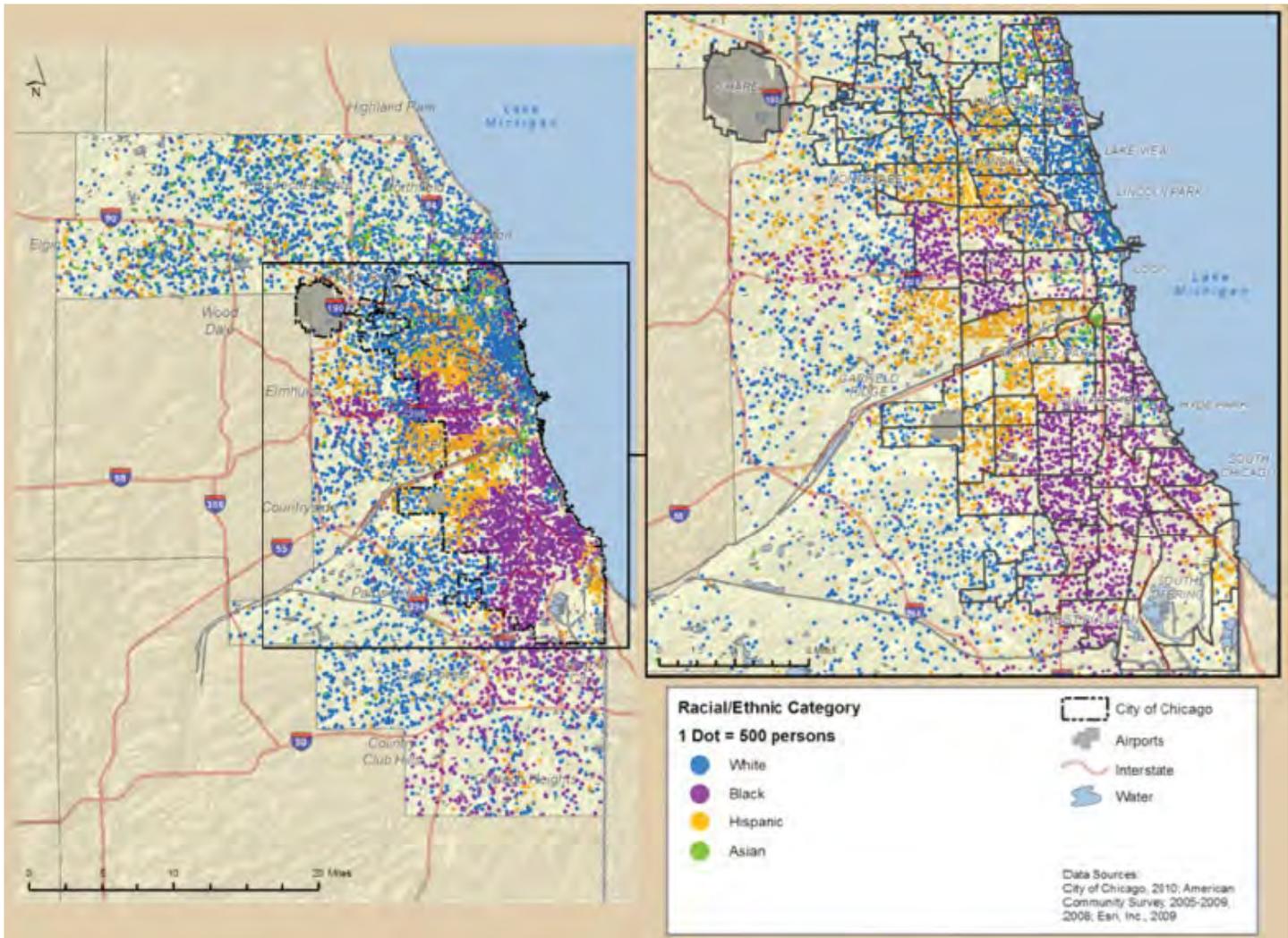
Figure 1: Race/Ethnicity in Cook County (2009)



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

Note: Other includes American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, two or more races, and some other race; White includes non-Hispanic population only; all other racial categories include Hispanic and non-Hispanic population. Hispanic can include any racial group.

Map 2: Racial and Ethnic Distribution in Cook County and Chicago (2005-2009)

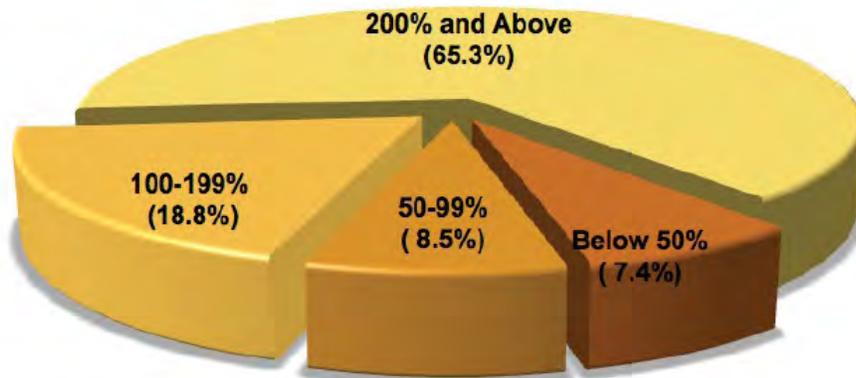


The Index of Dissimilarity is less useful for comparisons at a smaller geographic level like the census tract. For these purposes, the diversity index is more useful. The diversity index is a measure of the likelihood that two people randomly chosen from an area will be of a different race or ethnicity. The higher the diversity index, the less segregated the area. While the diversity index for Cook County as a whole in 2009 was 69.8%, the value ranges from 0.3% (no diversity) in a single census tract in Englewood, which is virtually all black, to 83.3% in a single census tract in Rogers Park (high diversity). The Rogers Park population composition is 42% Hispanic American, 25% white, 16% African American, and 11% Asian American.

Map 2 illustrates the segregation of racial and ethnic groups in Cook County generally and in the city of Chicago. The northern suburban townships of Barrington, Hanover, Palatine, Schaumburg, Wheeling, Elk Grove, Northfield, Maine, New Trier, Niles, and Evanston are majority white. The southern

townships of Orland and Bremen are also majority white, while Thornton is majority black. Within Chicago, the community areas on the northern shore of Lake Michigan (Lakeview, Lincoln Park, Near North Side) are majority white, while much of the South Side, including Washington Park, Englewood, Woodlawn, Greater Grand Crossing, South Shore, South Chicago, Avalon Park, and Chatham, is majority black. There are also predominately black communities on Chicago's West Side and near west suburbs. More than three quarters of the census tracts in South Lawndale, Brighton Park, and Gage Park have a Hispanic population that is greater than 70% of the total population. There are also large numbers of Hispanics on Chicago's Northwest Side.

Figure 2: Ratio of Income to Poverty in Cook County (2009)



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

Socioeconomic Characteristics

As is true nationally, socioeconomic conditions in Cook County exert an important, and often unrecognized, influence on health status. Nationally, families living below the federal poverty level (FPL) (an annual income of approximately \$22,000 or less for a family of four) are 3.6 times more likely to report fair or poor health than those with incomes of at least twice the poverty level.²⁴ In 2009, 15.9% of households in Cook County had incomes below the FPL, compared to 13.3% of households in Illinois and 14.3% of households in the United States.²⁵

The income-to-poverty ratio expresses household income as a percentage of the FPL. Figure 2 shows that 7.4% of households in Cook County had incomes that were less than half of the FPL (an income-to-poverty ratio of 50%), nearly 16% in all earned less than the FPL, and almost 35% earned less than twice the FPL, or less than \$44,100 in 2009 for a family of four.

The U.S. Census Bureau estimates that 23.6% of U.S. households had incomes below 150% of the FPL in 2009, compared with 25.9% in Cook County.²⁶ In 2009, half of households in census tracts in the neighborhoods of Armour Square, East Garfield, Englewood, Fuller Park, Grand Boulevard, Lower West Side, New City, North Lawndale, Oakland, Riverdale, South Chicago, South Lawndale, Washington Park, West Englewood, West Garfield Park, and Woodlawn had incomes below 150% of the FPL (see Map 3)

A persistent lack of economic resources during childhood can have negative consequences for a child's cognitive, emotional, behavioral, and physical development. It also may diminish the likelihood of high school completion, thus perpetuating disadvantage and the multigenerational cycle of living in conditions that adversely affect health.²⁷ *Persistent poverty*

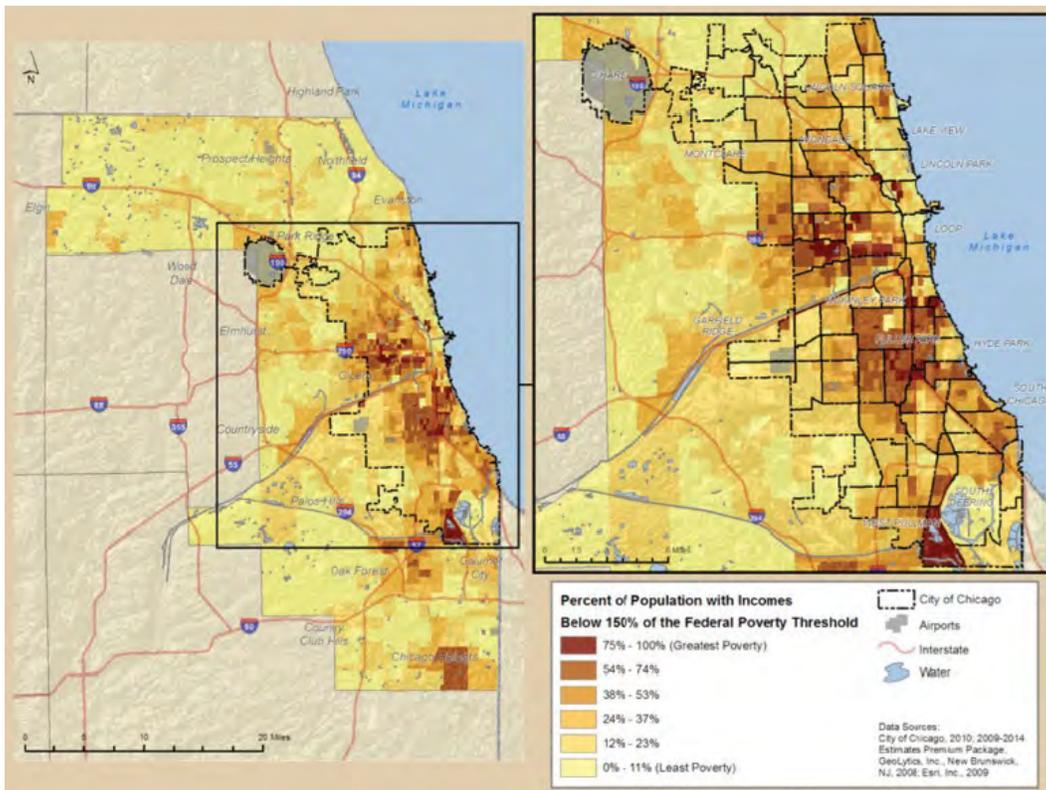
exists in census tracts in which at least 20% of households had incomes under the FPL for at least two consecutive census periods, or 20 years. This is the case in more than a quarter of Cook County census tracts, including the 162 tracts located in neighborhoods listed in Table 2, where more than 20% of the population has had incomes below the poverty level for five decades (see also Map 4). An additional 216 census tracts have experienced persistent poverty for two to four decades.

In 2009, the median income of Cook County families was \$63,612 overall, with sharp differences by race and ethnicity. The median income was \$87,918 among non-Hispanic whites, \$77,096 among Asians, \$40,048 among blacks, and \$44,012 among Hispanics.²⁸

In the U.S., the risk of having a housing cost burden²⁹ in 2009 was almost seven times greater for those earning less than \$20,000 per year than it was for those earning \$75,000 or more.³⁰ Households in Cook County were more likely to be housing cost burdened in 2009 compared to households in Illinois and the U.S. In Cook County, the housing cost burden³¹ in 2009 was *moderate to severe* (between 30% and 49.9% of income) for over one in five (21.7%) households, and was *severe* (more than 50% of income) in another 17.0% of households.³² Cook County's housing cost burden exceeded that of Illinois (19.1% and 12.5% of households, respectively, experience moderate or severe cost burden) and the U.S. (18.4% and 12.0%, respectively).³³

Severe overcrowding (an average of more than 1.5 persons per room) affected 4.2% of Cook County households, compared to 2.4% of Illinois households and 2.8% of U.S. households.³⁴ Only 54.9% of housing units in Cook County were occupied by those who owned and held a financial stake in the property, compared to 63.9% in Illinois and 60.7% nationally.³⁵

Map 3: Poverty by Census Tract, Cook County and Chicago (2009)



Map 4: Persistent Poverty by Census Tract, Cook County and Chicago (1970-2009)

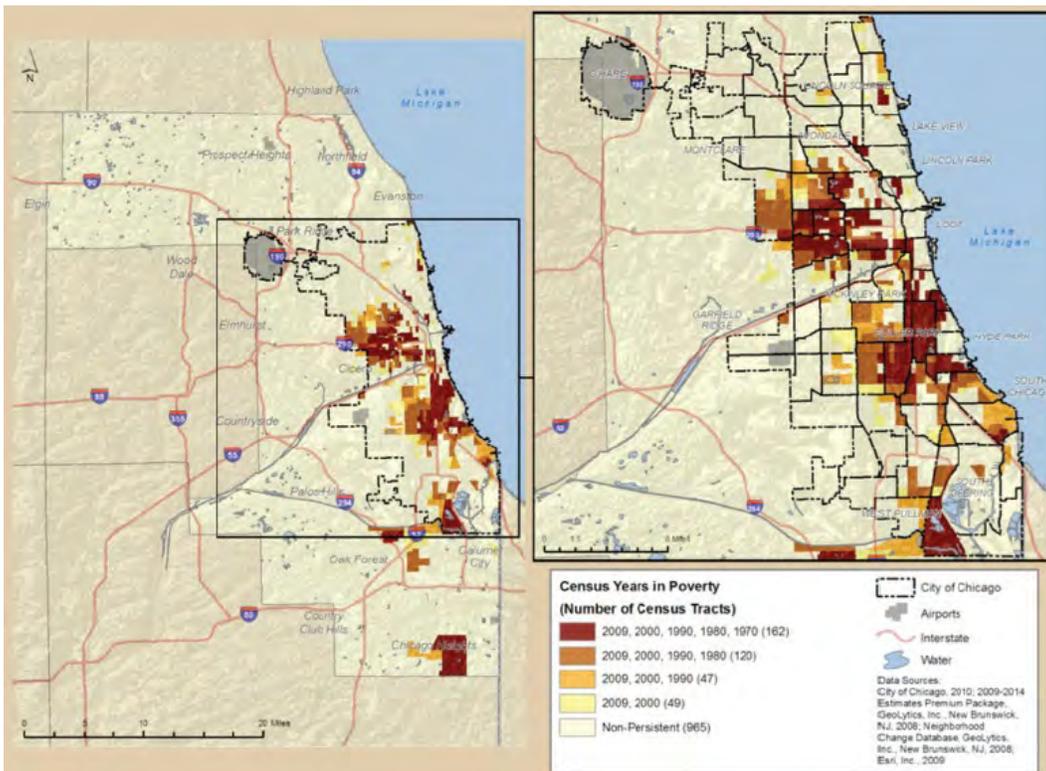


Table 2. Cook County Neighborhoods With Persistent Poverty for Five Decades (1970-2009???)

Uptown	North Center	Lincoln Park
Near North Side	Humboldt Park	West Town
Austin	West Garfield Park	East Garfield Park
Near West Side	North Lawndale	South Lawndale
Lower West Side	Near South Side	Armour Square
Douglas	Oakland	Fuller Park
Grand Boulevard	Kenwood	Washington Park
Woodlawn	South Shore	South Chicago
Riverdale	West Englewood	Englewood
Greater Grand Crossing	Auburn Gresham	<i>Robbins/Blue Island</i>
<i>Chicago Heights/Ford Heights</i>		

Source: Geolytics Neighborhood Change Database. Communities in *italics* are suburbs. All others are Chicago Community Areas.

Table 3. Cook County Neighborhoods With Low Educational Attainment (2009)*

Near West Side	Grand Boulevard	New City
Logan Square	South Lawndale	Douglas
Humboldt Park	Grand Boulevard	Lower West Side
Brighton Park	North Lawndale	Hermosa
Cicero	Gage Park	West Englewood
Belmont Cragin	West Town	Austin
South Chicago	West Pullman	Near North Side
Near West Side	Englewood	McKinley Park
West Garfield Park	<i>Melrose Park</i>	<i>Franklin Park</i>
Cicero		

*Neighborhoods in which at least 50% of adults lacked a high school diploma in at least one census tract in 2009.

Source: Geolytics Neighborhood Change Database. Communities in *italics* are suburbs. All others are Chicago Community Areas.

Education

Education is a pathway to higher income and net worth, which also have strong influences on health status and access to health care. National statistics indicate that adults (age 25 and older) who lack a high school education or equivalent are three times more likely to die before age 65 as those with a college education. They are also more likely to engage in unhealthy behaviors such as cigarette smoking.

In Cook County a larger percentage of adults (age 25 and older) lacked a high school degree in 2009 (16.4%) than in either Illinois (13.6%) or the nation (14.7%).³⁶ Educational attainment varies greatly by census tract in Cook County (see Map 5): 69.8% of census tracts—representing 929 tracts—had a higher percentage of adults without a high school education than the overall percentage for Illinois.³⁷ The percentage without a high school diploma varies by census tract from 0.2% in New Trier Township in the northern suburb of Cook County to 76.6% in a census tract in Near West Side. Cook County neighborhoods with the highest percentages of adults without a high school diploma are shown in Table 3.

Map 5: Adults With Less Than High School Education by Census Tract, Cook County and Chicago (2009)

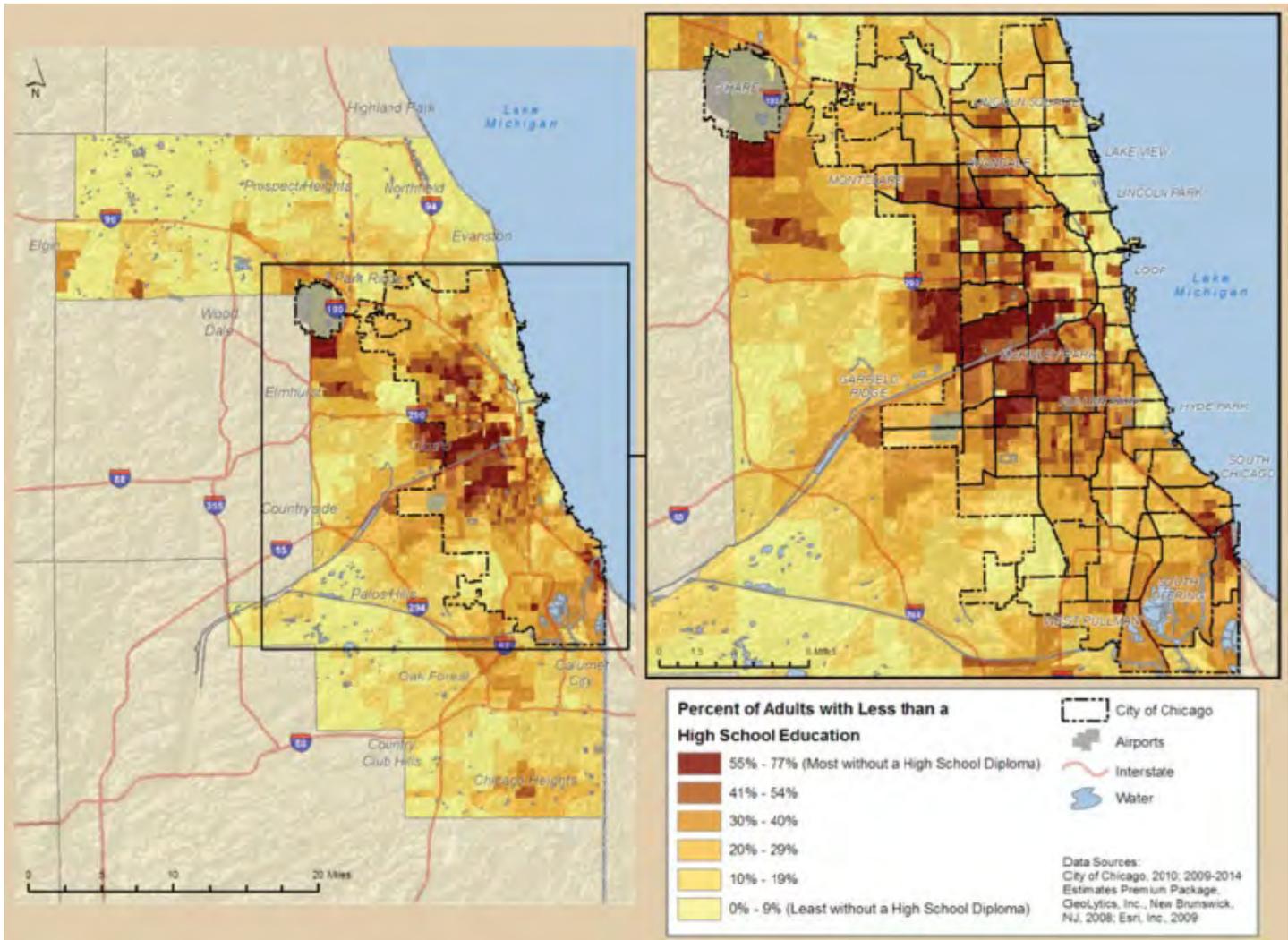
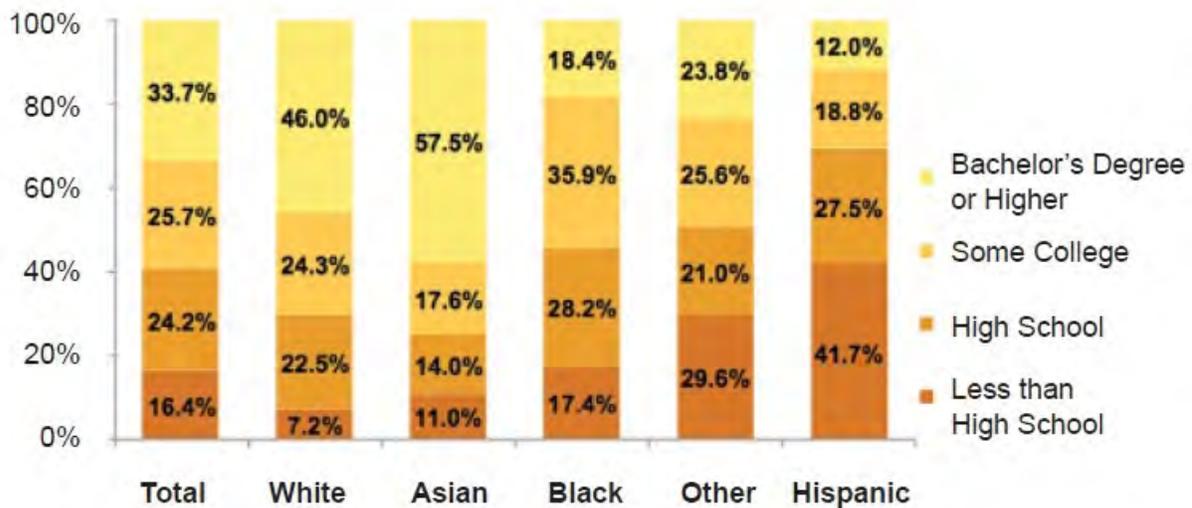


Table 4. Socioeconomic Characteristics of Cook County, Illinois, and the United States

	Cook County	Illinois	United States
Educational Attainment			
Less than High School	16.4%	13.6%	14.7%
High School Only	24.2%	27.3%	28.5%
Some College	25.7%	28.5%	28.9%
Bachelor's Degree or Higher	33.7%	30.6%	27.9%
Poverty Rate			
Below 50%	7.4%	6.0%	6.3%
50% - 99%	8.5%	7.3%	8.1%
100% - 199%	18.8%	16.9%	18.4%
200% and Above	65.3%	69.7%	67.3%

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

Figure 3: Educational Attainment by Race/Ethnicity, Cook County (2009)



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

Note: "Other" includes American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, and those who identified themselves as some other race or two or more races. Racial groups include the Hispanic population only; Hispanic can include any racial group.

Compared to non-Hispanic white adults (25 years old and older) in the same time period, black adults in Cook County were more than twice as likely to lack a high school diploma, and Hispanic adults were more than five-and-a-half times as likely (see Figure 3).

Measures of educational proficiency also vary by place. The National Assessment of Educational Progress (NAEP) evaluates samples of students in the fourth, eighth, and twelfth grades to gauge levels of proficiency in various subjects. In 2009, a higher percentage of fourth graders in Chicago scored below basic proficiency in reading, math, and science than did fourth graders in either Illinois or the U.S.; among fourth-grade students in Chicago, the percentage scoring below basic levels in all three subjects was nearly double that of students statewide.³⁸ The level of educational proficiency is correlated with high school dropout rates and, therefore, educational proficiency influences health outcomes.

Health Outcomes

In 2007, life expectancy at birth in the U.S. averaged 77.9 years. For whites it was 78.4 years; for blacks it was 4.8 years lower, at 73.6 years.³⁹ In 2007, blacks in the U.S. experienced 373.7 premature deaths (death before the age of 65) per 100,000 persons. For whites, the rate was 216.7; for Hispanics, it was 173.0. In Cook County in 2007 the rate for black residents

was 445.9 premature deaths per 100,000 persons; for white residents the rate was 179.5; for Hispanic residents it was 141.3 (see Table 5).

Nationally, blacks had the highest overall age-adjusted mortality in 2007, with 208.6 more deaths per 100,000 persons than whites and 411.9 more deaths than Hispanics (see Table 5); blacks also had the highest age-adjusted mortality rate from heart diseases.⁴⁰ In Cook County, black residents suffered 355.8 more deaths per 100,000 from all causes compared to whites, a disparity that is higher than in Illinois (296.2 excess deaths) or the U.S. (208.6 excess deaths). That is a ratio of 1.5 deaths among blacks for every death among whites in Cook County, compared to a ratio of 1.4 for Illinois and 1.3 for the U.S. The Hispanic rate was significantly lower than the white rate. Disparities in heart disease mortality in Cook County for all three groups are similar to those seen in Illinois and the U.S.

The infant mortality rate in the U.S. was 5.6 per 1,000 for white mothers, 5.4 per 1,000 for Hispanic mothers, and 12.9 per 1,000 for black mothers in 2006.⁴¹ Infant mortality is more than 24 times greater for infants with a birth weight of less than 2,500 grams (5.51 pounds) than it is for infants at or above this weight.⁴² In the U.S., black mothers are 89% more likely to deliver a child of low birth weight than white mothers (13.4% and 7.1%, respectively). In Cook County, black mothers are more than twice as likely as white mothers to give birth to a child of low birth weight (13.9% vs. 6.9%).

Table 5. Health Outcomes in Cook County, Illinois, and the United States

	Cook County	Illinois	United States
Life Expectancy at Birth	79.1 ^(a)	78.6 ^(b)	77.9 ^(c)
Premature Mortality^(d)	239.6	219.0	231.1
White	179.5	191.4	216.7
Black	445.9	425.6	373.7
Hispanic	141.3	132.3	173.0
All Cause Mortality^(d)	759.2	760.3	760.2
White	687.1	732.5	749.4
Black	1042.9	1028.7	958.0
Hispanic	449.9	434.4	546.1
Heart Disease Mortality^(d)	202.0	192.9	190.9
White	194.7	190.2	191.4
Black	261.8	257.0	251.9
Hispanic	110.9	104.4	136.0
Infant Mortality Rate^(e)	7.5	7.4	6.7
White	4.3	6.0	5.6
Black	13.8	14.4	12.9
Hispanic	5.2	6.2	5.4
Low Birth Weight Rate⁽¹⁾	8.9%	8.4%	8.2%
White	6.9%	7.1%	7.1%
Black	13.9%	13.7%	13.4%
Hispanic	6.6%	6.6%	7.0%

Note 1: Premature, All Cause and Heart Disease mortality rates are calculated per 100,000 persons and are age adjusted to the 2000 U.S. Census population.

Note 2: Infant Mortality Rates are calculated per 1,000 live births.

Note 3: Heart disease is defined as the following ICD10 codes: I00 - I09, I11, I13, I20 - I51.

Calculations performed by the VCU Center on Human Needs from 2003-2007 mortality data provided by Chicago and Cook County Public Health Department and 2001-2008 Geolytics Premium Estimates.

Calculations performed by the VCU Center on Human Needs from 2007 data provided by the Centers for Disease Control and Prevention CDC WONDER on-line tool.

Health, United States 2010: With Special Features on Death and Dying; the Centers for Disease Control and Prevention, 2007.

Centers for Disease Control and Prevention CDC WONDER on-line tool 2007.

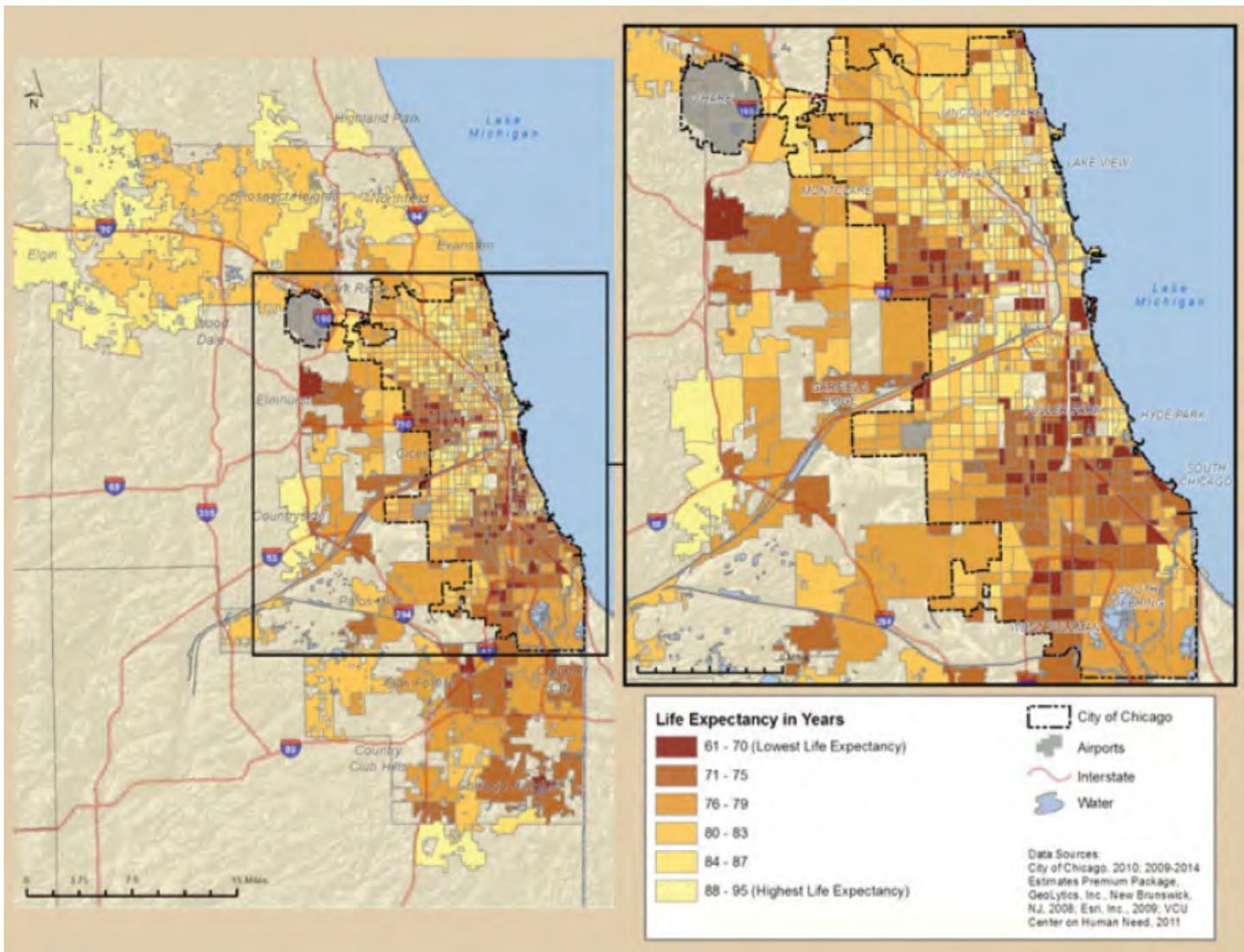
National Center for Health Statistics, National Vital Statistics Report Volume 58, Number 17, 2006.

The Centers for Disease Control and Prevention National Vital Statistics System 2008.

Given the geographic variation in socioeconomic and environmental factors that affect health in Cook County, it follows that health outcomes—including life expectancy—vary sharply by neighborhood as well. It should be noted, however, that measuring life expectancy at the level of the census tract can lead to some difficulties in meaningfully interpreting the

results. For instance, unusual events may occur in a census tract that influence the results in an anomalous fashion. Therefore, in order to meaningfully represent the data shown in Map 6, we have grouped the census tracts by quintile and by income, which we describe in Figure 4.

Map 6: Life Expectancy by Census Tract and Municipality, Cook County and Chicago (2003-2007)



II. Neighborhood Characteristics, Food Access, and Health Outcomes

Socioeconomic Factors and Health

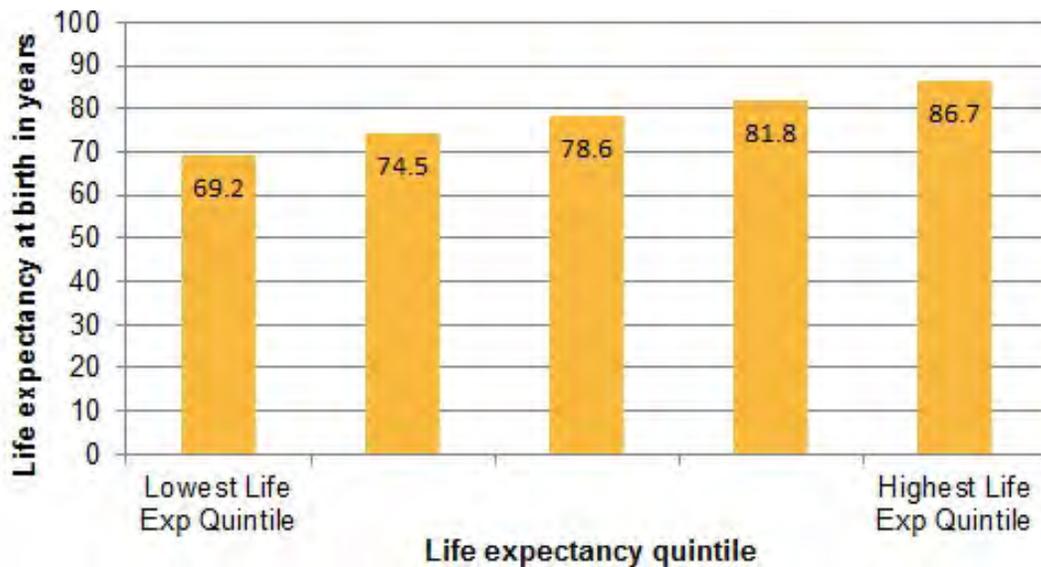
Socioeconomic factors are strong determinants of the risk of illness and premature death.⁴³ In 2007, members of families living in poverty nationwide were nearly twice as likely to have diabetes, 5.3 times as likely to report serious psychological distress, and 1.6 times as likely to have been hospitalized during the previous year compared to families with incomes of at least 200% of the federal poverty level.⁴⁴ At the same time, access to health care services is much more limited for families with low incomes. In 2007, impoverished families—those with incomes below the FPL—were two to four times more likely to lack health insurance or a usual source of care, or to defer health care

due to cost, than were families with incomes of at least 200% of the FPL.⁴⁵

In 2009, life expectancy in Cook County was significantly correlated with a number of key social, economic, and demographic indicators:

- Areas (census tracts and suburban municipalities) where a higher percentage of the population was non-Hispanic white had significantly longer life expectancies. Areas with a higher percentage of non-Hispanic blacks had significantly shorter life expectancies.
- Owner-occupied housing was associated with longer life expectancies, while a high vacancy rate was associated with shorter life expectancies.

Figure 4: Average Life Expectancy (2003-2007) by Life Expectancy Quintile in Cook County



Source: Life expectancy calculated by the VCU Center on Human Needs from 2003-2007 data provided by Cook County Health Department.

- People living in areas with high concentrations of poverty and unemployment had significantly shorter life expectancies than people living in areas with higher median incomes.
- People living in areas with lower educational attainment (less than high school) had shorter life expectancies than those living in areas where a high percentage of the population had at least a bachelor's degree.

Figure 4 illustrates the relationship between life expectancy and income. We grouped Chicago census tracts and suburban Cook County municipalities into quintiles (five equal groups) based on median income and calculated the average life expectancy of each quintile. People living in areas with a median income greater than \$53,000 per year had a life expectancy that was almost 14 years longer than that of people living in areas with a median income below \$25,000 per year.

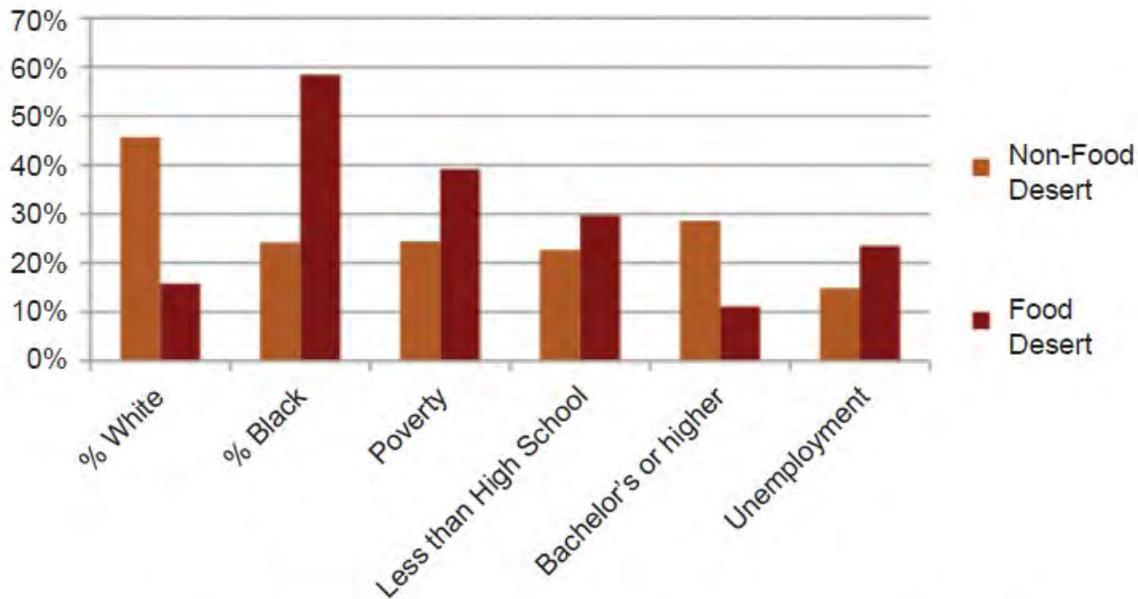
Food Access in Cook County

Access to healthy, nutritious food is an important influence on community health. A diet deficient in fruits and vegetables and high in calories, sodium, and saturated fat is linked to numerous acute and chronic health problems such as diabetes,

hypertension, obesity, heart disease, and stroke.⁴⁶ An important impediment to healthy diets is restricted access to supermarkets or other venues (e.g., farmers' markets, community gardens) where people can purchase affordable, nutritious foods. Previous national and local studies indicate that chain supermarkets (e.g., Jewel-Osco, Dominick's, Food 4 Less) usually provide the greatest variety of healthy food options that combine quality and affordable price. However, many neighborhoods are "food deserts," lacking such grocers but having plentiful access to convenience stores, corner stores, and fast food outlets that often sell less healthy and more calorie-dense foods.⁴⁷

The distribution of food providers in a community is related to numerous factors, including the demographics and physical characteristics of the community. Previous studies have found that supermarkets in the U.S. are more numerous in higher-income communities and communities with higher percentages of non-Hispanic white residents.⁴⁸ Conversely, high-poverty and minority communities tend to have more liquor stores and fast food establishments.⁴⁹ These communities may have high access to some types of grocery stores,⁵⁰ but significantly less access to chain supermarkets where they can purchase healthier foods.⁵¹

Figure 5: Characteristics of Food Deserts and Non-Food Deserts in Cook County (2009)



Note: Based on the USDA definition, food deserts are low-income tracts (poverty rate of at least 20%) where at least 33% of the population lives more than 1 mile away from a supermarket or a large grocery store in an urban area or 10 miles away in a rural area.

Source: United States Department of Agriculture; Food Desert Locator and 2009 Geolytics Premium Estimates.

A report conducted by the Mari Gallagher Research and Consulting Group in 2006 investigated the determinants of food deserts in Chicago.⁵² The study found that access to particular types of food providers is linked to community demographics. Looking at blocks within Chicago by their majority race/ethnicity (50% of the population or more), blocks that are majority black have a higher average distance to all grocery stores.⁵³ This is true whether one is looking at chain grocers or at smaller, independent grocers. A more recent study by the same consulting group found that the problem persists.

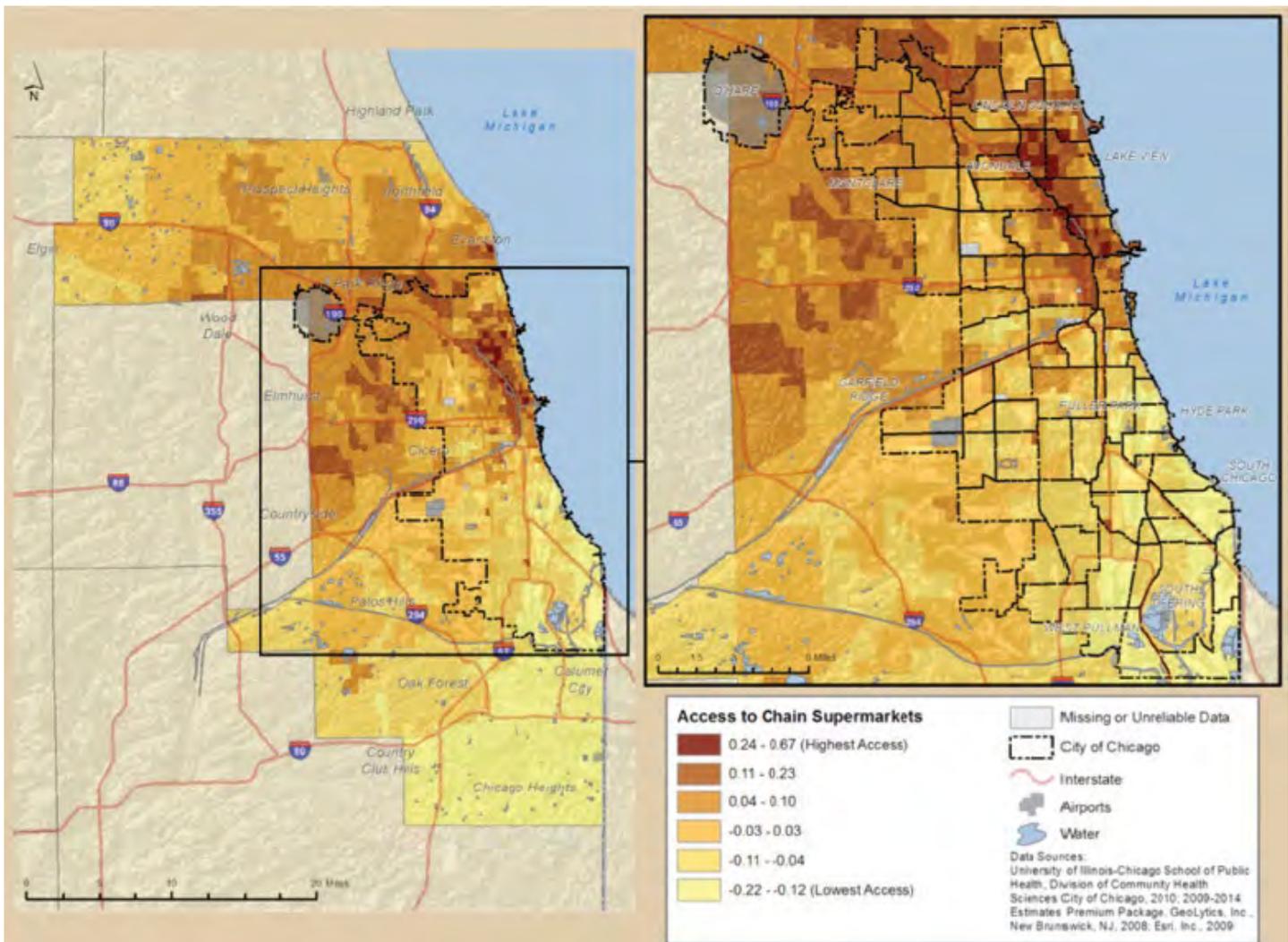
The U.S. Department of Agriculture classified 39 census tracts in Cook County as food deserts in 2010.⁵⁴ In Chicago, these census tracts are located mainly in South Deering, West Pullman, Pullman, and New City, but there are also deserts in Woodlawn, Roseland, East Side, Riverdale, and Englewood.⁵⁵ More than 54% of the population in these tracts had low access to a supermarket or large grocery store,⁵⁶ and close to 27% had low access and were low-income.⁵⁷ Outside of Chicago, most of the tracts considered food deserts were in Thornton, Bloom, and Bremen, with a few tracts in Elk Grove, Niles, Leyden, Calumet, Worth, and Rich. In these census tracts, more than 56% of the population had low food access, and more than one

in every five were low income and had poor access.⁵⁸

Figure 5 illustrates how the social, economic, and demographic characteristics of residents in these food deserts differ from residents of non-food deserts in Cook County. While the population in non-food desert tracts is less than one quarter black (24.2%), close to three of every five residents (58.5%) of food deserts are black. Conversely, while whites make up close to half (45.7%) the population of non-food desert tracts, they make up less than one sixth the population (15.9%) of food desert tracts.

Educational attainment also is significantly correlated with food desert status. The percentage of adults with a bachelor's degree or higher in non-food desert census tracts is more than double that of adults in food desert tracts (28.6% versus 11.1%). Additionally, the average yearly household expenditures on fruits and vegetables are more than \$50 a year higher in non-food desert tracts. Finally, the average life expectancy (among Chicago tracts alone) is 78.8 years in non-food desert tracts and 72.6 years in food desert tracts, and the risk of premature death (death prior to the age of 65) is more than double in food deserts compared to non-food deserts.

Map 7: Access to Chain Supermarkets by Census Tract, Cook County (2009)

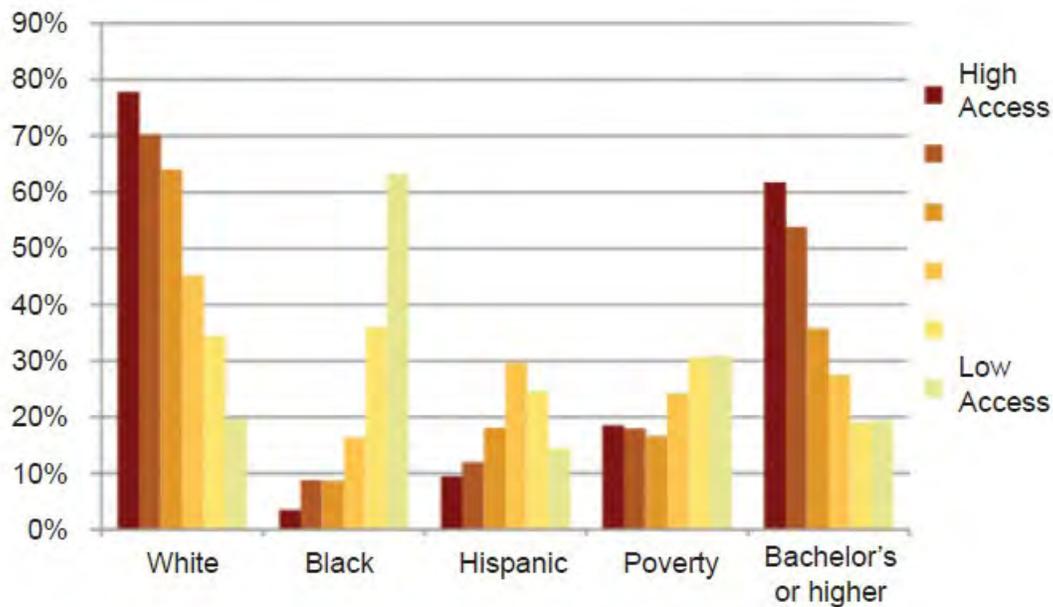


Access to food providers is highly contingent on the size of the population in the community. As might be expected, supermarkets, grocery stores, and restaurants are more clustered in areas of high population density. In order to investigate the degree to which community characteristics other than population density contribute to the type and quantity of food providers available in Cook County, we developed a food access index⁵⁹ that accounts for population density in measuring food access at the census tract level. A positive food index value indicates greater food access than would be predicted based on population density, while a negative value indicates lower food access than would be predicted. Further explanation of the methodology behind the food access index can be found in Appendix A. We measured the food index for access to supermarkets, supermarkets plus large independent grocers, discount stores and small independent grocers, drug stores, and fast food establishments.

Access to supermarkets

Map 7 illustrates the areas of Cook County in which the food access index is highest for chain supermarkets (with the exception of discount stores including Aldi's and Save-A-Lots). Near North Side, Lake View, North Center, and a few tracts in Lincoln Park have the highest food access scores for chain supermarkets, indicating that those areas have more access to chain supermarkets than would be predicted based on their population density. Areas with the greatest deficit in access to chain supermarkets are Thornton and Bloom. In Chicago, the largest deficits are in South Chicago.

Figure 6: Characteristics of Areas by Degree of Access to Chain Supermarkets



Source: 2009 Geolytics Premium Estimates; NE Illinois Food Security Assessment, Chicago State University Neighborhood Assistance Center, 2007

Social, economic, and demographic characteristics of the communities of Cook County are significantly associated with the level of access to chain supermarkets as measured by the food access index.

- Areas (census tracts and suburban municipalities) with larger white populations and, to a lesser degree, Asian populations had greater access to chain supermarkets. Black populations had relatively diminished access.
- Areas with high median income have greater access, while areas of concentrated poverty have diminished access.
- High concentrations of adults who lack a high school education have lower access to chain supermarkets, while areas with high concentrations of adults with a bachelor's degree or higher have increased access.

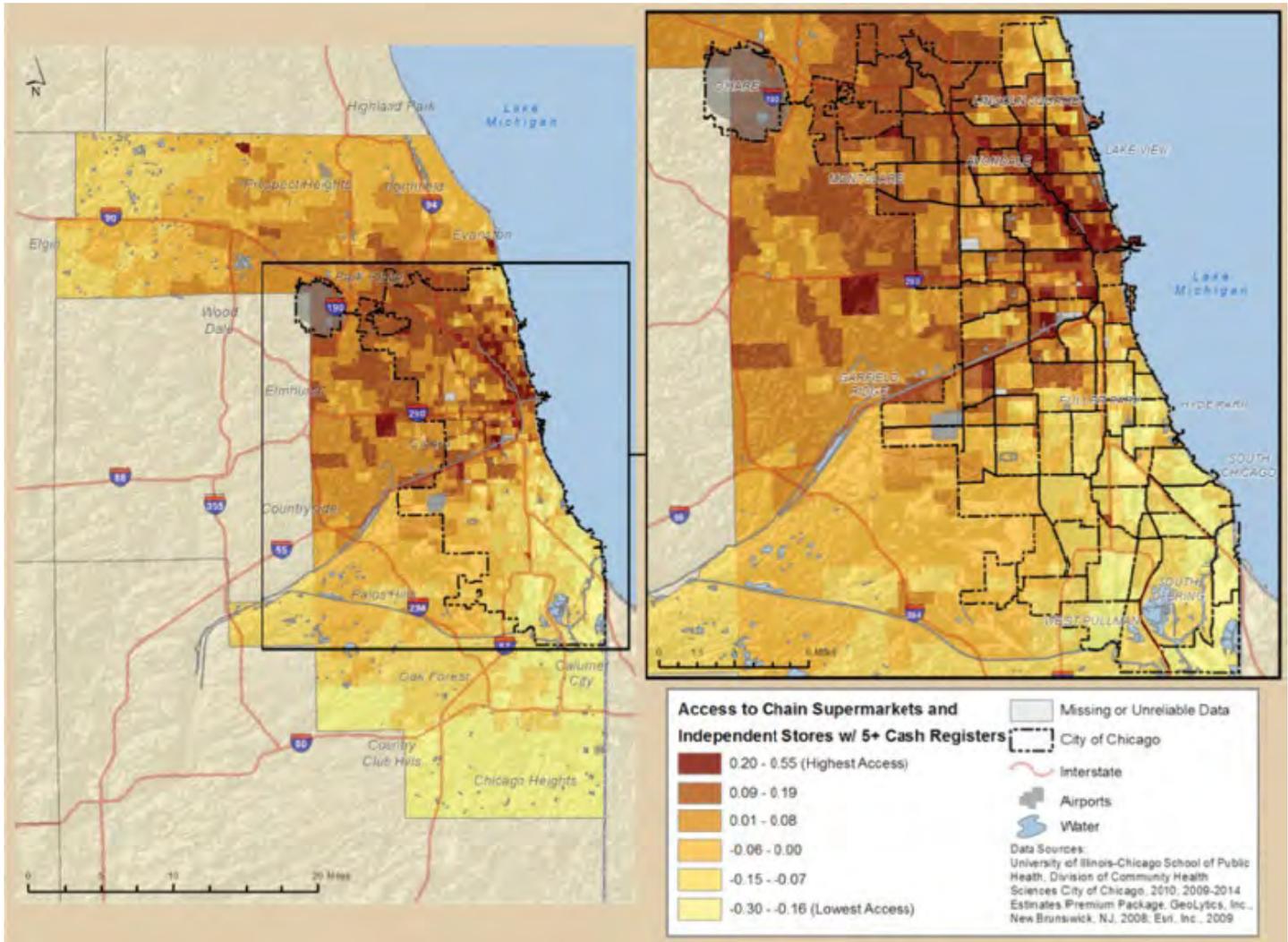
Figure 6 illustrates the social, economic, and demographic disparities that exist in the access areas identified in Map 7. The high-access group (those tracts in dark red on the map) are composed of 77.8% white residents but only 3.5% black residents. By comparison, the low-access group (those tracts in light yellow on the map) is only 19.7% white and 63.3% black. The percentage of the adult population that holds a bachelor's degree is more than three times higher in the dark red group than in the light yellow group (61.7% and 19.4%, respectively), and the percentage of the population below 150% of the federal

poverty level is substantially lower in the dark red group than in the light yellow group (18.5% and 30.9%, respectively).

The social conditions that exist in areas with chain supermarkets and large independent grocers⁶⁰ are similar to those observed for areas with chain supermarkets only, with a few important variations:

- Access is still associated with higher percentages of white and Asian residents, and decreased access is associated with higher percentages of black residents. Higher percentages of Hispanic residents are associated with higher access to chain and large independent stores, whereas the percentage of Hispanic residents was unrelated to access to chain supermarkets alone, because independent grocery stores are more likely than supermarkets to locate in predominantly Hispanic areas.
- The relationship between food access index scores and median income and poverty is lower when large independent stores are included in the measure. This suggests that large independent grocers may be more likely than chain supermarkets to locate in areas with poorer economic conditions, perhaps because they are more likely to be locally owned, whereas supermarkets are owned by corporations whose decisions are based overwhelmingly on profits.

Map 8: Access to Chain Supermarkets or Large Independent Groceries by Census Tract, Cook County (2009)



- High concentrations of adults with a bachelor’s degree are still associated with increased access, but high concentrations of adults without a high school education are no longer associated with decreased access.

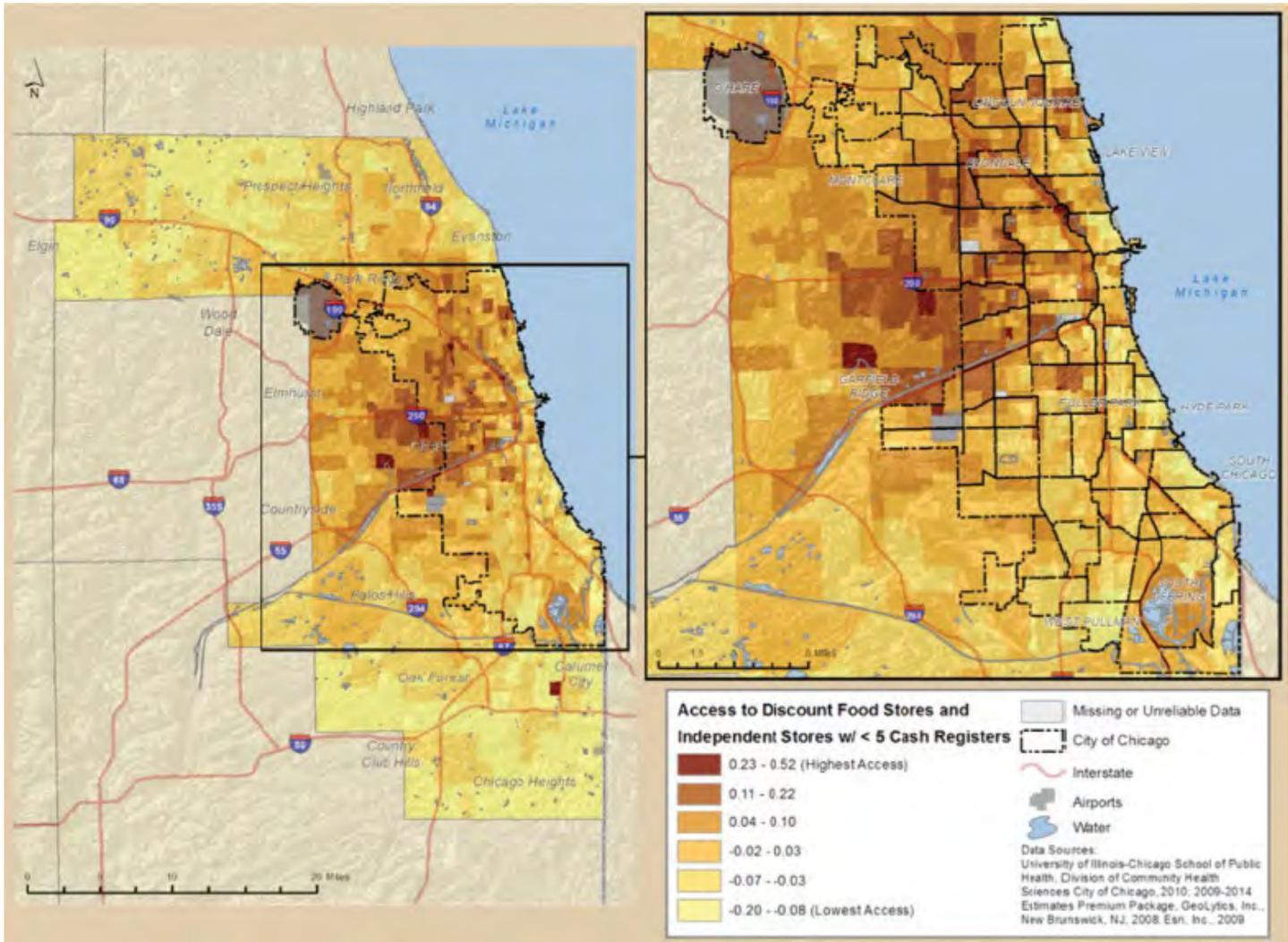
Access to supermarkets and large independent grocers

While chain supermarkets are the food provider most likely to offer healthy foods such as fresh produce and low-fat milk, independent stores (particularly larger independent stores) also can provide healthy food products at competitive prices.⁶¹ Map 8 plots the food access index to chain supermarkets and large independent grocery stores in Cook County. A large independent food store was defined as a store with five or more cash registers (e.g., Ultra Foods, Pete’s Fresh Market, and

Garden Fresh Market). Access, as defined by this measure, was again highest in Near North Side, North Center, and Lake View but also in Portage Park, West Town, Avondale, and Logan Square. Once again, Thornton and Bloom have less access to supermarkets and large independent grocers, as do more neighborhoods in Chicago (e.g., South Shore, South Chicago, and East Side).

Taken together, these findings suggest that, while disadvantaged groups (e.g., the poor, uneducated, residentially segregated black populations) lack the advantage of increased food access to chain supermarkets or large independent grocers, the latter appear to be more likely than chain supermarkets to locate in economically struggling communities.

Map 9: Access to Discount Grocers and Small Independent Grocers by Census Tract, Cook County (2009)



Access to discount grocers and small independent grocers

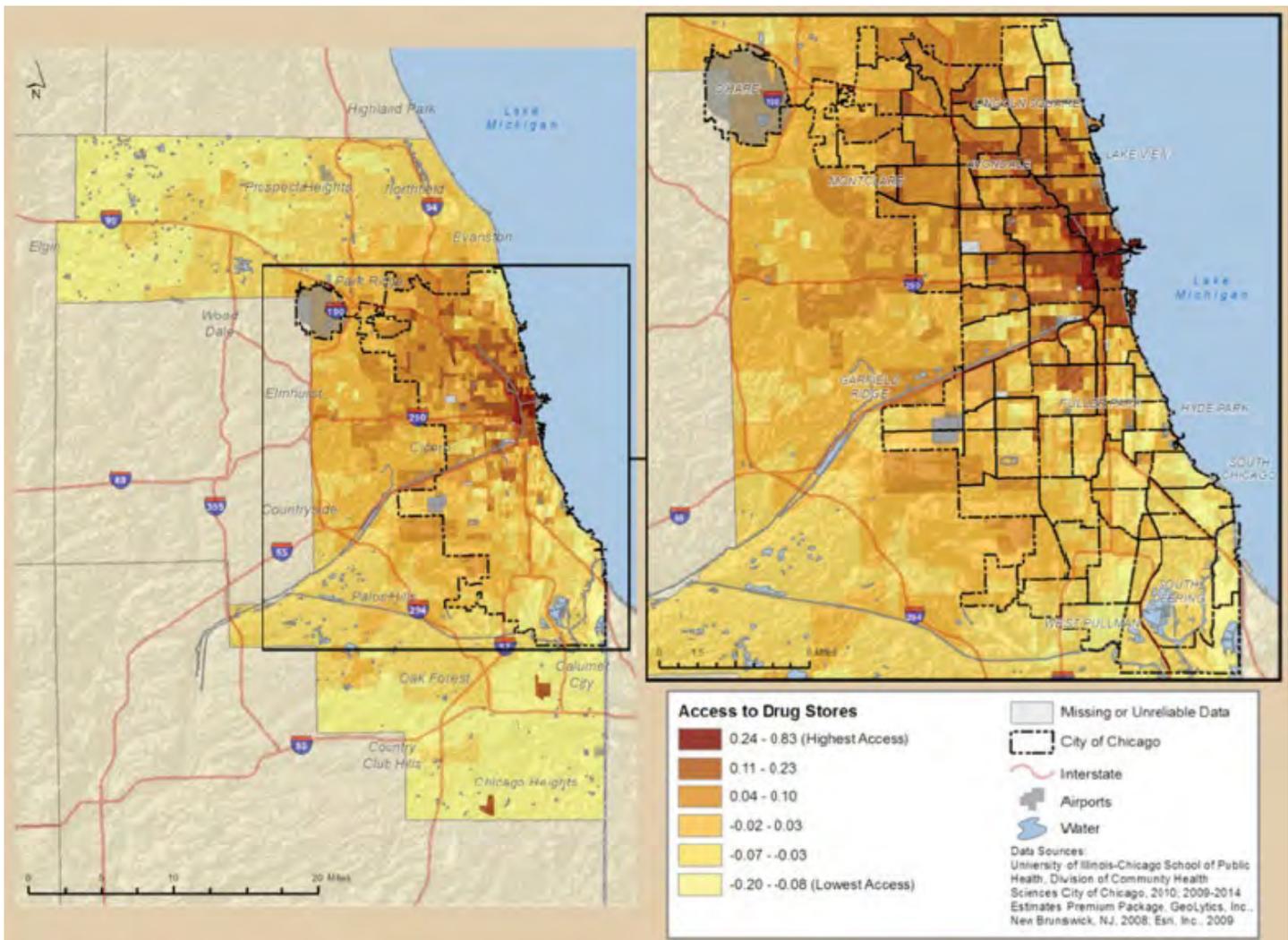
Discount grocers (such as Aldi's and Save-A-Lots) and smaller independent grocers (defined as having fewer than five cash registers) are more likely to locate in distressed areas, but they generally do not offer the diversity of products or competitive prices that supermarkets provide. Studies suggest that they offer fewer healthy options such as fresh fruits and vegetables,⁶² but they are still an important food source for the community. Map 9 shows the spatial distribution of the food access index for discount stores and smaller independent grocers. Whereas the areas of Cook County with higher-than-expected access to chain supermarkets and large independent groceries are in northern Chicago (e.g., Near North Side, North Center, and Lake View), access to small independent grocers is higher to the south in the Near West Side, North and South Lawndale, West Town, Austin, East Garfield Park, Humboldt Park,

and Hermosa. The suburban Cook communities of Berwyn, Cicero, and Oak Park also have greater access to these small independent grocers, those with less than five registers, and discount stores. Areas with lower-than-expected access to discount stores and small independent grocers are once again in Bloom and Thornton, as well as the suburban areas of Evanston, Palatine, and Wheeling and the Chicago neighborhoods of Near North Side and South Shore. All but Bloom, which has a population that is 45% white, have populations that are between 57% and 73% white.

The social, economic, and demographic conditions in areas with access to discount and small independent groceries are substantially different than those in the previous two subgroups.

- Race is not significantly related to access to discount and small independent grocers, but the percentage of Hispanic residents is associated with higher access.

Map 10: Access to Large Drug Stores by Census Tract, Cook County (2009)



- Median income is negatively associated with access, and areas of poverty have greater access. These associations indicate that discount and small independent grocers are more likely to locate in low-income and impoverished areas.
- Low educational attainment (less than high school) is associated with greater access to discount and small independent groceries, while a higher concentration of adults with a bachelor's degree or higher is associated with less-than-expected access.
- Access to discount and small independent grocers is associated with decreased household expenditures on fruits and vegetables.

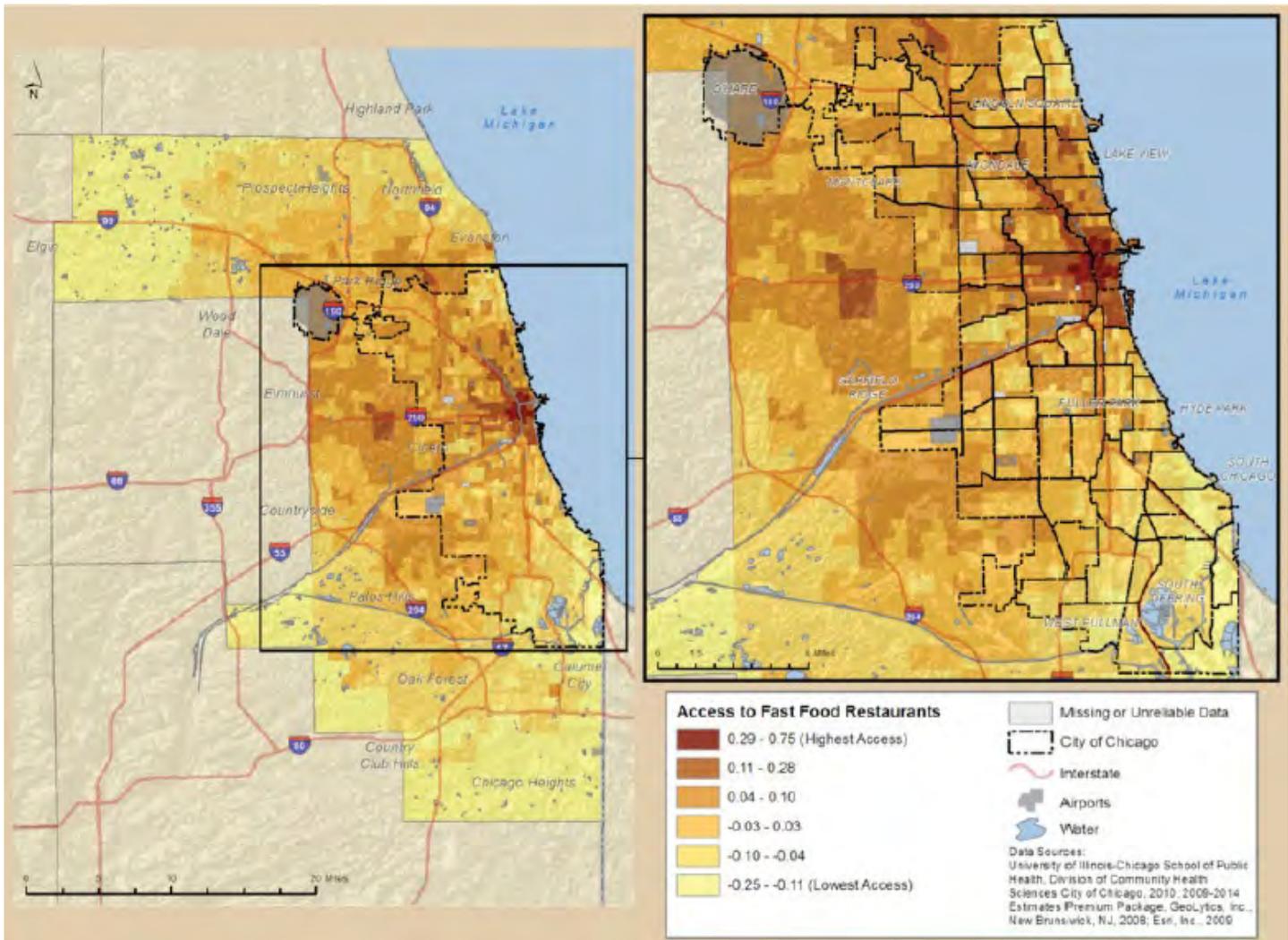
In sum, Hispanics, as well as those with low educational attainment and high poverty, have greater access to these types

of providers. However, these types of stores are also associated with lower expenditures on fruits and vegetables.

Access to large drug stores

Grocery stores are not always the only community food source. Large drug stores (including specifically Walgreens and CVS) provide some food options, and a small but growing number carry fresh foods and produce. According to the food access index, the Chicago neighborhoods of the Loop, Near West Side, and the Near North Side have the greatest levels of access to large drug stores beyond what would be expected based on population density (see Map 10). The lowest access to these large drug stores is in Bloom and Thornton, as well as Hanover and the Chicago neighborhoods of East Side, South Chicago, South Lawndale, and South Shore.

Map 11: Access to Fast Food Restaurants by Census Tract, Cook County (2009)



- Access to drug stores, specifically Walgreens and CVS, is higher in areas with larger percentages of white residents and Asian residents and lower in areas with higher percentages of black residents.
- Communities with higher percentages of adults with a bachelor's degree had higher access as well.

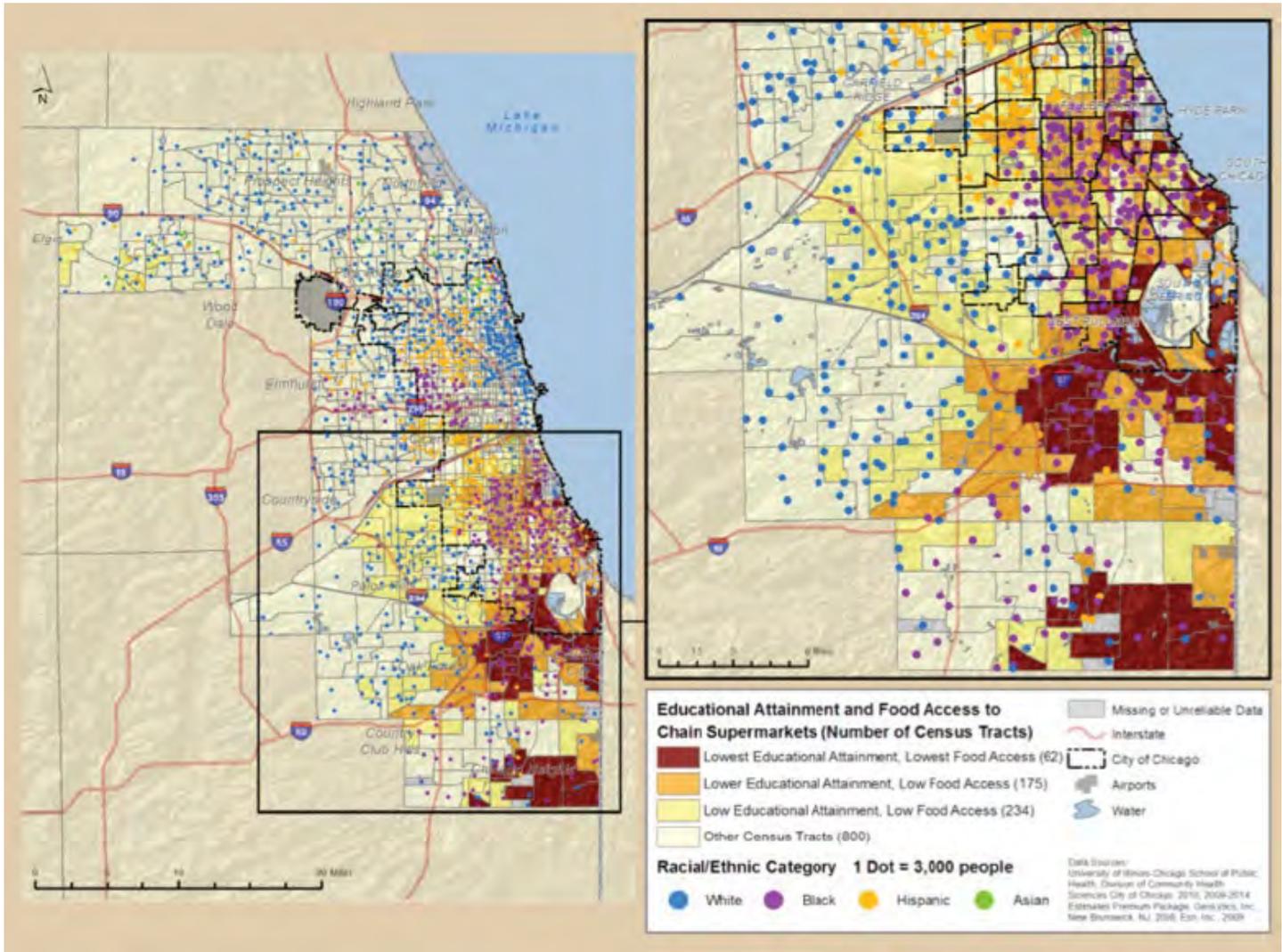
- Fast food access is slightly higher in areas with more white and Asian residents and slightly lower in areas with more black residents.
- Areas with higher median income tend to have lower access to fast food restaurants and areas with a high concentration of poverty tend to have higher access to fast food. While significant, these associations are fairly weak.

Access to chain fast food restaurants

The density of fast food establishments in Cook County is also relevant to health because of its association with obesity rates.⁶³ Map 11 plots the food access index for fast food establishments based on population density. Fast food access is highest in the Chicago neighborhoods of the Loop, Near North Side, and Near West Side. The lowest access is in Bloomington as well as in Elgin, Hanover, Palatine, and Rich and the Chicago neighborhoods of East Side and South Chicago.

Access to nutritious food is a community asset that enhances the quality of life for residents. In Cook County, as in other areas, access to chain supermarkets has the highest correlation with healthy food purchases such as fruits and vegetables. The analysis of access to various types of food providers illustrates how social, economic, and demographic characteristics help determine the distribution of food access throughout the county. Adults with a bachelor's degree or higher have the strongest correlation with access to chain supermarkets.

Map 12: Demographic Characteristics of Census Tracts of Co-Occurring Low Educational Attainment and Access to Chain Supermarkets, Cook County (2009)



When the relationship between education and access to chain supermarkets is mapped, the result indicates that communities in which educational attainment predicts food access tend to cluster together rather than disperse randomly. Areas of co-occurring low educational attainment and low access to quality food in Cook County are clustered together mainly south of the Stevenson Expressway (I-55). Map 12 depicts these areas in dark brown. Racial and ethnic demographics are superimposed on this map to provide information about the demographics of those tracts (see also Figure 8). The shaded census tracts indicate where low educational attainment and low access to chain supermarkets co-occur; the darker the color, the lower the level of either educational attainment or food access.

Most of the census tracts with low educational attainment and low food access are located in the southern portion of Cook County, which has a high concentration of minority communities. Using the Stevenson Expressway (I-55) as a boundary, Figure 8 highlights the demographic and socioeconomic disparity between north and south Cook County. The area south of the expressway contains 86.2% of distressed tracts and a population that is 46.9% black. North of the expressway, an area that contains only 13.8% of the distressed tracts, more than half of the population is white and slightly less than one of every eight residents is black. The percentage of the population below 150% of the FPL is also higher south of the expressway compared to the north (28.1% to 22.6%, respectively).

Table 6. Food Access and Healthy Behavior Measures in Cook County, Illinois, and the United States

	Cook County	Illinois	United States
Grocery Stores per 1,000 Population 2008 ^(a)	0.27	0.21	0.18
Convenience Stores per 1,000 Population 2008 ^(a)	0.08	0.06	0.05
Fast Food Restaurant per 1,000 Population 2008 ^(a)	0.67	0.68	0.69
Percent of Population That Is Overweight ^(b)	35.7%	37.1%	36.2%
Percent of Population That Is Obese ^(b)	28.4%	27.4%	27.2%
Percent of Adults Who Have Been Told They Have High Blood Pressure ^(b)	29.7%	28.9%	28.7%
Percent of Adults Who Exercise 30+ Minutes for 5 or More Days Per Week ^(b)	48.8%	51.8%	50.6%
Percent of Adults Who Have 5 or More Fruits and Vegetables Per Day ^(b)	24.9%	22.5%	23.5%

(a) **Source:** 2008 United States Department of Agriculture, Food Environment Atlas, Available at <http://www.ers.usda.gov/FoodAtlas/>.

(b) **Source:** 2009 Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System.

Food Access and Health in Cook County

The relationship between food access and health has been demonstrated in a number of studies in different geographic areas. In many settings, the presence of supermarkets has been shown to be associated with a lower prevalence of obesity, and the reverse has been shown in association with convenience stores.⁶⁴ Access to lower-cost fruits and vegetables also has been associated with decreased obesity. In Chicago, the Mari Gallagher study found access to grocery stores and fast food establishments to be related to years of potential life lost and death rates from cancer, cardiovascular disease, and diabetes.

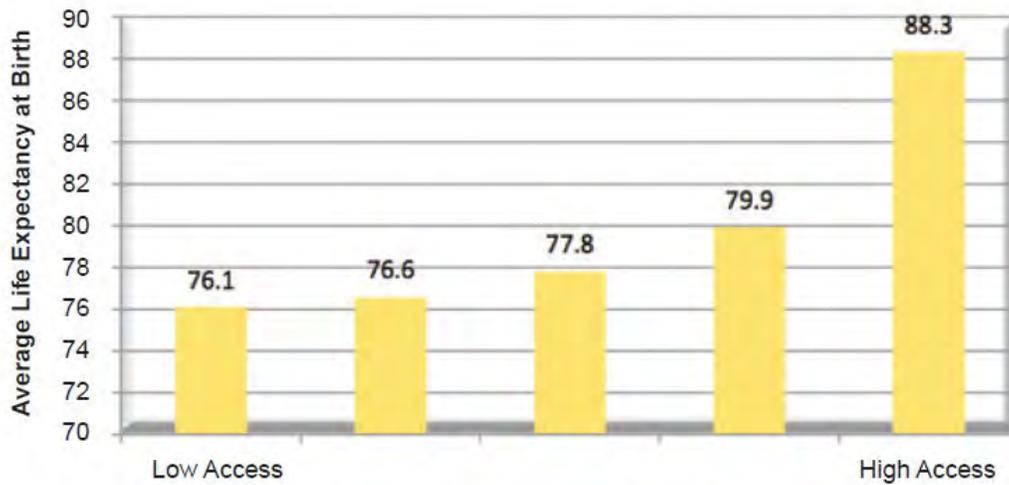
The availability of food providers may affect purchasing and diet decisions. Residents of communities with no supermarkets have been found to be 25-46% less likely to have a healthy diet compared to residents of communities with the greatest access to such stores, even after controlling for age, sex, race/ethnicity, and socioeconomic indicators. The benefits of supermarket access for fruit and vegetable intake appear to be even greater among black people. In one study designed to be nationally representative, adding one supermarket to a census tract was associated with a 32% increase in fruit and vegetable consumption by black families, compared to 11% in white families.

The USDA reports a higher density of grocery stores (including both chain and independent providers) in Cook County (0.27 grocery stores per 1,000 persons) than in either Illinois or the U.S. (see Table 6). Cook County also has a lower density of fast food establishments. As Maps 7 and 8 demonstrate, however, this aggregate measure masks disparities between areas of Cook County north of the Illinois and Michigan Canal, where access to chain supermarkets and large independent grocery stores is high, and south of the canal where access is low.

Cook County has somewhat higher obesity and hypertension rates than Illinois and the U.S., but has a lower percentage of the population that is overweight. Adults in Cook are more likely to eat five or more fruits and vegetables per day than adults in Illinois and the U.S., but are less likely to get a healthy amount of exercise (see Table 6).

In order to examine the relationship between food access and health measures within Cook County, we grouped Chicago census tracts and suburban Cook municipalities into quintiles based on both their access to chain supermarkets only and access to chain supermarkets plus large independent groceries. Figures 7 and 8 display the life expectancy within these quintiles. The lowest quintile (census tracts and municipalities with the least access to these food providers) has an average life expectancy that is more than 12 years shorter than the quintile

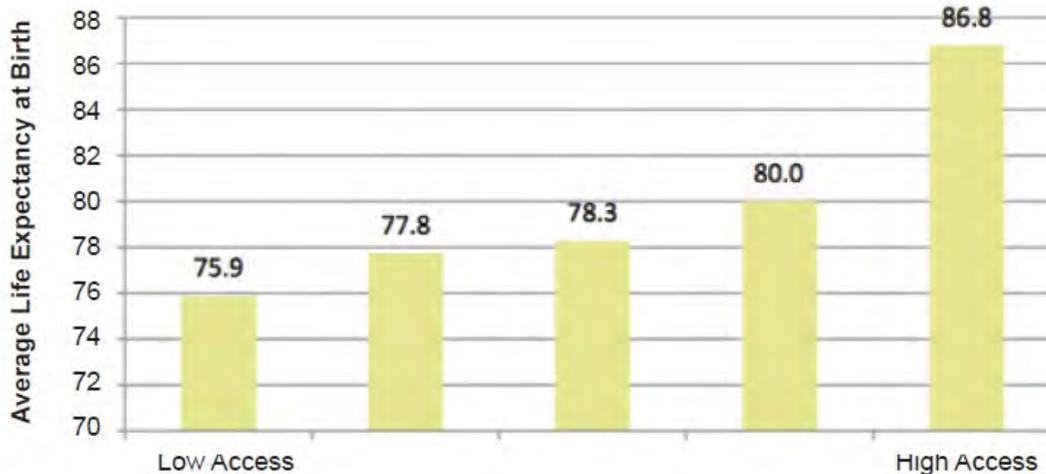
Figure 7: Average Life Expectancy by Access to Chain Supermarkets, Cook County



Note: Life Expectancy was calculated as the average life expectancy of all tracts in each quintile group.

Source: NE Illinois Food Security Assessment, Chicago State University Neighborhood Assistance Center, 2007; Death data from 2003 - 2007 Cook County Health Department; Population data from 2001 - 2008 Geolytics Premium Estimates; Calculations performed by VCU Center on Human Needs.

Figure 8: Average Life Expectancy by Access to Chain and Large Independent Groceries, Cook County



Note: Life Expectancy was calculated as the average life expectancy of all tracts in each quintile group.

Source: NE Illinois Food Security Assessment, Chicago State University Neighborhood Assistance Center, 2007; Death data from 2003 - 2007 Cook County Health Department; Population data from 2001 - 2008 Geolytics Premium Estimates; Calculations performed by VCU Center on Human Needs.

with the highest access. Furthermore, the risk of premature mortality is more than twice as high in the lowest quintile compared to the highest quintile. When large independent groceries are included, the difference in average life expectancy from the highest to the lowest quintile is almost 11 years.

The relationships between various food access measures and health outcomes are mixed. The relationships shown below indicate the strength of the relationship without controlling for other factors.

- Access to chain supermarkets is associated with higher life expectancy and lower premature mortality, but is also associated with higher stroke mortality rates.
- Access to chain supermarkets and large independents yields similar results to those for access to chains alone; combined access is positively correlated with life expectancy and stroke mortality and negatively correlated with premature mortality.
- Access to discount stores and small independent groceries is associated with both higher heart disease mortality and higher stroke mortality.
- Access to drug stores that sell food, specifically Walgreens and CVS, is associated with lower premature mortality and higher stroke mortality.
- Access to fast food yields results similar to that for drug stores: higher access is associated with lower premature mortality and higher stroke mortality.

To sum up, the data show that access to chain supermarkets and large independent groceries in Cook County is positively associated with higher life expectancy and lower premature mortality. These results corroborate the findings of previous studies. However, the positive association with stroke mortality is unexpected. (i.e., the higher the access, the higher the stroke mortality rates). In addition, the finding that access to drug stores and fast food restaurants might be associated with lower premature death rates also contradicts the literature.

In order to further investigate these findings, we did additional analyses of health outcomes that controlled for known social determinants of health, such as poverty, age, education, race, and unemployment. Once these factors were accounted for, the relationship between access to chain supermarkets and stroke mortality lost statistical significance, as did the relationship between stroke mortality and access to chain supermarkets and large independent groceries. The relationship persisted, however, for access to fast food restaurants and, to a lesser extent, access to drug stores. The latter may relate to the median age of those who live in close proximity to drug stores, particularly along the north lakefront, which has a high percentage of retired people.

Controlling for poverty, education, age, race, and unemployment, the relationship between premature mortality and drug store access or fast food access lost statistical significance. Access to chain supermarkets, however, remained significant. This suggests that higher access to chain supermarkets in Cook County is associated with a decreased risk of premature mortality. Access to chain supermarkets or large independent grocery stores is also associated with a decrease in premature mortality, independent of other social factors.

Access to healthy food sources in Cook County also is associated with lower heart disease mortality, independent of poverty, education, race, or unemployment. Higher access to chain supermarkets is associated with lower heart disease mortality, as is access to chain supermarkets considered together with large independent groceries.

The results show similar findings to those noted in the literature. Access to chain supermarkets and large independent grocery stores correlates with lower premature mortality and heart disease mortality independent of other social, economic and demographic factors. Access to these food providers does not, however, have a significant association with stroke mortality. Access to both drug stores and fast food restaurants (considered separately) is associated with an increased rate of stroke mortality.

III. Conclusions and Recommendations

A report in May 2010 from the White House Task Force on Childhood Obesity set a goal of eliminating food deserts in America within a seven-year period. It detailed four elements for “ensuring access to healthy, affordable food”: convenient physical access to grocery stores, affordable choices, availability of healthy products, and adequate resources for consumers to make healthy choices. In Cook County, chain supermarkets and large independent grocery stores appear to be the provider types most associated with healthy food choices. Access to these food providers is restricted in many areas, and not just in the 39 census tracts designated as food deserts by the USDA.

In addition to a lack of convenient physical access, the areas of Cook County with low food access also tend to be distressed in other domains: poverty, educational attainment, racial and ethnic isolation, etc. Communities whose residents are already at risk for poor health outcomes endure compounded stressors from a lack of community assets, a pattern that allows health disparities to grow wider. In Cook County, these areas appear to cluster south of I-55. The suburban areas of Thornton and Bloom are particularly noteworthy as communities with the poorest access to all of the food providers we measured.

Access to healthy food sources like chain supermarkets and/or large independent groceries in Cook County correlate with lower premature mortality and heart disease mortality, independent of other known predictors. They also are associated with increased expenditures on healthy food options like fruits and vegetables. The health of the residents of Cook County would benefit from more equitable access to healthy foods, especially in known food deserts, and an expansion in the diversity, quality, and affordability of the food products that smaller providers sell.

In “Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health,” issued in 2008, the World Health Organization called for three changes to eliminate health inequities. These changes serve as a framework for the following specific policy recommendations, some of which may be outside the scope of this report, which focuses on access to food and food justice. However, the Place Matters team hopes that these recommendations will help to guide champions of health equity in metropolitan Chicago as they seek to influence change at the applicable level of government—municipal, county, state, and federal.

1. Implement the World Health Organization recommendations

- a. Improve daily conditions.
- b. Tackle the inequitable distribution of power, money, and resources.
- c. Measure and understand the problem and assess the impact of action.

2. Track health inequities

- a. Health departments and other agencies should monitor health inequities and make the data available to the public. Health departments need to have funding adequate to the task of collecting, analyzing, and presenting data related to inequities. Health departments need infrastructure and capacity sufficient to draft and implement actions to address health inequities. Local health departments should have sufficient capacity to conduct Health Impact Assessments.
- b. Race/ethnicity/class/gender data should be collected to monitor health inequities.
- c. Funding for the U.S. Census and the American Community Survey should be strengthened.

3. Strengthen infrastructure for collection of data on food retail outlets

- a. Investigate a classification system for restaurants by service level that would allow

for a clearer mapping of all (rather than just chain) restaurants by type.

- b. Fund local health departments to perform a nutrition survey of a sample of restaurants and other food retail outlets in low- and high-food-access communities.

4. Implement a public financing program to provide financial “seed money” to stimulate healthy food retail in neighborhoods with low food access

- a. The state of Illinois should create a financial seeding agency to raise capital to invest in communities.
- b. Sufficient funds should be available to address the need for increased food retail outlets in the entire Chicago metro area.
- c. A broad range of food retail outlets should be eligible for funding, including small stores, co-ops, and nonprofit enterprises.
- d. Multiple options are needed to increase access to food:
 - i. Promote the development of a variety of small and large innovative retail projects that provide high-quality food in areas with low food access.
 - ii. Assist in the improvement in diversity, quality, and affordability of the food products that smaller providers sell.
- e. Support food sovereignty. The voices and aspirations of neighborhood residents need to be reflected in solutions to hunger and poor nutrition. Too often policy decisions are made without the meaningful participation of the people affected by the problem. Efforts to organize and inform residents are necessary so that they have the tools to make informed decisions about food system failures. Examples of concerns include working conditions, pay and career advancement, accountability, opportunities for local wealth creation, and employment.
- f. Food policy councils at the municipal, regional, and state level need to be supported.

5. **Ensure workplace justice for workers throughout the food chain.** Workers in the restaurant industry, for example, experience unsafe working conditions. The pay is often less than that needed to feed a family. And women and people of color are disproportionately represented in lower-paid positions.

6. **Address persistent poverty by engaging multiple sectors.** Governmental agencies with responsibilities for health, housing, transportation, education, nutrition, employment, the environment, and other sectors must identify and implement actions to eliminate persistent poverty. People living in such places need to act collectively, through organized intentional actions, to achieve a fair distribution of society's resources.

REFERENCES

1. Mari Gallagher Research and Consulting Group. Good food: Examining the impact of food deserts on public health in Chicago. 2006.
2. Sturm R, Datar A. Body mass index in elementary school children, metropolitan area food prices and food outlet density. *Public Health (Elsevier)*. 2005;119:1059-1068.
3. Morland K, Diez Roux A.V., Wing S. Supermarkets, other food stores, and obesity: The atherosclerosis risk in communities study. *Am J Prev Med*. 2006;30:333-339.
4. Wang MC, Kim S, Gonzalez AA, MacLeod KE, Winkleby MA. Socioeconomic and food-related physical characteristics of the neighbourhood environment are associated with body mass index. *Journal of Epidemiology & Community Health*. 2007;61:491-498.
5. United States Department of Agriculture. Your Food Environment Atlas. Available at: <http://ers.usda.gov/foodatlas/>. Accessed 3/10, 2011.
6. U.S. Census Bureau. U.S. census bureau 2009 American community survey. 2010.
7. Pearson-Nelson B. Understanding Homicide Trends: The Social Context of a Homicide Epidemic. New York: LFB Scholarly Pub; 2008.
8. McNeill LH, Kreuter MW, Subramanian SV. Social environment and physical activity: A review of concepts and evidence. *Soc Sci Med*. 2006;63:1011-1022.
9. Schulz AJ, Williams DR, Israel BA, Lempert LB. Racial and spatial relations as fundamental determinants of health in Detroit. *Milbank Q*. 2002;80:677-707, iv.
10. Richardson LD, Norris M. Access to health and health care: How race and ethnicity matter. *Mt Sinai J Med*. 2010;77:166-177.
11. Jahn J, Schmid CF, Schrag C. The measurement of ecological segregation. *Am Sociol Rev*. 1947;12:293-303.
12. Frey WH. Available at: <http://censuscope.org/ACS/Segregation.html>. Accessed 2/15, 2011.
13. Adams PF, Barnes PM, Vickerie JL. Summary health statistics for the U.S. population: National health interview survey, 2007. *Vital Health Stat 10*. 2008;(238):1-104.
14. Brooks-Gunn J, Duncan GJ. The effects of poverty on children. *Future of Children*. 1997;7:55-71.
15. Duncan GJ, Brooks-Gunn J, Klebanov PK. Economic deprivation and early childhood development. *Child Dev*. 1994;65:296-318.
16. Geolytics. Premium estimates 2009. 2009.
17. Brulle RJ, Pellow DN. Environmental justice: Human health and environmental inequalities. *Annu Rev Public Health*. 2006;27:103-124.
18. Caywood-Thomas-E. Social ecology & urban homicides: Milwaukee, Wisconsin 1987-1992. *Social Ecology & Urban Homicides: Milwaukee, Wisconsin 1987-1992*. 1995. Available from: <http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,url,cookie,uid&db=cja&AN=CJACD00000011759&site=ehost-live&scope=site>.
19. Suresh G, Vito GF. Homicide patterns and public housing: The case of Louisville, KY (1989-2007). *Homicide Stud*. 2009;13:411-433.
20. Rephann T. Rental housing and crime: The role of property ownership and management. *Ann Reg Sci*. 2009;43:435-451.
21. Forest SA, Sager I. A great place to bring up kids. *BusinessWeek*. 2003:8-8.
22. Heron M, Hoyert DL, Murphy SL, Xu J, Kochanek KD, Tejada-Vera B. Deaths: Final data for 2006. *Natl Vital Stat Rep*. 2009;57:1-134.
23. Centers for Disease Control and Prevention (CDC). Cigarette smoking among adults--United States, 2002. *MMWR Morb Mortal Wkly Rep*. 2004;53:427-431.
24. National Center for Education Statistics Institute of Education Sciences. 2009 national assessment of educational proficiency data explorer. Available from: <http://nces.ed.gov/nationsreportcard/naepdata/dataset.aspx>.
25. National Center for Health Statistics. Health, United States, 2010: With special features on death and dying. Hyattsville, MD:2011.
26. The Centers for Disease Control and Prevention. CDC Wonder Online Database 2007. Available at: <http://wonder.cdc.gov/2011>.
27. Centers for Disease Control and Prevention. CDC WONDER Online Database 2008. Available at: <http://wonder.cdc.gov/>.
28. United Nations, Department of Economic and Social Affairs, Population Division. World population prospects: The 2006 revision. 2007;ESA/P/WP.202.
29. United States Department of Agriculture. Dietary guidelines for Americans 2010. 2010;7th.

30. WHO Commission on Social Determinants of Health, World Health Organization. Closing the gap in a generation health equity through action on the social determinants of health : Commission on Social Determinants of Health final report. Available at: <http://www.netlibrary.com/urlapi.asp?action=summary&v=1&bookid=244420>; Materials specified: NetLibrary <http://www.netlibrary.com/urlapi.asp?action=summary&v=1&bookid=244420> http://whqlibdoc.who.int/publications/2008/9789241563703_eng.pdf.
31. Shaw M. Housing and public health. *Annu Rev Public Health*. 2004;25:397-418.
32. Centers for Disease Control and Prevention. 2007 national health interview survey 2008.
33. Markides KS, Coreil J. The health of hispanics in the southwestern united states: An epidemiologic paradox. *Public Health Rep*. 1986;101:253-265.
34. Markides KS, Eschbach K. Aging, migration, and mortality: Current status of research on the hispanic paradox. *Journals of Gerontology Series B: Psychological Sciences & Social Sciences*. 2005;60B:68-75.
35. Morales LS, Lara M, Kington RS, Valdez RO, Escarce JJ. Socioeconomic, cultural, and behavioral factors affecting hispanic health outcomes. *J HEALTH CARE POOR UNDERSERV*. 2002;13:477-503.
36. Franzini L, Ribble JC, Keddie AM. Understanding the hispanic paradox. *Ethn Dis*. 2001;11:496-518.
37. Sorlie PD, Backlund E, Johnson NJ, Rogot E. Mortality by hispanic status in the united states. *JAMA*. 1993;270:2464-2468.
38. Hummer RA, Rogers RG. Adult mortality differentials among hispanic subgroups and non-hispanic whites. *Social Science Quarterly (University of Texas Press)*. 2000;81:459-476.
39. Smith DP, Bradshaw BS. Rethinking the hispanic paradox: Death rates and life expectancy for US non-hispanic white and hispanic populations. *Am J Public Health*. 2006;96:1686-1692.
40. Crimmins EM, Kim JK, Alley DE, Karlamangla A, Seeman T. Hispanic paradox in biological risk profiles. *Am J Public Health*. 2007;97:1305-1310.
41. PALLONI A, ELIZABETH ARIAS, >. Paradox lost: Explaining the hispanic adult mortality advantage. *Demography*. 2004;41:385-415.
42. Abraído-Lanza AF, Dohrenwend BP, Ng-Mak D, Turner JB. The latino mortality paradox: A test of the 'Salmon bias' and healthy migrant hypotheses. *Am J Public Health*. 1999;89:1543-1548.
43. Rubalcava LN, Teruel GM, Thomas D, Goldman N. The healthy migrant effect: New findings from the mexican family life survey. *Am J Public Health*. 2008;98:78-84.
44. Vega WA, Amaro H. Latino outlook: Good health, uncertain prognosis. *Annu Rev Public Health*. 1994;15:39-67.
45. Rumbaut RG. Assimilation and its discontents: Between rhetoric and reality. *International Migration Review*. 1997;31:923-960.
46. Sundquist J, Winkleby MA. Cardiovascular risk factors in mexican american adults: A transcultural analysis of NHANES III, 1988-1994. *Am J Public Health*. 1999;89:723-730.
47. Morland K, Wing S, Diez Roux A, Poole C. Neighborhood characteristics associated with the location of food stores and food service places. *Am J Prev Med*. 2002;22:23-29.
48. Block JP, Scribner RA, DeSalvo KB. Fast food, race/ethnicity, and income: A geographic analysis. *Am J Prev Med*. 2004;27:211-217.
49. Zenk SN, Schulz AJ, Israel BA, James SA, Bao S, Wilson ML. Neighborhood racial composition, neighborhood poverty, and the spatial accessibility of supermarkets in metropolitan detroit. *Am J Public Health*. 2005;95:660-667.
50. Powell LM, Slater S, Mirtcheva D, Bao Y, Chaloupka FJ. Food store availability and neighborhood characteristics in the united states. *Prev Med*. 2007;44:189-195.
51. Moore LV, Diez Roux AV. Associations of neighborhood characteristics with the location and type of food stores. *Am J Public Health*. 2006;96:325-331.
52. Block D, Kouba J. A comparison of the availability and affordability of a market basket in two communities in the chicago area. *Public Health Nutr*. 2006;9:837-845.
53. Zenk SN, Powell LM. US secondary schools and food outlets. *Health Place*. 2008;14:336-346.
54. Austin SB, Melly SJ, Sanchez BN, Patel A, Buka S, Gortmaker SL. Clustering of fast-food restaurants around schools: A novel application of spatial statistics to the study of food environments. *Am J Public Health*. 2005;95:1575-1581.
55. United States Department of Agriculture. Food Desert Locator. Available at: <http://www.ers.usda.gov/Data/FoodDesert/documentation.html>. Accessed 5/20, 2011.
56. United States Department of Agriculture. Food Desert Locator. Available at: <http://www.ers.usda.gov/Data/FoodDesert/index.htm>. Accessed 5/20, 2011.

57. CHANJIN CHUNG, SAMUEL L. MYERS JR. Do the poor pay more for food? an analysis of grocery store availability and food price disparities. . 2005;33:276.
58. Maddock J. The relationship between obesity and the prevalence of fast food restaurants: State-level analysis. *Am J Health Promot.* 2004;19:137-143.
59. Fleischhacker SE, Evenson KR, Rodriguez DA, Ammerman AS. A systematic review of fast food access studies. *Obes Rev.* 2011;12:e460-71.
60. Morland K, Diez Roux AV, Wing S. Supermarkets, other food stores, and obesity: The atherosclerosis risk in communities study. *Am J Prev Med.* 2006;30:333-339.
61. Powell LM, Auld MC, Chaloupka FJ, O'Malley PM, Johnston LD. Associations between access to food stores and adolescent body mass index. *Am J Prev Med.* 2007;33:S301-7.
62. Moore LV, Diez Roux AV, Nettleton JA, Jacobs DR, Jr. Associations of the local food environment with diet quality--a comparison of assessments based on surveys and geographic information systems: The multi-ethnic study of atherosclerosis. *Am J Epidemiol.* 2008;167:917-924.
63. Morland K, Wing S, Diez Roux A. The contextual effect of the local food environment on residents' diets: The atherosclerosis risk in communities study. *Am J Public Health.* 2002;92:1761-1767.
64. White House Task Force on Childhood Obesity. Solving the problem of childhood obesity within a generation. 2010.



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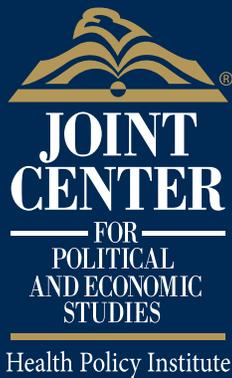
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