

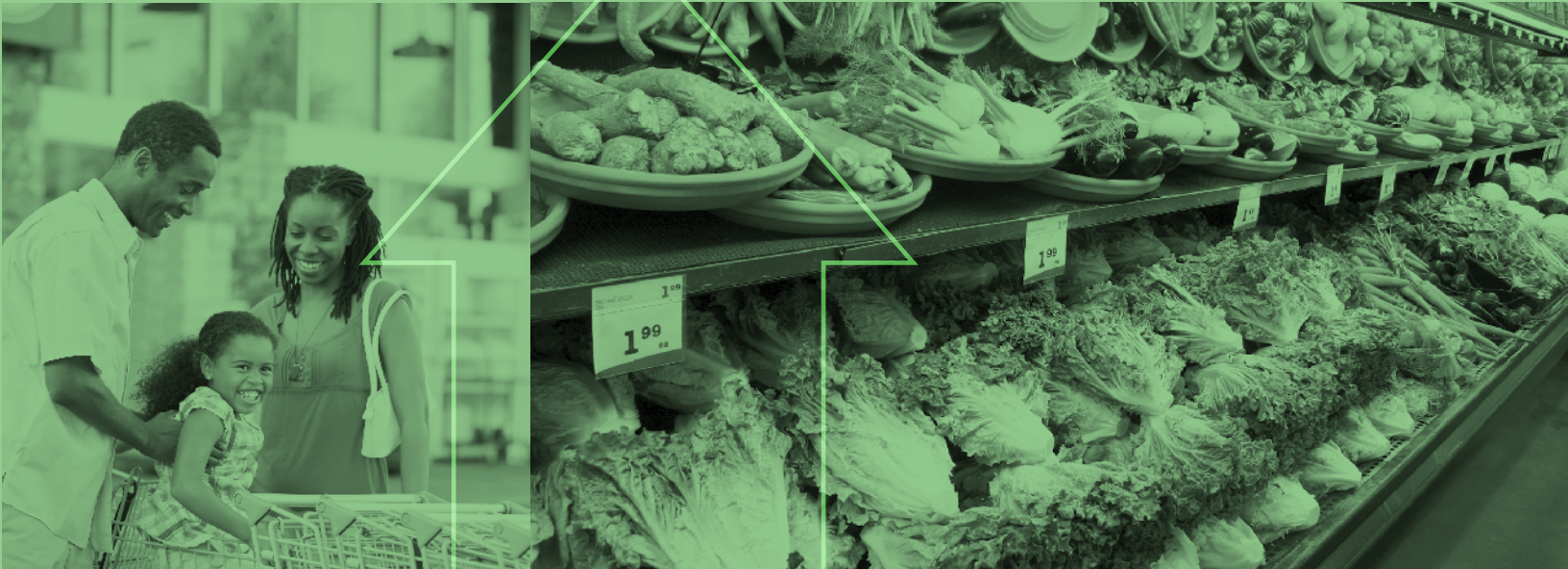
Lifting Up What Works®

PolicyLink



# The Grocery Gap

Who Has Access to Healthy Food and Why It Matters





# The Grocery Gap:

## Who Has Access to Healthy Food and Why It Matters

**Sarah Treuhaft**

PolicyLink

**Allison Karpyn**

The Food Trust

## Acknowledgments

PolicyLink and The Food Trust are grateful to the funders who supported the development and publication of this report, including the Convergence Partnership and the Kresge Foundation.

The research for this study was conducted with indispensable assistance from Diana Fischmann (former intern, The Food Trust), who initially collected, reviewed, and summarized many of the studies, and Allison Hagey (PolicyLink) who adeptly assisted with the data analysis and manuscript development. Many thanks to Jennefer Keller, Jon Jeter, and Leslie Yang (PolicyLink), and Lance Loethen (The Reinvestment Fund) for their assistance. Our gratitude also extends to Judith Bell and Rebecca Flourney (PolicyLink), John Weidman (The Food Trust), and Ira Goldstein (The Reinvestment Fund) who provided helpful guidance and feedback throughout the research process.

# Contents

5	<b>Preface</b>
7	<b>Executive Summary</b>
11	<b>Introduction</b>
13	<b>Findings</b>
21	<b>Implications for Policy</b>
23	<b>Methods</b>
25	<b>References</b>
32	<b>Notes</b>





**Improving access to healthy food is a critical component of an agenda to build an equitable and sustainable food system.**

## Preface

For decades, low-income communities of color have suffered as grocery stores and fresh, affordable food disappeared from their neighborhoods. Advocates have long drawn attention to this critical issue and crafted policy solutions, but access to healthy food is just now entering the national policy debate. While the problem is obvious to impacted communities, good policy must also be based on solid data about the issue and its consequences.

Unfortunately, it often takes years for the research to catch up with pressing needs in historically underserved communities. Sometimes information is not available. Other times, evidence is accumulating but it is buried in journals not widely read by policymakers. Or it is produced by practitioners and advocates for local action campaigns and not accepted by researchers or shared with policymakers or the broader field. Too often, research focusing on low-income people and communities of color, informed by their experiences, or conducted in partnership with them, is perceived as a political strategy, rather than as a legitimate search to understand problems and inform strategies for change.

PolicyLink and The Food Trust conducted this inquiry to summarize the existing evidence base, carefully reviewing more than 132 studies. We found that a large and consistent body of evidence supports what residents have long observed: many low-income communities, communities of color, and sparsely populated rural areas do not have sufficient opportunities to buy healthy, affordable food. The consequences are also clear: decreased access to healthy food means people in low-income communities suffer more from diet-related diseases like obesity and diabetes than those in higher-income neighborhoods with easy access to healthy food, particularly fresh fruits and vegetables.

Inequitable access to healthy food is a major contributor to health disparities. According to the

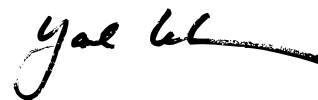
Centers for Disease Control and Prevention, adult obesity rates are 51 percent higher for African Americans than whites, and 21 percent higher for Latinos. Black and Latino children are more likely to become obese than white children. The lack of healthy food retail also hinders community economic development in neighborhoods that need private investment, activity hubs, and jobs.

Thankfully, the tide is beginning to turn. Researchers and policymakers are coming to consensus that this is a critical issue. And they are recognizing that communities have developed innovative, sustainable solutions that can work in other locales and at larger scales. In December 2009, 39 members of Congress from both political parties issued a resolution in the House of Representatives recognizing the need for national policy to address limited access to healthy food in underserved communities. The President's 2011 budget calls for more than \$400 million to establish a national Healthy Food Financing Initiative, and this initiative is a key component of the First Lady's Let's Move campaign to reduce childhood obesity. Legislation to create a Healthy Food Financing Initiative is expected to be introduced in both the House and the Senate in Spring 2010.

This report presents powerful data. It confirms that as a nation we must answer the appeals of community activists seeking access to healthy food for their families and their neighborhoods. We hope that it provides policymakers, advocates, philanthropists, and others with information, evidence, and analysis that can inform their efforts to eliminate "food deserts" from neighborhoods and communities across the country.



**Angela Glover Blackwell**  
Founder and CEO  
PolicyLink



**Yael Lehmann**  
Executive Director  
The Food Trust

In hundreds of neighborhoods across the country, nutritious, affordable, and high quality food is out of reach—particularly low-income neighborhoods, communities of color, and rural areas.





# 1 Executive Summary

## *An apple a day?*

**F**or millions of Americans—especially people living in low-income communities of color—finding a fresh apple is not so easy. Full-service grocery stores, farmers’ markets, and other vendors that sell fresh fruits, vegetables, and other healthy foods cannot be found in their neighborhoods. What can be found, often in great abundance, are convenience stores and fast food restaurants that mainly sell cheap, high-fat, high-sugar, processed foods and offer few healthy options.

Without access to healthy foods, a nutritious diet and good health are out of reach. And without grocery stores and other fresh food retailers, communities are missing the commercial hubs that make neighborhoods livable, and help local economies thrive.

For decades, community activists have organized around the lack of access to healthy foods as an economic, health, and social justice issue. As concerns grow over healthcare and the country’s worsening obesity epidemic, “food deserts”—areas where there is little or no access to healthy and affordable food—have catapulted to the forefront of public policy discussions. Policymakers at the local, state, and national level have begun recognizing the role that access to healthy food plays in promoting healthy local economies, healthy neighborhoods, and healthy people.

This report, a summary of our current knowledge about food deserts and their impacts on communities, provides evidence to inform this policymaking.

To assess the current evidence base in this dynamic and fast-growing field of research, we compiled the most comprehensive bibliography to date of studies examining food access and its implications conducted in the United States over

the past 20 years. This bibliography incorporates a total of 132 studies: Sixty-one published in peer-reviewed journals and primarily conducted by university-based researchers and 71 conducted by practitioners or policy researchers, sometimes in collaboration with academic researchers, and self-published (also known as “grey literature”). The studies include three nationwide analyses of food store availability and neighborhood, city, county, regional, statewide, and multistate analyses covering 22 states across the country.

## Findings

### 1. Accessing healthy food is a challenge for many Americans—particularly those living in low-income neighborhoods, communities of color, and rural areas.

- In hundreds of neighborhoods across the country, nutritious, affordable, and high quality food is largely missing. Studies that measure food store availability and availability of healthy foods in nearby stores find major disparities in food access by race and income and for low-density, rural areas.
- **Lack of supermarkets.** A 2009 study by the U.S. Department of Agriculture found that 23.5 million people lack access to a supermarket within a mile of their home. A recent multistate study found that low-income census tracts had half as many supermarkets as wealthy tracts. Another multistate study found that eight percent of African Americans live in a tract with a supermarket, compared to 31 percent of whites. And a nationwide analysis found there are 418 rural “food desert” counties where all residents live more than 10 miles from a supermarket or supercenter—this is 20 percent of rural counties.

- **Lack of healthy, high quality foods in nearby food stores.** In Detroit and New Haven, produce quality is lower in low-income communities of color compared to more affluent or racially mixed neighborhoods. In Albany, New York, 80 percent of nonwhite residents cannot find low-fat milk or high-fiber bread in their neighborhoods. And in Baltimore, 46 percent of lower-income neighborhoods have limited access to healthy food (based on a healthy food availability survey) compared to 13 percent of higher-income neighborhoods.
  - **Predominance of convenience/corner/liquor stores.** Nationally, low-income zip codes have 30 percent more convenience stores, which tend to lack healthy items, than middle-income zip codes.
  - **Lack of transportation access to stores.** Residents in many urban areas (including Seattle, Central and South Los Angeles, and East Austin, Texas) have few transportation options to reach supermarkets. Inadequate transportation can be a major challenge for rural residents, given the long distances to stores. In Mississippi—which has the highest obesity rate of any state—over 70 percent of food stamp eligible households travel more than 30 miles to reach a supermarket.
- 2. Better access corresponds with healthier eating.** Studies find that residents with greater access to supermarkets or a greater abundance of healthy foods in neighborhood food stores consume more fresh produce and other healthful items.
- For every additional supermarket in a census tract, produce consumption increases 32 percent for African Americans and 11 percent for whites, according to a multistate study.
  - A survey of produce availability in New Orleans' small neighborhood stores found that for each additional meter of shelf space devoted to fresh vegetables, residents eat an additional 0.35 servings per day.
  - In rural Mississippi, adults living in “food desert” counties lacking large supermarkets are 23 percent less likely to consume the recommended fruits and vegetables than those in counties that have supermarkets, controlling for age, sex, race, and education.
- 3. Access to healthy food is associated with lower risk for obesity and other diet-related chronic diseases.** Researchers find that residents who live near supermarkets or in areas where food markets selling fresh produce (supermarkets, grocery stores, farmers’ markets, etc.) outnumber food stores that generally do not (such as corner stores) have lower rates of diet-related diseases than their counterparts in neighborhoods lacking food access.
- A multistate study found that people with access to only supermarkets or to supermarkets and grocery stores have the lowest rates of obesity and overweight and those without access to supermarkets have the highest rates.
  - In California and New York City, residents living in areas with higher densities of fresh food markets, compared to convenience stores and fast food restaurants, have lower rates of obesity. In California, obesity and diabetes rates are 20 percent higher for those living in the least healthy “food environments,” controlling for household income, race/ethnicity, age, gender, and physical activity levels.
  - Using statistical modeling techniques that control for a variety of factors, researchers estimate that adding a new grocery store to a high poverty neighborhood in Indianapolis would lead to a three pound weight decrease among residents, while eliminating a fast food restaurant in a neighborhood with a high density of fast food would lead to a one pound weight decrease.
  - In Chicago and Detroit, residents who live farther from grocery stores than from convenience stores and fast food

restaurants have significantly higher rates of premature death from diabetes.

#### 4. **New and improved healthy food retail in underserved communities creates jobs and helps to revitalize low-income neighborhoods.**

Though the economic impacts of food retailers are understudied, we know that grocery stores contribute to community economic development. Analysis of a successful statewide public-private initiative to bring new or revitalized grocery stores to underserved neighborhoods in Pennsylvania provides positive evidence that fresh food markets can create jobs, bolster local economies, and revitalize neighborhoods. The effort has created or retained 4,860 jobs in 78 underserved urban and rural communities throughout the state. Analyses of stores supported by the effort find they lead to increased economic activity in surrounding communities.

## Implications for Policy

The evidence is clear that many communities—predominantly low-income, urban communities of color and rural areas—lack adequate access to healthy food, and the evidence also suggests that the lack of access negatively impacts the health of residents and neighborhoods. These findings indicate that policy interventions to increase access to healthy food in “food deserts” will help people eat a healthy diet, while contributing to community economic development.

For many years, impacted communities and their advocates have been implementing a variety of strategies to increase access to fresh, wholesome foods, including:

- Attracting or developing grocery stores and supermarkets;
- Developing other retail outlets such as farmers’ markets, public markets, cooperatives, farmstands, community-

supported agriculture programs, and mobile vendors (and ensuring public benefits can be used at these venues);

- Increasing the stock of fruits, vegetables, and other healthy foods at neighborhood corner stores or small groceries;
- Growing food locally through backyard and community gardens and larger-scale urban agriculture; and
- Improving transportation to grocery stores and farmers’ markets.

Improving access to healthy food is a critical component of an agenda to build an equitable and sustainable food system. It is time for a nationwide focus to ensure that healthy food choices are available to all, building on these local efforts and innovations.

Smart public policies and programs should support communities in their efforts to develop, implement, and test strategies that increase healthy food access. Government agencies at the local, state, and federal level should prioritize the issue of inequitable food access in low-income, underserved areas. Programs and policies that are working should be expanded and new programs should be developed to bring more grocery stores and other fresh food retail outlets to neighborhoods without access to healthy foods. Transportation barriers to fresh food outlets should be addressed. Whenever possible, policies to address food deserts should link with comprehensive efforts to build strong regional food and farm systems.

Residents of low-income communities and communities of color in urban and rural areas have suffered for too long from a lack of access to healthy food. With local and state programs showing enormous promise, now is the time for policymakers to enact policies that will catalyze the replication of local and state innovations and bring them to a national scale.

The presence of stores selling healthy, affordable food makes it possible to eat “five a day” and consume a healthful diet.



# 2

## Introduction

In hundreds of neighborhoods across the country, nutritious, affordable, and high quality food is out of reach. Residents of many urban low-income communities of color walk outside their doors to find no grocery stores, farmers' markets, or other sources of fresh food. Instead they are bombarded by fast food and convenience stores selling high-fat, high-sugar, processed foods. Rural residents often face a different type of challenge—a lack of any nearby food options.

This has been a persistent problem for communities. Beginning in the 1960s and 1970s, white, middle-class families left urban centers for homes in the suburbs, and supermarkets fled with them. Once they left the city, grocers adapted their operations to suit their new environs, building ever-larger stores and developing chain-wide contracts with large suppliers and distributors to stock the stores with foods demanded by a fairly homogeneous suburban population. Over the past several decades, the structure of the grocery industry has changed dramatically, with significant consolidation and growth in discount stores and supercenters and specialty/natural food retailers.<sup>1</sup> At the same time, alternative sources of fresh foods such as farmers' markets, produce stands, and community-supported agriculture programs have proliferated, though predominantly in middle-class or affluent communities.

While some continue to be well-served, many have been left out. Without fresh food retailers, these communities miss out on the economic and health benefits they bring to neighborhoods. The presence of stores selling healthy, affordable food makes it possible to eat “five a day” and consume a healthful diet. This is particularly important for low-income people of color given the vast disparities in health that exist in areas including obesity, diabetes, and other diet-related diseases. The same communities are often economically distressed

and in need of new or revitalized neighborhood-serving retailers and job opportunities. Grocery stores and supermarkets are also economic anchors in a neighborhood—supplying local jobs and creating foot traffic for additional businesses. Smaller food retailers and farmers' markets can also bolster the local economy and contribute to a healthy neighborhood business environment.

Although the lack of access to healthy foods has preoccupied residents of low-income urban neighborhoods and rural areas for decades, and many advocates have fought long and hard to bring in or develop new fresh food retailers, until recently the issue was largely confined to the occasional local win or news story. But that is all changing. “Food deserts”—areas with low access to healthy foods—have become a major topic of interest among public health advocates and the media, as well as a dynamic and fast-growing field of research. With the recognition of the obesity (and childhood obesity) crises and the increasing understanding of how the neighborhood environment influences health, solving the food desert problem is now rising to the forefront of policy discussions.

This report provides data to inform that debate. Across the country, dozens of studies have examined the availability of nutritious, affordable foods in communities and/or the relationship between food access and health. These include studies authored by university-based researchers, health departments, community groups, and nonprofit policy and research organizations. A large number of studies, particularly local studies about geographic access to healthy food, are conducted by practitioners who seek to understand the situation locally in order to take action. This “grey literature” often provides important data but is rarely included in academic reviews.

To assess the current evidence base, we gathered the studies conducted in the United States over the past 20 years to create the most comprehensive bibliography on this topic to date.<sup>2</sup> We found a total of 132 studies that examined access to healthy food and its impacts. They include three nationwide analyses of food store availability and neighborhood, city, county, regional,

statewide, and multistate analyses covering 22 states throughout the country. The bibliography also includes three review studies.<sup>3, 4, 5</sup> Sixty-one of the studies were published in peer-reviewed journals and generally conducted by academic researchers, and 71 were self-published and generally conducted by practitioners. (See pages 23-24 for a full description of our methodology.)

**Studies find that residents with greater access to supermarkets or a greater abundance of healthy foods in neighborhood food stores consume more fresh produce and other healthful items.**



# 3

## Findings

### 1. Accessing healthy food is a challenge for many Americans—particularly those living in low-income neighborhoods, communities of color, and rural areas

Researchers have measured geographic access to healthy foods in many different ways, and at nearly every imaginable scale: from national samples to detailed assessments of specific neighborhoods. Only one study has sought to calculate the extent of the problem nationally. The U.S. Department of Agriculture's 2009 "food desert" study examined access to supermarkets and determined that 23.5 million people cannot access a supermarket within one mile of their home.

Most studies (a total of 113) examine whether supermarkets or healthy foods are equitably distributed across communities according to socioeconomic status, racial composition, or level of urbanization (population density).<sup>6</sup> Their findings are remarkably consistent: people living in low-income neighborhoods, minority neighborhoods, and rural communities face much greater challenges finding healthy food, especially those who lack good transportation options to reach full-service grocery stores. Ninety-seven of these studies found inequitable access to healthy foods, 14 had some mixed results, and two studies did not find inequities.

#### *Disparities in supermarket access in urban areas by race and income*

Many researchers use supermarkets as a proxy for food access because they provide the most reliable access to a wide variety of nutritious and affordable produce and other foods compared to other types

of food outlets such as convenience stores and smaller grocery stores. Several of these studies look at the distribution of different types of food stores, such as supermarkets, smaller grocery stores, and "fringe retailers" such as convenience and corner stores across different community types. They find that lower-income communities and communities of color have fewer supermarkets, more convenience stores, and smaller grocery stores than wealthier and predominantly white communities.

Eighty-nine national and local studies document uneven geographic access to supermarkets in urban areas according to income, race, or both<sup>7-87</sup> and nine had mixed results.<sup>88-96</sup>

Nationwide study findings include:

- Low-income zip codes have 25 percent fewer chain supermarkets and 1.3 times as many convenience stores compared to middle-income zip codes. Predominantly black zip codes have about half the number of chain supermarkets compared to predominantly white zip codes, and predominantly Latino areas have only a third as many.<sup>46</sup>
- Low-income neighborhoods have half as many supermarkets as the wealthiest neighborhoods and four times as many smaller grocery stores, according to an assessment of 685 urban and rural census tracts in three states. The same study found four times as many supermarkets in predominantly white neighborhoods compared to predominantly black ones.<sup>38</sup> Another multistate study found that eight percent of African Americans live in a tract with a supermarket compared to 31 percent of whites.<sup>42</sup>

Local studies demonstrate similar trends:

- In Los Angeles there are 2.3 times as many supermarkets per household in low-poverty areas compared to high-poverty areas. Predominantly white areas have 3.2 times as many supermarkets as black areas and 1.7 times as many as Latino areas.<sup>49</sup>
- Among affluent neighborhoods in Atlanta, those that are predominantly white have better grocery store access than those that are predominantly black, indicating that race may be a factor independent of income.<sup>30</sup>
- In West Louisville, Kentucky, a low-income African American community that suffers from high rates of diabetes, there is one supermarket for every 25,000 residents, compared to the county average of one supermarket for every 12,500 residents.<sup>17</sup>
- In Washington, DC, the city's lowest-income wards (Wards 7 and 8) have one supermarket for every 70,000 people while two of the three highest-income wards (Wards 2 and 3) have one for every 11,881 people.<sup>20</sup> One in five of the city's food stamp recipients lives in a neighborhood without a grocery store.<sup>37</sup>
- In California and in New York City, low-income neighborhoods have fewer purveyors of healthy foods (supermarkets, produce stands) compared to outlets that primarily sell unhealthy foods (convenience stores, fast food restaurants).<sup>14, 47</sup> Low-income neighborhoods in California have 20 percent fewer healthy food sources than higher-income ones.<sup>14</sup>
- In unincorporated communities (*colonias*) located along the U.S.-Mexico border in Texas, residents in neighborhoods with higher levels of deprivation (measured by income, transportation, lack of infrastructure, etc.) travel farther to reach the nearest supermarket or grocery store and have lower access to a variety of food stores.<sup>51</sup>

### ***Disparities in access to healthy food at neighborhood stores in urban areas by race and income***

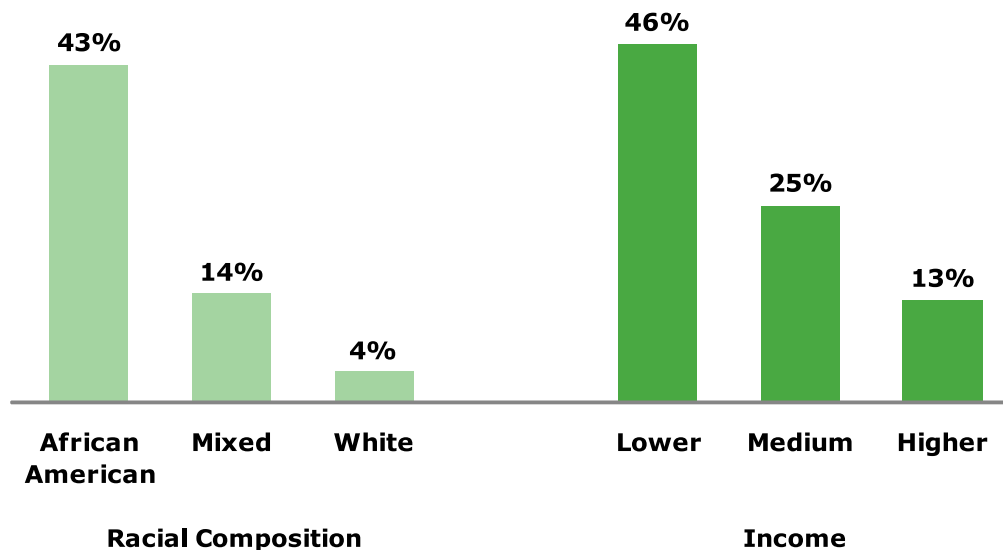
Other studies gather much more detailed data, conducting in-store surveys to assess the availability, variety, quality, and price of particular healthy items or grocery "market baskets." Such surveys offer a more precise look at healthy food availability in neighborhoods, but they are labor-intensive so generally focus on smaller geographic areas.

Among these studies, 21 found that food stores in lower-income neighborhoods and communities of color are less likely to stock healthy foods, offer lower quality items, and have higher prices compared to stores in higher-income or predominantly white communities,<sup>13, 15, 17, 18, 20-23, 28, 31, 33, 35, 52, 68, 69, 96-99, 103, 105, 106</sup> and seven found mixed results (for example, lower quality but similar prices and selection)<sup>9, 81, 88, 89, 100, 102</sup> or no difference.<sup>101</sup> In addition, a study based on focus groups with residents in East Baltimore (a low-income community of color) found that they were reliant on small neighborhood stores that charged extremely high prices and lacked a good variety and selection of healthy foods.<sup>103</sup> Findings include:

- Stores carrying fruits and vegetables are unevenly distributed among different types of communities in upstate New York: a minority neighborhood in Albany has the least access (4.6 stores per 10,000 residents), followed by a rural community (7.8), a small town (9.8), and a racially mixed neighborhood in Albany (11.4).<sup>32</sup> The same researchers find that eight in 10 of Albany's nonwhite residents live in a neighborhood that lacks any stores selling low-fat milk or high-fiber bread.<sup>33</sup>
- Stores located in low-income and very low-income zip codes in Los Angeles and Sacramento are less likely to stock healthy foods than stores in higher-income areas.<sup>34</sup> Three in 10 food stores in a high-poverty, predominantly African American community in Los Angeles lacked fruits and vegetables while nearly all of the stores in a contrast area that was low poverty and predominantly white sold fresh produce.<sup>52</sup>



### Share of Baltimore Neighborhood Food Stores with Low Availability of Healthy Food, by Neighborhood Race and Income, 2006



Source: Franco et al., 2008.

- Produce quality is lower in a predominantly black, low-income community in Detroit compared to an adjacent suburban community that is racially mixed and middle-income.<sup>81</sup> Produce quality is also lower in New Haven, Connecticut's low-income communities compared to more affluent neighborhoods.<sup>9</sup>
- In Baltimore (see chart above), a healthy food availability survey of 226 supermarkets, grocery stores, convenience stores, and behind-glass stores in 106 census tracts found that 43 percent of predominantly black neighborhoods and 46 percent of lower-income neighborhoods were in the bottom third of availability, compared to four percent of predominantly white and 13 percent of higher-income neighborhoods. The supermarkets in predominantly black and lower-income neighborhoods scored lower for healthy food availability as well.<sup>23</sup>

#### Disparities in food store access around schools by race and income

In addition to the residential environment, researchers are beginning to examine the “food environment”

around schools because of the link between access to convenience stores and adolescent health.<sup>121</sup> Two studies looked at convenience stores in proximity to schools and found that schools with more low-income or nonwhite students or in urban areas,<sup>104</sup> and schools located in low-income neighborhoods or communities of color<sup>107</sup> are more likely to have at least one convenience store nearby.

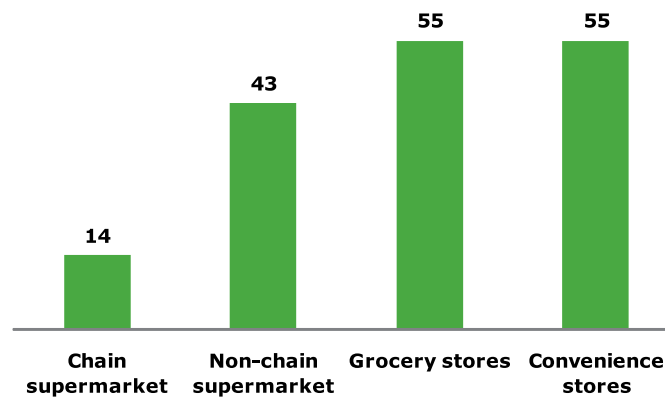
#### Rural food deserts

While the majority of food desert studies focus on urban communities, 21 studies examined rural communities. Twenty of them found significant food access challenges in rural communities<sup>21, 29, 32, 33, 36, 43, 46, 50, 51, 70, 75, 95, 108-114, 116</sup> and one (that looked at Springfield, Oregon) did not find urban-rural disparities.<sup>54</sup> The major issues in rural areas are different than those in urban areas given the low population density, longer distances between retailers, and rapid rise of supercenters and their impact on other food retailers. Key findings include:

- Controlling for population density, rural areas have fewer food retailers of any type compared to urban areas, and only 14 percent the number of chain supermarkets.<sup>46</sup> (See chart, next page) Another nationwide

## Availability of Food Stores in Rural Areas by Store Type, 2000

Number of rural stores per 100 urban stores



Source: Powell et al., 2007.

analysis found that there are 418 rural “food desert” counties where all residents live 10 miles or more from the nearest supermarket or supercenter—20 percent of all rural counties.<sup>43</sup>

- In the Mississippi Delta, over 70 percent of households eligible to receive food stamp benefits needed to travel more than 30 miles to reach a large grocery store or supermarket.<sup>36</sup>
- In New Mexico, rural residents have access to fewer grocery stores than urban residents, pay more for comparable items, and have less selection. The same market basket of groceries costs \$85 for rural residents and \$55 for urban residents.<sup>113</sup>

### Transportation access

Lack of transportation to supermarkets is a major barrier for residents in many communities.<sup>115</sup> Assessments of Lexington (KY), Seattle (WA), Central and South Los Angeles (CA), East Austin (TX), and Trinity County (CA) highlighted transportation challenges.<sup>11, 12, 22, 69, 116</sup> Rural residents have higher vehicle ownership generally, but those who lack reliable access to personal vehicles are particularly isolated given the longer distances to stores and lack of public transportation options.<sup>12, 51, 114, 116, 117</sup>

## 2. Better access to healthy food corresponds with healthier eating

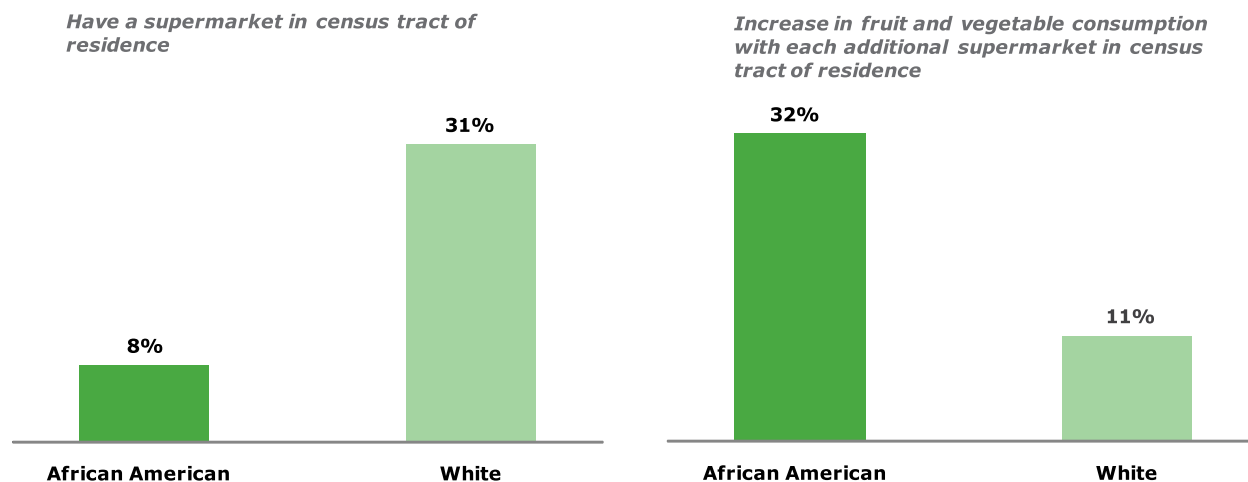
Consistent with the conclusions of a recent review study,<sup>4</sup> we found strong and consistent evidence indicating a positive relationship between access to healthy food and eating behaviors. Without nearby access to healthy ingredients, families have a harder time meeting recommended dietary guidelines for good health such as eating fruits and vegetables and lowering fat intake. In a survey of diabetic adults in New York’s East Harlem neighborhood, 40 percent said that they did not follow the recommended dietary guidelines because the necessary foods were less available and more expensive in their neighborhood stores.<sup>31</sup>

Of 14 studies that examine food access and consumption of healthy foods, all but one of them found a correlation between greater access and better eating behaviors. All of the studies in this category were conducted by academic researchers and published in peer-reviewed journals.<sup>118</sup>

### Access to supermarkets

Eight studies analyzed access to nearby supermarkets or large grocery stores that sell a wide variety of healthy foods in relation to consumption of fruits and vegetables, specific healthy foods (such as low-fat milk or high-fiber bread), or a healthy diet (measured by an index of diet quality). Almost all

## Access to Supermarkets and Consumption of Fruits and Vegetables by Race, 2002



Source: Morland et al., 2002.

of these studies control for individual characteristics such as race and income and still find a relationship between access and healthy eating. Six of the studies found associations between supermarket access and healthy eating among adults<sup>42, 79, 91, 109, 119, 120</sup> and one had mixed results.<sup>78</sup> Only one study examined access to food stores and eating behaviors of adolescents (specifically, boys aged 10 to 14); this study did not find a relationship between supermarket access and fruit and vegetable consumption but did find that proximity of convenience stores (where young people who do not drive are more likely to shop) was associated with reduced fruit and vegetable intake.<sup>121</sup>

Some of the findings include:

- African Americans living in a census tract with a supermarket are more likely to meet dietary guidelines for fruits and vegetables, and for every additional supermarket in a tract, produce consumption rose 32 percent. Among whites, each additional supermarket corresponded with an 11 percent increase in produce consumption (see chart above).<sup>42</sup> This study used a large sample: 10,230 adults living in 208 urban, suburban, and rural census tracts in four states.
- Adults with no supermarkets within a mile of their homes are 25 to 46 percent less

likely to have a healthy diet than those with the most supermarkets near their homes, according to a study that used data from North Carolina, Baltimore, and New York City. A healthy diet was defined using two different measures: the Alternate Healthy Eating Index, which measures consumption of foods related to low risk of chronic disease, and a measure looking at consumption of fats and processed meats.<sup>91</sup>

- Proximity to a supermarket is associated with increased fruit consumption among food stamp recipients (based on a nationally representative sample). Similar patterns were also seen with vegetable consumption, though associations were not statistically significant.<sup>119</sup>
- In rural Mississippi, adults living in “food desert” counties (defined as those lacking large supermarkets) are 23 percent less likely to consume the recommended fruits and vegetables than those in counties that are not food deserts.<sup>109</sup>
- In Detroit’s East Side neighborhood, African American women with lower incomes are less likely to shop at supermarkets (which are all located outside the neighborhood) and eat fruits and vegetables than those with higher incomes.<sup>79</sup>

### Access to fresh produce and other healthful foods in nearby stores

Several recent studies go beyond using supermarkets as proxies for healthy food access and conduct in-store surveys to more accurately measure the availability of healthy food items in nearby stores.<sup>13, 21, 91, 122, 123</sup> Others use resident surveys to measure access to nutritious and quality foods and eating behaviors.<sup>5, 124</sup> Of the six studies in this category, all of them found that increased availability of produce or of specific healthy foods (such as low-fat milk as a percentage of all milk) is associated with the increased consumption of those foods. Findings include:

- In New Orleans, proximity to stores stocking more fresh produce is associated with higher vegetable consumption. Each additional meter of shelf space devoted to fresh vegetables is associated with an additional 0.35 servings of vegetables per day.<sup>13</sup>
- For participants in a community-based health promotion program in Colorado, greater shelf space allocated to fresh produce corresponded with greater increases in fruit and vegetable consumption.<sup>122</sup>
- The proportion of low-fat milk in stores is positively and directly related to its consumption according to a New York state study<sup>21</sup> and a study that examined areas of California and Hawaii.<sup>123</sup>
- One study asked residents to rank their access to healthy food and then examined their rankings in relation to their diets. Residents living in areas ranked by themselves or others as having the worst food environments were 22 to 35 percent less likely to eat a healthy diet than those living in areas ranked as having the best food environments.<sup>91</sup>

### 3. Access to healthy food is associated with diet-related disease

In addition to making it possible—and even more likely—for residents to eat healthy diets, the availability of healthy food in communities is related to a host of diet-related diseases including obesity and overweight, diabetes, and cardiovascular disease. Seventeen studies examined the relationship between healthy food access and diet-related health outcomes; approximately half were conducted by academics and half were conducted by policy researchers. Twelve found a positive relationship,<sup>14, 24, 25, 27, 34, 45, 47, 72, 73, 125, 126, 128</sup> three studies had mixed results,<sup>127, 129, 145</sup> and two studies had contrary findings.<sup>78, 104</sup>

#### Access to supermarkets

Five studies found that proximity to supermarkets corresponds with a lower body mass index (BMI), or rates of obesity, diabetes, or diet-related death among adults,<sup>27, 71-73, 125</sup> and one found the same correlation among adolescents.<sup>45</sup> Only two studies focused on children. One found that supermarket access was associated with lower BMI among children in lower-density counties in Indianapolis (but not in higher-density ones).<sup>127</sup> The other tracked kindergarteners over four years and found that, controlling for individual characteristics, higher fruit and vegetable prices in their city or metro corresponded with weight gain, but the density of restaurants, convenience stores, or grocery stores around their schools did not make a difference.<sup>145</sup>

- Adults living in neighborhoods with supermarkets or with supermarkets and grocery stores have the lowest rates of obesity (21 percent) and overweight (60–62 percent) and those living in neighborhoods with no supermarkets and access to only convenience stores, smaller grocery stores, or both had the highest rates (32–40 percent obesity; 73–78 percent overweight), according to a study of more than 10,000 adults.<sup>125</sup>
- The lack of supermarket access corresponds with higher rates of diet-related death in Philadelphia.<sup>27</sup>

## The Economic Impacts of Fresh Food Retailers

### **Direct Economic Impacts:**

- Job opportunities
- Local tax revenues

### **Indirect Economic Impacts:**

- Revitalized neighborhood housing markets
- Asset-building for low-income homeowners (via appreciating real estate assets)
- Workforce training and development
- New businesses surrounding the store
- Additional spending in the local economy generated by the store and the new jobs it creates (the “multiplier effect”)

- In Los Angeles, a longer distance traveled to reach a grocery store was associated with higher BMI. Those who traveled more than 1.75 miles to a supermarket weighed 0.8 BMI units more (4.8 pounds for a 5’5” person).<sup>34</sup>
- A national study of more than 70,000 teens also found that increased availability of chain supermarkets was associated with lower rates of overweight.<sup>45</sup>

### **Food outlet mix**

Several studies<sup>14, 24, 25, 47, 126</sup> have found that the mix of food stores available to residents is associated with diet-related health outcomes:

- Californians and New Yorkers living in areas with higher densities of fresh food markets compared to convenience stores and fast food restaurants have lower rates of obesity. In California, obesity and diabetes rates were 20 percent higher for those living in the least healthy “food environments,” controlling for individual factors.<sup>14</sup> In New York City, increasing “BMI-healthy” food stores in New York neighborhoods corresponded with lower obesity rates (though decreasing “BMI-unhealthy” stores did not).<sup>47</sup>
- In Indianapolis, BMI values correspond with access to supermarkets and fast food restaurants. Researchers estimate that adding a new grocery store to a high-poverty neighborhood translates into a three pound weight decrease, and eliminating a fast food restaurant from a

fast food dense neighborhood (six or more fast food restaurants per square kilometer) translates into a one pound decrease.<sup>126</sup>

- A 2009 study of Chicago’s food deserts found that as the distance to the nearest grocer increases relative to the distance to the nearest fringe food outlet, the Years of Potential Life Loss (YPLL) due to diseases such as cancer, cardiovascular disease, diabetes, and liver disease increases. This relationship is significant in African American communities, but less clear for white and Hispanic communities.<sup>25</sup>

## **4. New and improved healthy food retail in underserved communities creates jobs and helps to revitalize low-income neighborhoods**

Beyond the benefits to individual health described above, fresh food markets contribute to the overall health of neighborhoods and communities.

Grocery stores are known by economic development practitioners to be high-volume “anchors” that generate foot traffic and attract complementary stores and services like banks, pharmacies, video rentals, and restaurants.<sup>131</sup> Yet compared to the study of food access and its health impacts, the study of economic impacts related to food retail development is an area of relatively limited research.

Several methods have been developed to estimate the demand for food retail in underserved

## The Pennsylvania Fresh Food Financing Initiative has helped develop supermarkets and other fresh food outlets in 78 underserved urban and rural areas, increasing access to healthy food for nearly 500,000 residents and creating or retaining 4,860 jobs.

communities. Studies that use local data sources find that these neighborhoods have the potential to support thousands of square feet in additional grocery retail space.<sup>56-67, 134</sup> One study estimated \$8.7 billion dollars in annual grocery leakage in inner-city neighborhoods.<sup>135</sup>

Some have also investigated the impact of new supermarkets on nearby real estate values. When new food retailers enter areas that were previously under-retailed, they can bring viability to urban neighborhoods' commercial real estate markets, and can change perceptions that economically distressed urban areas are undesirable places to operate businesses.<sup>133</sup> An assessment of the impact of new supermarkets on neighborhood housing values in Philadelphia found that the values of homes located within one-quarter to one-half mile of the new supermarkets increase by four to seven percent (an average of \$1,500) after the stores open, mitigating the downward trend in real estate values. In addition, the effect was larger in neighborhoods with weaker housing markets.<sup>130</sup>

Recent analyses of efforts to bring new grocery stores into underserved communities find that these businesses are viable (even thriving), offer a good selection of nutritious and affordable foods, and contribute greatly to local economic development. An examination of the first full-service supermarket to locate in New York City's Harlem neighborhood (thanks in part to a \$2.5 million loan from the city to cover construction costs), four years after its opening, found that the store allocated the same amount of space to a similar variety of fresh fruits and vegetables, fish, and meat as typical suburban supermarkets, at similar prices.<sup>136</sup> The store has been credited with catalyzing the revitalization of the neighborhood.<sup>137</sup>

Studies of the Pennsylvania Fresh Food Financing Initiative (FFFI), a statewide public-private effort that has helped develop 78 supermarkets and other fresh food outlets in underserved urban and rural areas, also demonstrate the positive impacts of healthy food retailing. In addition to increasing access to healthy food for nearly 500,000 residents, the effort resulted in:

- **Job creation.** The initiative created or retained 4,860 jobs throughout the state. A recent case study of selected supermarkets in the Philadelphia region found that the vast majority of jobs created through the initiative (75 percent) were filled by local residents living within three miles of their workplace.<sup>138</sup> A new store assisted by the initiative that is part of the regional ShopRite chain created 258 jobs and more than half were filled by local residents.<sup>139</sup> When you add in the additional jobs that are created through a new store's multiplier effect, the total number of jobs becomes much higher: one grocery store that the effort helped launch is estimated to have created 660 jobs directly and indirectly.<sup>140</sup>
- **Economic development.** New and improved grocery stores can catalyze commercial revitalization in a community. An analysis of the economic impacts of five new stores that opened with FFFI assistance found that, for four of the stores, total employment surrounding the supermarket increased at a faster rate than citywide trends. This suggests a positive effect on overall economic activity resulting from the introduction of a new supermarket.<sup>138</sup>

## 4

## Implications for Policy

Existing research provides clear evidence that food deserts exist in numerous low-income communities and communities of color across the country, and that they have significant negative impacts on health, social equity, and local economic development. The balance of the research strongly suggests that making affordable, healthy foods more available to underserved residents will lead to their making healthier choices about what to eat and, ultimately, better health, while contributing to economic and neighborhood revitalization.

While there is general agreement in the literature about the lack of access to healthy foods and increasing evidence about its consequences, fewer researchers have focused on the question of what are the most effective solutions. This search has largely been taken up by impacted communities and their advocates and supporters. Across the country, they are:

- Attracting or developing grocery stores and supermarkets;
- Developing other retail outlets such as farmers' markets, public markets, cooperatives, farmstands, community-supported agriculture programs, and mobile vendors (and ensuring public benefits can be used at these venues);
- Increasing the stock of fruits, vegetables, and other healthy foods at neighborhood corner stores or small groceries;
- Growing food locally through backyard and community gardens and larger-scale urban agriculture; and
- Improving transportation to grocery stores and farmers' markets.

Communities are using a variety of strategies to increase access to healthy foods, and their efforts provide several lessons for policymakers at the local, state, and federal level.<sup>143</sup>

Until more systemic solutions are instituted, transportation barriers to fresh food markets need to be removed. Community groups and planners should evaluate existing transportation routes and improve coordination of bus routes, bus stops, and schedules or add vanpools or shuttles to maximize transit access to grocery stores and farmers' markets. Longer-term transportation and land use planning should promote the co-location of food retail, transit access, and affordable homes. Communities and retailers can launch programs such as mobile markets, grocery shuttles, and grocery van-delivery to improve access to healthy food.

Community groups, residents, researchers, and government agencies should work together to identify areas that lack access to healthy food and to understand local economic conditions and regional food systems. Areas lacking access should be prioritized, strategies for action need to be identified, and then advocates need to demand the resources, programs, and policies to solve the access problem. Once underway, efforts should be monitored to examine progress over time, and advocates should seek the expansion of successful approaches.

Cities have many policy tools they can use to incentivize and promote healthy food retail including land use planning, zoning, economic development and redevelopment, and nutrition assistance. A recent analysis of retailers' location decisions found that the land availability, market demand (and data demonstrating that demand), construction and operations costs, and approval/zoning requirements all pose barriers to locating in underserved urban areas.<sup>141</sup> Cities can help

## What Type of Food Access Will Make a Difference?

One question the research begins to address is whether supermarkets are the only solution to the “grocery gap” in low-income communities.

The majority of studies use supermarkets (typically defined by a sales volume of more than \$2 million or more than 50 employees) as a proxy for access to healthy foods. This makes sense because most Americans do the bulk of their grocery shopping at these stores (and increasingly at larger supercenters)<sup>142</sup> and supermarkets more consistently offer a good variety and selection of affordable and nutritious foods compared to other types of food retailers.<sup>36, 44</sup>

But more and more studies are using in-store surveys to examine the availability of particular healthy items or healthy “market baskets” and their consumption. These studies find the same relationship between access and diet as studies that look at supermarkets.

This suggests that health could be improved through many different food access strategies.

overcome these barriers by providing publicly owned land for food retailers, helping with land assembly, and identifying and marketing sites for grocery store development. Several cities have conducted internal assessments to understand how their agencies and departments can foster healthy food retail in underserved neighborhoods.

In New York City, the departments of health, planning, housing, economic development, and the Mayor’s office all played a role in developing and implementing several innovative programs including: Green Carts, to help produce vendors locate in underserved neighborhoods with high rates of obesity and diabetes; Healthy Bodegas, to improve healthy offerings in corner stores; Health Bucks, to promote produce purchasing at farmers’ markets; and FRESH, to provide zoning and financial incentives to promote grocery store development, upgrading, and expansion in underserved areas.

At the state and national level, fresh food financing initiatives—based on Pennsylvania’s successful program (described on page 20)—that create public-private partnerships to support

the development, renovation, and expansion of retail outlets offering fresh healthy food (such as grocery stores, farmers’ markets, and cooperatives) should be developed.<sup>144</sup> The success of the Pennsylvania Fresh Food Financing Initiative demonstrates that public investments can leverage significant private investment and dramatically improve healthy food access. Policy replication efforts have been successful in Illinois, New York, and New Orleans, and numerous replication efforts are underway in states across the country. Given the national scope of the problem, this successful state policy should be brought to a national scale so this innovative financing mechanism can be available to all communities.

Successful policies and programs need to be replicated and brought to a greater scale to increase healthy food access. A problem with such broad and negative impacts on health, economy, and equity warrants a focus at all levels—community, state, and national. Now is the time for bold, nationwide efforts to ensure that healthy food choices are available to all.



# 5

## Methods

**B**etween May and July 2009, PolicyLink and The Food Trust created a comprehensive bibliography of studies related to food access and/or food access and health across the United States. Unlike previous review studies, which typically only include published work, we sought to include “grey literature,” or studies, reports, and analyses that are not published in peer-reviewed journals. Public health agencies, community-based organizations, and policy groups frequently conduct primary data analyses of retail food access to inform their activities, but generally do not take the additional steps to submit their studies to journals for publication.

We used the following search methods to compile the bibliography:

- Sent requests for information to relevant listservs, e.g., COMFOOD, the National Neighborhood Indicators Partnership (NNIP), American Evaluation Association (EVALTALK), and agency email lists;
- Wrote to 80 food policy councils across the country that are listed on the North American Food Policy Council website and the Community Food Security Coalition Food Policy Council Database;
- Contacted several foundations and leaders working in the food access field;
- Searched PubMed and other library databases related to the fields of planning, community development, and geography to identify formally published work related to urban and rural food access and health implications; and
- Reviewed reference lists of included studies.

In order to be included, each study needed to meet the following criteria:

- Related directly or indirectly to identifying disparities in access to food retailers or healthy food, and the relationship between food retail and health;
- Either included original research on these topics or reviewed other studies;
- Conducted in the United States (while there have been studies conducted outside of the United States, the persistent trend of residential segregation by race/ethnicity and income in this country makes extrapolation from these studies of limited value); and
- Published during or after 1995 (although we included a few important studies that were conducted between 1990 and 1994).

One hundred and thirty-two studies were ultimately included in the database, of 168 articles initially gathered through the search methods above. We included studies that use random and nonrandom sampling methods and quantitative and qualitative techniques (such as resident interviews). We also included studies that examine single communities of interest (alone or in comparison to other areas). We excluded newsletters, policy statements, and studies that focused on methods and measurements. In one case we found two policy papers, one shorter than the other, based on the same study and data; they were counted as one study in the database.

Of the studies selected for the database, 61 were published in peer-reviewed journals, and 71 fell into the grey literature category. We did not systematically review the evidence quality (e.g., sample size, strength of methods used) of each



study for this review, but note that to date, the studies that examine the health impacts of access to healthy food have primarily used cross-sectional research designs (examining survey data) and there have been few longitudinal or intervention studies.

We also noted some systematic differences between the content of the peer-reviewed studies compared to those conducted by practitioners. None of the practitioner studies examined the relationship between food access and eating behaviors, likely due to the difficulty of accessing data on eating behaviors for small geographies or individuals. Only one of the peer-reviewed studies examined the economic impacts of grocery stores.

## 6

## References

**Peer-Reviewed Journal Articles**

- Alwitt, L., and Donley, T. "Retail Stores in Poor Urban Neighborhoods." *Journal of Consumer Affairs* 31 (1997): 139–164.
- Andrews, M., Kantor, L., Lino, M., and Ripplinger, D. "Using USDA's Thrifty Food Plan to Assess Food Availability and Affordability." *Food Access* 24, no.2 (2001): 45-53.
- Andreyeva, T., Blumenthal, D., Schwartz, M., Long, M., and Brownell, K. "Availability and Prices of Foods Across Stores And Neighborhoods: The Case Of New Haven, Connecticut." *Health Affairs* 27, no.5 (2008): 1381–1388.
- Auchincloss, A., Diez-Roux, A., Brown, D., Erdmann, C., Bertoni, A. "Neighborhood Resources for Physical Activity and Healthy Foods and Their Association with Insulin Resistance." *Epidemiology*, 19 (2008):146–157.
- Baker, E., Schootman, M., Barnidge, E., and Kelly, C. "The Role of Race and Poverty in Access to Foods that Enable Individuals to Adhere to Dietary Guidelines." *Preventing Chronic Disease: Public Health Research, Practice and Policy* 3, no. 3 (2006): 1-11. Available at [http://www.cdc.gov/pcd/issues/2006/jul/05\\_0217.htm](http://www.cdc.gov/pcd/issues/2006/jul/05_0217.htm).
- Beulac, J., Kristjansson, E., and Cummins, S. "A Systematic Review of Food Deserts, 1966-2007." *Preventing Chronic Disease: Public Health Research, Practice and Policy* 6, no. 3 (2009): 1-10. Available at [http://www.cdc.gov/pcd/issues/2009/Jul/08\\_0163.htm](http://www.cdc.gov/pcd/issues/2009/Jul/08_0163.htm).
- Block, D., and Kouba, J. "A Comparison of the Availability and Affordability of a Market Basket in Two Communities in the Chicago Area." *Public Health Nutrition* 9, no.7 (2006): 837–845.
- Bodor, J. N., Rose, D., Farley, T. A., Swalm, C., and Scott, S.K. "Neighbourhood Fruit and Vegetable Availability and Consumption: The Role of Small Food Stores in an Urban Environment." *Public Health Nutrition* 11 (2008): 413-420.
- Caldwell E., Kobayashi, M., DuBow, W., and Wytinck, S. "Perceived Access to Fruits and Vegetables Associated with Increased Consumption." *Public Health Nutrition* (2008): 1743-50.
- Cheadle A., Psaty, B., Curry, S., Wagner, E., Diehr, P., Koepsell, T., and Kristal, A. "Community-Level Comparisons Between Grocery Store Environment and Individual Dietary Practices." *Preventive Medicine* 20, no.2 (1991): 250-61.
- Clifton, K. "Mobility Strategies and Food Shopping for Low-Income Families: A Case Study." *Journal of Planning Education and Research* 23 (2004): 402-413.
- Cotterill, R., and Franklin, A. "The Urban Grocery Store Gap." Food Marketing Policy Center, University of Connecticut. Food Marketing Policy Issue Paper 8 (1995).
- Fisher, B., and Strogatz, D. "Community Measures of Low-Fat Milk Consumption: Comparing Store Shelves with Households." *American Journal of Public Health* 89, no.2 (1999): 235–237.
- Franco, M., Roux, A., Glass, T., Caballero, B., and Brancati, F. "Neighborhood Characteristics and Availability of Healthy Foods in Baltimore." *American Journal of Preventive Medicine* 35, no.6 (2008): 561–567.
- Galvez, M., Morland, K., Raines, C., et al. "Race and Food Store Availability in an Inner-City Neighbourhood." *Public Health Nutrition* 11 (2007): 624–631.
- Giang, T., Karpyn, A., Laurison, H., Hillier, A., Burton, M., and Perry, D. "Closing the Grocery Gap in Underserved Communities: The Creation of the Pennsylvania Fresh Food Financing Initiative." *Journal of Public Health Management and Practice* 14, no.3 (2008): 272-279.

- Gittelsohn, J., Franceschini, M., Rasooly, I., Ries, A., Ho, L., Pavlovich, W., Santos, V., Jennings, S., and Frick, K. "Understanding the Food Environment in a Low-Income Urban Setting: Implications for Food Store Interventions." *Journal of Hunger & Environmental Nutrition* 2, no.2 (2008): 33-50.
- Glanz, K., Sallis, J., Saelens, B., and Frank, L. "Nutrition Environment Measures Survey in Stores (NEMS-S) Development and Evaluation." *American Journal of Preventive Medicine* 32, no.4 (2007): 282-289.
- Helling, A., and Sawicki, D. "Race and Residential Accessibility to Shopping and Services." *Housing Policy Debate* 14, no.1 (2003): 69-101.
- Horowitz, C., Colson, K., Hebert, P., and Lancaster K. "Barriers to Buying Healthy Foods for People with Diabetes: Evidence of Environmental Disparities." *American Journal of Public Health* 94 (2004): 1549-1554.
- Hosler, A., Rajulu, D., Fredrick, B., and Ronsani, A. "Assessing Retail Fruit and Vegetable Availability in Urban and Rural Underserved Communities." *Preventing Chronic Disease* 5, no.4 (2008): 1-9. Available at [http://www.cdc.gov/pcd/issues/2008/oct/07\\_0169.htm](http://www.cdc.gov/pcd/issues/2008/oct/07_0169.htm).
- Hosler, A., Varadarajulu, D., Ronsani, A., Fredrick, B., and Fisher, B. "Low-Fat Milk and High-Fiber Bread Availability in Food Stores in Urban and Rural Communities." *Journal of Public Health Management Practice* 12 (2006): 556-562.
- Inagami, S., Cohen, D., Finch K. B., and Asch, S. "You are Where You Shop: Grocery Store Locations, Weight, and Neighborhoods." *American Journal of Preventive Medicine* 31, no.1 (2006): 10-17.
- Jago, R., Baranowski, T., Baranowski, J., Cullen, K., and Thompson, D. "Distance to Food Stores and Adolescent Male Fruit and Vegetable Consumption: Mediation Effects." *International Journal of Behavioral Nutrition and Physical Activity* 4 (2007): 4-35. Available at <http://www.ijbnpa.org/content/4/1/35>.
- Jetter, K., and Cassidy, D. "The Availability and Cost of Healthier Food Alternatives." *American Journal of Preventive Medicine* 30 (2006): 38-44.
- Kaufman, P. "Rural Poor Have Less Access to Supermarkets, Large Grocery Stores." *Rural Development Perspectives* 13 (1998): 19-26. Available at <http://www.ers.usda.gov/publications/rdp/rdp1098/rdp1098c.pdf>.
- Laraia, B., Siega-Riz, A., Kaufman, J. and Jones, S. "Proximity of Supermarkets Is Positively Associated with Diet Quality Index for Pregnancy." *American Journal of Preventive Medicine* 39 (2004): 869-875.
- Larson, N., Story, M., and Nelson, M. "Neighborhood Environments Disparities in Access to Healthy Foods in the U.S." *American Journal of Preventive Medicine* 36, no.1 (2009): 74-81.
- Lavin, M. "Supermarket Access and Consumer Well-Being: The Case of Pathmark in Harlem." *International Journal of Retail and Distribution Management* 33, no.5 (2005): 388-398.
- Liese, A., Weis, K., Pluto, D., Smith, E., and Lawson, A. "Food Store Types, Availability, and Cost of Foods in a Rural Environment." *Journal of the American Dietetic Association* 107 (2007): 1916-1923.
- Liu, G., Wilson, J., Qi, R., and Ying, J. "Green Neighborhoods, Food Retail and Childhood Overweight: Differences by Population Density." *American Journal of Health Promotion* 21, no.4 (2007): 317-325.
- Moore, L., and Roux, A. "Associations of Neighborhood Characteristics with the Location and Type of Food Stores." *American Journal of Public Health* 96 (2006): 325-331.
- Moore, L., Roux, A., and Brines, S. "Comparing Perception-Based and Geographic Information System (GIS)-Based Characterizations of the Local Food Environment." *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 85, no.2 (2008).
- Moore, L., Roux, A., Nettleton, J., and Jacobs, D. "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." *American Journal of Epidemiology* 167 (2008): 917-924.
- Morland, K., and Filomena, S. "Disparities in the Availability of Fruits and Vegetables Between Racially Segregated Urban Neighbourhoods." *Public Health Nutrition* 10, no.12 (2007): 1481-1489.
- Morland, K., Roux, A., and Wing, S. "Supermarkets, Other Food Stores, and Obesity: The Atherosclerosis

- Risk in Communities Study." *American Journal of Preventive Medicine* 30, no.4 (2006): 333-339.
- Morland, K., and Evenson, K. "Obesity Prevalence and the Local Food Environment." *Health & Place* 15, no.2 (2009): 491-495.
- Morland, K., Wing, S., Roux, A., and Poole, C. "Neighborhood Characteristics Associated with the Location of Food Stores and Food Service Places." *American Journal of Preventive Medicine* 22 (2002): 23-29.
- Morland, K., Wing, S., and Roux, A. "The Contextual Effect of the Local Food Environment on Residents' Diets: The Atherosclerosis Risk in Communities Study." *American Journal of Public Health* 92, no.11 (2002): 1761-67.
- Morton, L., and Blanchard, T. "Starved for Access: Life in Rural America's Food Deserts." *Rural Realities* 1, no.4 (2007). Available at [www.ruralsociology.org/pubs/ruralrealities/issue4.html](http://www.ruralsociology.org/pubs/ruralrealities/issue4.html).
- Nayga, M., and Weinberg, Z. "Supermarket Access in the Inner Cities." *Journal of Retailing and Consumer Services* 6, no.3 (1999): 141-145.
- Powell, L., Auld, C., Chaloupka, F., O'Malley, P. M., and Johnston, L. D. "Associations Between Access to Food Stores and Adolescent Body Mass Index," *American Journal of Preventive Medicine* 33, no.4 (2007).
- Powell, L., Slater, S., Mirtcheva, D., Bao, Y., and Chaloupka, F. "Food Store Availability and Neighborhood Characteristics in the United States." *American Journal of Preventive Medicine* 44 (2007): 189-195.
- Raja, S., Ma, C., and Yadav, P. "Beyond Food Deserts: Measuring and Mapping Racial Disparities in Neighborhood Food Environments." *Journal of Planning Education and Research* 27 (2008): 469-482.
- Rose, D., and Richards, R. "Food Store Access and Household Fruit and Vegetable Use among Participants in the US Food Stamp Program." *Public Health Nutrition* 7, no. 8 (2004): 1081-1088.
- Rundle, A., Neckerman, K., Freeman, L., Lovasi, G., Purciel, M., Quinn, J., Richards, C., Sircar, N., and Weiss, C. "Neighborhood Food Environment and Walkability Predict Obesity in New York City." *Environmental Health Perspectives* 117 (2009): 442-447.
- Sekhobo, J., and Berney, B. "The Relation of Community Occupational Structure and Prevalence of Obesity in New York City Neighborhoods—An Ecological Analysis." *Journal of Hunger & Environmental Nutrition* 3, no.1 (2008): 76-83.
- Sharkey J., and Horel, S. "Neighborhood Socioeconomic Deprivation and Minority Composition are Associated with Better Potential Spatial Access to the Ground-Truthed Food Environment in a Large Rural Area." *The Journal of Nutrition* 138 (2008): 620-627.
- Sharkey, J., Scott, H., Daikwon, H., and Huber, J. "Association Between Neighborhood Need and Spatial Access to Food Stores and Fast Food Restaurants in Neighborhoods of Colonias." *International Journal of Health Geographics* 8, no.9 (2009): 1-17.
- Short, A., Guthman, J., and Raskin, S. "Food Deserts, Oases, or Mirages? Small Markets and Community Food Security in the San Francisco Bay Area." *Journal of Planning Education and Research* 26 (2007): 352.
- Sloane, D., Diamount, A., Lewis, L, et al. "Improving the Nutritional Resource Environment for Healthy Living Through Community-Based Participatory Research." *The Journal of General Internal Medicine* 18 (2003): 568-575.
- Small, M. L., and McDermott, M. "The Presence of Organizational Resources in Poor Urban Neighborhoods: An Analysis of Average and Contextual effects." *Social Forces* 84 (2006): 1697-1724.
- Sturm, R. "Disparities in the Food Environment Surrounding U.S. Middle and High Schools." *American Journal of Public Health* 122 (2008): 681-690.
- Sturm, R., and Datar, A. "Body Mass Index in Elementary School Children, Metropolitan Area Food Prices and Food Outlet Density." *Journal of Public Health* 119 (2005): 1059-1068.
- Wang, M., Kim, S., Gonzalez, A., MacLeod, K., and Winkleby, M. "Socioeconomic and Food-Related Physical Characteristics of the Neighborhood Environment are Associated with Body Mass Index." *Journal of Epidemiology and Community Health* 61 (2007): 491-498.
- Zenk, S., and Powell, L. "U.S. Secondary Schools and Food Outlets." *Health & Place*, 14 (2008): 336-346.

Zenk, S. H., Schulz, A., Hollis-Neely, T., Campbell, R. T., Watkins, G., Nwankwo, R., and Odums-Young, A. "Fruit and Vegetable Intake in African Americans Income and Store Characteristics." *American Journal of Preventive Medicine* 20, no.1 (2005).

Zenk, S., Schulz, A., Israel, B., James, S., Bao, S., and Wilson, M. "Neighborhood Racial Composition, Neighborhood Poverty, and the Spatial Accessibility of Supermarkets in Metropolitan Detroit." *American Journal of Public Health* 95 (2005): 660–667.

Zenk, S., Schulz, A., Israel, B., Sherman, J., Bao, S., and Wilson, M. "Fruit and Vegetable Access Differs by Community Racial Composition and Socioeconomic Position in Detroit, Michigan." *Ethnicity & Disease* 16 (2006): 75-280.

### Grey Literature

Alameda Point Collaborative, *Alameda Point Collaborative Food Security Findings and Recommendations*. Alameda, CA: Alameda Point Collaborative, 2006. Available at [http://www.apcollaborative.org/images/APC\\_GrowingYouth.pdf](http://www.apcollaborative.org/images/APC_GrowingYouth.pdf).

Alberti, P., Hadi, E., Cespedes, A., Grimshaw, V., and Bedell, J. *Farmers' Markets—Bringing Fresh, Nutritious Food to the South Bronx*. New York, NY: New York City Department of Health and Mental Hygiene, 2008. Available at <http://www.ci.nyc.ny.us/html/doh/downloads/pdf/dpho/dpho-farmersmarket.pdf>.

Beatley, T., et al. *The Charlottesville Region Food System: A Preliminary Assessment*. Charlottesville, VA: University of Virginia, 2006. Available at [http://www.virginia.edu/ien/docs/06FINALRept\\_Jun06\\_CvilleFood.pdf](http://www.virginia.edu/ien/docs/06FINALRept_Jun06_CvilleFood.pdf).

Birnbach, K. *Food for Thought. Access and Availability of Health Food in East Austin*. Austin, TX: University of Texas at Austin, 2008.

Bjorn, A., Lee, B., Born, B., Monsivais, P., Kantor, S., Sayre, R. *At the Table with the AFPC. Mapping Food Insecurity and Access in Seattle and King County Issue*. Seattle, WA: Seattle and King County Acting Food Policy Council, 2008.

Blanchard, T., and Lyson, T. "Access to Low Cost Groceries in Nonmetropolitan Counties: Large Retailers and the Creation of Food Deserts." Mississippi, MS: Southern Rural

Development Center, 2006. Available at <http://srdc.msstate.edu/measuring/blanchard.pdf>.

Blanchard, T., and Lyson, T. "Food Availability & Food Deserts in the Nonmetropolitan South." Mississippi, MS: Southern Rural Development Center, 2006. Available at [http://srdc.msstate.edu/focusareas/health/fa/fa\\_12\\_blanchard.pdf](http://srdc.msstate.edu/focusareas/health/fa/fa_12_blanchard.pdf).

Blanchard, T., and Lyson, T. "Retail Concentration, Food Deserts, and Food Disadvantaged Communities in Rural America." Mississippi, MS: Southern Rural Development Center, 2009. Available at [http://srdc.msstate.edu/focusareas/health/fa/blanchard02\\_final.pdf](http://srdc.msstate.edu/focusareas/health/fa/blanchard02_final.pdf).

California Center for Public Health Advocacy. *Searching for Healthy Food: The Food Landscape in California Cities and Counties*. Davis, CA: California Center for Public Health Advocacy, 2007.

California Center for Public Health Advocacy, PolicyLink, and the UCLA Center for Health Policy Research. *Designed for Disease: The Link Between Local Food Environments and Obesity and Diabetes*. Davis, CA: California Center for Public Health Advocacy, 2008. Available at <http://www.policylink.org/documents/DesignedforDisease.pdf>.

Chen, S., Raymond, F., and Snyder, S. "Obesity in Urban Food Markets: Evidence from Georeferenced Micro Data." West Lafayette, IN: Purdue University, 2009. Available at [http://www.npc.umich.edu/news/events/food-access/chen\\_et\\_al\\_revised.pdf](http://www.npc.umich.edu/news/events/food-access/chen_et_al_revised.pdf).

City Harvest. *Mount Hope Community Food Assessment Report*. New York, NY: City Harvest, 2009. Available at [http://www.cityharvest.org/images/pdf/Mount\\_Hope\\_CFA.pdf](http://www.cityharvest.org/images/pdf/Mount_Hope_CFA.pdf).

City Harvest. *The Melrose Community Food Assessment*. New York, NY: City Harvest, 2009. Available at [http://www.cityharvest.org/images/pdf/Melrose\\_CFA\\_2007.pdf](http://www.cityharvest.org/images/pdf/Melrose_CFA_2007.pdf).

Community Farm Alliance. *Bridging the Divide. Growing Self-Sufficiency in Our Food Supply: Community Food Assessment. A Regional Approach for Food Systems in Louisville KY*. Frankfort, KY: Community Farm Alliance, 2007. Available at <http://www.communityfarmalliance.org/BridgingTheDivide.pdf>.

Community Health Councils Inc. *Does Race Define What's in the Shopping Cart? Community Health and Education*. Los Angeles, CA: Community Health Councils Inc., 2008.

- D.C. Hunger Solutions. *Healthy Food, Healthy Communities: An Assessment and Scorecard of Community Food Security In the District of Columbia*. Washington, DC: D.C. Hunger Solutions, 2006. Available at <http://www.dchunger.org/pdf/healthfoodcomm.pdf>.
- Fresno Metro Ministry. *Fresno Fresh Access: Community Food Assessment Report. 2003-2005*. Fresno, CA: Fresno Metro Ministry, 2005. Available at [http://fresnometmin.org/fmm/pdfs/CFA\\_Summary\\_9-14-05.pdf](http://fresnometmin.org/fmm/pdfs/CFA_Summary_9-14-05.pdf).
- Frontier Nutrition Project. *Trinity County Food Security Assessment*. Weaverville, CA: Frontier Nutrition Project, 2001. Available at [http://www.foodsecurity.org/cfa/trinity\\_cty\\_food\\_assessment.pdf](http://www.foodsecurity.org/cfa/trinity_cty_food_assessment.pdf).
- Fulfroost, B. *Mapping the Markets: The Relative Density of Retail Food Stores in Densely Populated Census Blocks in the Central Coast Region of California*. Santa Cruz, CA: University of California, Santa Cruz, 2006. Available at <http://casfs.ucsc.edu/research/MappingTheMarkets.pdf>.
- Gallagher, M. *The Chicago Food Desert Report*. Chicago, IL: Mari Gallagher Research and Consulting Group, 2009. Available at [www.marigallagher.com](http://www.marigallagher.com).
- Gallagher, M. *Examining the Impact of Food Deserts on Public Health in Chicago*. Chicago, IL: Mari Gallagher Research and Consulting Group, 2006. Available at [http://www.marigallagher.com/site\\_media/dynamic/project\\_files/1\\_ChicagoFoodDesertReport-Full\\_.pdf](http://www.marigallagher.com/site_media/dynamic/project_files/1_ChicagoFoodDesertReport-Full_.pdf).
- Gallagher, M. *Examining the Impact of Food Deserts on Public Health in Detroit*. Chicago, IL: Mari Gallagher Research and Consulting Group, 2007. Available at [http://www.marigallagher.com/site\\_media/dynamic/project\\_files/1\\_DetroitFoodDesertReport\\_Full.pdf](http://www.marigallagher.com/site_media/dynamic/project_files/1_DetroitFoodDesertReport_Full.pdf).
- Goldstein, I., Loethen, L., Kako, E., and Califano, C. *CDFI Financing of Supermarkets in Underserved Communities: A Case Study*. Philadelphia, PA: The Reinvestment Fund, 2008. Available at <http://www.trfund.com/resource/downloads/policypubs/CDFIStudySummary.pdf>.
- Gordon, C., Ghai, N., Purciel, M., Talwalkar, A., and Goodman, A. *Eating Well in Harlem: How Available Is Healthy Food?* New York, NY: New York City Department of Health and Mental Hygiene, 2007.
- Graham, R., Kaufman, L., Novoa, Z., and Karpati, A. *Eating In, Eating Out, Eating Well: Access to Healthy Food in North and Central Brooklyn*. New York, NY: New York City Department of Health and Mental Hygiene, 2006.
- Hartford Food System. *Connecticut's Supermarkets: Can New Strategies Address the Geographic Gaps?* Hartford, CT: Hartford Food System, 2006. Available at <http://www.hartfordfood.org/pubs/supermarkets.pdf>.
- Hatfield, D., and Gunnell, A. *Food Access in California Today*. Portland, OR: Ecotrust, 2005. Available at [http://www.vividpicture.net/documents/12\\_Food\\_Access\\_in\\_CA\\_Today.pdf](http://www.vividpicture.net/documents/12_Food_Access_in_CA_Today.pdf).
- Hrisanti, A., Chong, T., Dang, J., et al. *The East Baltimore Nutritional Environment: Formative Research with Community Leaders*. Baltimore, MD: Healthy Stores Project, 2003. Available at <http://www.healthystores.org/images/downloads/eastbalt.pdf>.
- Hunger Task Force of Milwaukee. *Hunger in Milwaukee, Some Food for Thought*. Milwaukee, WI: Hunger Task Force of Milwaukee, 2002. Available at [http://www.hungertaskforce.org/userimages/publications\\_foodforthought\\_report.pdf](http://www.hungertaskforce.org/userimages/publications_foodforthought_report.pdf).
- Kaiser, C. *Healthy Food Access in Minneapolis: Initial Conversations with Residents*. Minneapolis, MN: Institute for Agriculture and Trade Policy, 2009. Available at <http://www.iatp.org/iatp/publications.cfm?accountID=258&refID=104952>.
- Kaufman, L., and Karpati, A. *Food Matters: What Bushwick Families' Food Habits Teach Us about Childhood Obesity*. New York, NY: New York City Department of Health and Mental Hygiene, 2007.
- King, R., Leibtag, E., and Behl, A. "Supermarket Characteristics and Operating Costs In Low-Income Areas," *Agricultural Economics Reports*. Washington, DC: United States Department of Agriculture, Economic Research Service, 2004.
- Lopez, R. *Community Food Security in Connecticut: An Evaluation and Ranking of 169 Towns*. Storrs, CT: Hartford Food System, 2005. Available at [http://www.hartfordfood.org/pubs/cfs\\_connecticut.pdf](http://www.hartfordfood.org/pubs/cfs_connecticut.pdf).
- Manjarrez, C., and Cigna, J. *Food Stamp Participation and Market Access in the District of Columbia*. Discussion Brief No. 3. Washington, DC: Urban Institute, 2006. Available at [http://www.urban.org/UploadedPDF/311343\\_dcfoodstamp.pdf](http://www.urban.org/UploadedPDF/311343_dcfoodstamp.pdf).
- Morton, L., Oakland, J., Bitto, E., Sand, M., and Michaels, B. *Iowa Community Food Assessment*

- Project Report 2001-02*. Ames, IA: Iowa State University Family Nutrition Program, 2002. Available at <http://www.soc.iastate.edu/extension/pub/tech/iowaCommunityFoodAssessmentReport.pdf>.
- Neckerman, K., Bader, M., Purciel, M., and Yousefzadeh, P. "Measuring Food Access in Urban Areas." New York, NY: Columbia University, 2009. Available at [http://www.npc.umich.edu/news/events/food-access/neckerman\\_et\\_al.pdf](http://www.npc.umich.edu/news/events/food-access/neckerman_et_al.pdf).
- New Mexico Food and Agriculture Policy Council. *Closing New Mexico's Rural Food Gap*. Santa Fe, NM: New Mexico Food and Agriculture Policy Council, 2006. Available at [http://www.farmtotablenm.org/closing\\_nm\\_food\\_gap\\_4pgs.pdf](http://www.farmtotablenm.org/closing_nm_food_gap_4pgs.pdf).
- New York City Department of City Planning. *Going to Market: New York City's Neighborhood Grocery Store and Supermarket Shortage*. New York, NY, 2008. Available at <http://www.nyc.gov/html/dcp/html/supermarket/index.shtml>.
- Papavasiliou, F., Essig, C., Barlett, P., and Rolls, A. *Is Healthy Eating Possible in DeKalb County? An Assessment of Food Availability, Access, and Cost in Two Neighborhoods*. Atlanta Local Food Initiative. Decatur, GA: DeKalb County Board of Health, 2007.
- Rose, D., Bodor, N., Swalm, C., Rice, J., Farley, T., and Hutchinson, P. *Deserts in New Orleans? Illustrations of Urban Food Access and Implications for Policy*. Ann Arbor, MI: University of Michigan National Poverty Center/USDA Economic Research Service, 2009. Available at [http://www.npc.umich.edu/news/events/food-access/rose\\_et\\_al.pdf](http://www.npc.umich.edu/news/events/food-access/rose_et_al.pdf).
- Sacramento Hunger Coalition. *The Avondale/Glen Elder Community Food Assessment. Food Security in a South Sacramento Neighborhood*. Sacramento, CA: Sacramento Hunger Coalition, 2004.
- San Francisco Food Alliance. *2005 San Francisco Collaborative Food System Assessment*. San Francisco, CA: San Francisco Food Alliance, 2005. Available at <http://www.sffoodsystems.org/pdf/FSA-online.pdf>.
- Shaffer, A. *The Persistence of L.A.'s Grocery Gap: The Need for a New Food Policy and Approach to Market Development*. Occidental, CA: Center for Food and Justice, 2002. Available at [www.departments.oxy.edu/uepi/publications/the\\_persistence\\_of.htm](http://www.departments.oxy.edu/uepi/publications/the_persistence_of.htm).
- Sharkey, J., and Horel, S. "Characteristics of Potential Spatial Access to a Variety of Fruits and Vegetables in a Large Rural Area." College Station, TX: Texas A&M Health Science Center, 2009. Available at <http://www.npc.umich.edu/news/events/food-access/sharkey.pdf>.
- Smith, D. *Food Deserts in the Willamette: A Study of Food Access in Lane County, Oregon*. [Master's thesis]. Eugene, OR: University of Oregon, 2003.
- Social Compact Inc., *Baltimore Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods*. Washington, DC: Social Compact Inc., 2008.
- Social Compact Inc., *Cincinnati Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods*. Washington, DC: Social Compact Inc., 2007.
- Social Compact Inc., *Detroit Grocery Initiative Catalyzing Grocery Retail Investment in Inner-City Neighborhoods*. Washington, DC: Social Compact Inc., 2008.
- Social Compact Inc., *City of Fresno Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods*. Washington, DC: Social Compact Inc., 2009.
- Social Compact Inc., *City of Tampa Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods*. Washington, DC: Social Compact Inc., 2008.
- Social Compact Inc., *Harlem Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods*. Washington, DC: Social Compact Inc., 2008.
- Social Compact Inc., *Houston Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods*. Washington, DC: Social Compact Inc., 2007.
- Social Compact Inc., *Los Angeles Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods*. Washington, DC: Social Compact Inc., 2008.
- Social Compact Inc., *Louisville Metro Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods*. Washington, DC: Social Compact Inc., 2008.
- Social Compact Inc., *San Francisco Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods*. Washington, DC: Social Compact Inc., 2008.



Social Compact Inc., *Southeast Fort Worth Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods*. Washington, DC: Social Compact Inc., 2008.

Social Compact Inc., *Washington DC Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods*. Washington, DC: Social Compact Inc., 2008.

Southeast Food Access Working Group. *Food Preferences in San Francisco's Southeast Sector: A Survey Conducted by the Southeast Food Access Working Group*. San Francisco, CA: Southeast Food Access Working Group, 2007. Available at <http://www.sfgov.org/site/uploadedfiles/shapeupsf/SEFASurveyReport-FINAL.pdf>.

Sparks, A., Bania, N., and Leete, L. "Finding Food Deserts: Methodology and Measurement of Food Access in Portland, Oregon." Washington, DC: National Poverty Center and USDA Economic Research Service, 2009.

Sustainable Food Center. *Access Denied. An Analysis of Problems Facing East Austin Residents in Their Attempts To Obtain Affordable, Nutritious Food*. Austin, TX: Sustainable Food Center, 1995. Available at [http://www.sustainablefoodcenter.org/library/Access\\_Denied.pdf](http://www.sustainablefoodcenter.org/library/Access_Denied.pdf).

Tanaka, K., Mooney, P., et al. *Lexington Community Food Assessment: 2004-2007*. Lexington, KY: University of Kentucky, 2008. Available at <http://www.uky.edu/Ag/CLD/doc/CommunityFoodAssessmentReport04-07.pdf>.

Tchumtchoua, A. *Town-Level Assessment of Community Food Security in Connecticut*. Storrs, CT: Food Marketing Policy Center, 2005. Available at [http://digitalcommons.uconn.edu/cgi/viewcontent.cgi?article=1000&context=fpmc\\_mono](http://digitalcommons.uconn.edu/cgi/viewcontent.cgi?article=1000&context=fpmc_mono).

The Food Trust. *Stimulating Supermarket Development: A New Day for Philadelphia*. Philadelphia, PA: The Food Trust, 2004. Available at [http://www.thefoodtrust.org/pdf/SupermktReport\\_F.pdf](http://www.thefoodtrust.org/pdf/SupermktReport_F.pdf).

The Food Trust. *The Need for More Grocery Stores in New York. Special Report*. Philadelphia, PA: The Food Trust, 2008. Available at [http://www.thefoodtrust.org/catalog/download.php?product\\_id=147](http://www.thefoodtrust.org/catalog/download.php?product_id=147).

The Food Trust. *The Need for More Supermarkets in Chicago*. Philadelphia, PA: The Food Trust, 2008. Available at [http://www.thefoodtrust.org/catalog/download.php?product\\_id=147](http://www.thefoodtrust.org/catalog/download.php?product_id=147).

The Reinvestment Fund. *The Economic Impacts of Supermarkets on their Surrounding Communities*, Philadelphia, PA: The Reinvestment Fund, 2008. <http://www.trfund.com/resource/downloads/policypubs/supermarkets.pdf>.

Thurman, S. *Measuring Access to Food in Charlottesville, VA*. Charlottesville, VA: University of Virginia, 2007. Available at <http://www.virginia.edu/ien/docs/07FoodClassFINAL%20PAPERS/AccessTransportation.pdf>.

Tsai, S. *Needs Assessment: Access to Nutritious Foods in East Oakland and South Hayward*. [Master's Thesis]. Berkeley, CA: University of California at Berkeley School of Public Health and Alameda County Public Health Department, 2003.

Unger, S., and Wooten, H. *A Food Systems Assessment For Oakland, CA: Toward A Sustainable Food Plan*. [Master's Thesis]. Berkeley, CA: Oakland Mayor's Office of Sustainability and University of California, Berkeley, 2006.

Urban and Environmental Policy Institute. *Food Access in Central and South Los Angeles: Mapping Injustice, Agenda for Action. 2007: A Report on Project CAFE: Community Action on Food Environments*. Los Angeles, CA: Urban and Environmental Policy Institute 2007. Available at [http://departments.oxy.edu/uepi/cfj/publications/project\\_cafe.pdf](http://departments.oxy.edu/uepi/cfj/publications/project_cafe.pdf).

USDA Economic Research Service. *Access to Affordable and Nutritious Food: Measuring and Understanding Food Deserts and Their Consequences. Report to Congress*. Washington, DC: U.S. Department of Agriculture, 2009. Available at <http://www.ers.usda.gov/Publications/AP/AP036/AP036.pdf>.

Williams, D. *Food Security and Access in Akron Ohio*. [Master's Thesis]. Akron, OH: University of Akron, 2002.

# 7

## Notes

<sup>1</sup> Martinez, S. "The U.S. Food Marketing System: Recent Developments, 1997-2006," Washington, DC: United States Department of Agriculture, Economic Research Service, 2007. Available at [www.ers.usda.gov/publications/err42/](http://www.ers.usda.gov/publications/err42/).

<sup>2</sup> Contact the authors for summaries of the study findings that can be sorted by place and subtopic (e.g. race, income, eating behaviors).

<sup>3</sup> Beaulac, J., Kristjansson, E., and Cummins, S. "A Systematic Review of Food Deserts, 1966-2007." *Preventing Chronic Disease: Public Health Research, Practice and Policy* 6, no.3 (2009): 1-10. Available at [http://www.cdc.gov/pcd/issues/2009/Jul/08\\_0163.htm](http://www.cdc.gov/pcd/issues/2009/Jul/08_0163.htm).

<sup>4</sup> Larson, N., Story, M., and Nelson, M. "Neighborhood Environments Disparities in Access to Healthy Foods in the U.S." *American Journal of Preventative Medicine* 36, no.1 (2009): 74-81.

<sup>5</sup> Nayga, M., and Weinberg, Z. "Supermarket Access in the Inner Cities." *Journal of Retailing and Consumer Services* 6, no.3 (1999): 141-145.

<sup>6</sup> One study interviewed Minneapolis residents about access to healthy food and found challenges, but did not examine differences according to their race, income, or neighborhood of residence. Kaiser, C. *Healthy Food Access in Minneapolis: Initial Conversations with Residents*, Minneapolis, MN: Institute for Agriculture and Trade Policy, 2009. Available at <http://www.iatp.org/iatp/publications.cfm?accountID=258&refID=104952>.

<sup>7</sup> Alameda Point Collaborative. *Alameda Point Collaborative Food Security Findings and Recommendations*. Alameda, CA: Alameda Point Collaborative, 2006. Available at [http://www.apcollaborative.org/images/APC\\_GrowingYouth.pdf](http://www.apcollaborative.org/images/APC_GrowingYouth.pdf).

<sup>8</sup> Alwitt, L., and Donley, T. "Retail Stores in Poor Urban Neighborhoods." *Journal of Consumer Affairs* 31 (1997): 139-64.

<sup>9</sup> Andreyeva, T., Blumenthal, D., Schwartz, M., Long, M., and Brownell, K. "Availability and

Prices of Foods Across Stores and Neighborhoods: The Case Of New Haven, Connecticut." *Health Affairs* 27, no.5 (2008): 1381-1388.

<sup>10</sup> Baker, E., Schootman, M., Barnidge, E., and Kelly, C. "The Role of Race and Poverty in Access to Foods that Enable Individuals to Adhere to Dietary Guidelines." *Preventing Chronic Disease: Public Health Research, Practice and Policy* 3, no.3 (2006): 1-11. Available at [http://www.cdc.gov/pcd/issues/2006/jul/05\\_0217.htm](http://www.cdc.gov/pcd/issues/2006/jul/05_0217.htm).

<sup>11</sup> Birnbach, K. *Food for Thought. Access and Availability of Health Food in East Austin*. Austin, TX: University of Texas at Austin, 2008.

<sup>12</sup> Bjorn, A., Lee, B., Born, B., Monsivais, P., Kantor, S., and Sayre, R. *At the Table with the AFPC. Mapping Food Insecurity and Access in Seattle and King County Issue*. Seattle, WA: Seattle and King County Acting Food Policy Council, 2008.

<sup>13</sup> Bodor, J. N., Rose, D., Farley, T. A., Swalm, C., and Scott, S. K. "Neighbourhood Fruit and Vegetable Availability and Consumption: The Role of Small Food Stores in an Urban Environment." *Public Health Nutrition* 11 (2008): 413-420.

<sup>14</sup> California Center for Public Health Advocacy, PolicyLink, and the UCLA Center for Health Policy Research. *Designed for Disease: The Link Between Local Food Environments and Obesity and Diabetes*. Davis, CA: California Center for Public Health Advocacy, 2008. Available at <http://www.policylink.org/documents/DesignedforDisease.pdf>.

<sup>15</sup> Chung, C., and Myers, J. "Do the Poor Pay More for Food? An Analysis of Grocery Store Availability and Food Price Disparities." *Journal of Consumer Affairs* 33 (1999): 276-296.

<sup>16</sup> Clifton, K. "Mobility Strategies and Food Shopping for Low-Income Families: A Case Study." *Journal of Planning Education and Research* 23 (2004): 402-413.

<sup>17</sup> Community Farm Alliance. *Bridging the Divide. Growing Self-Sufficiency in our Food*

Supply: *Community Food Assessment. A Regional Approach for Food Systems in Louisville KY*. Frankfort, KY: Community Farm Alliance, 2007. Available at <http://www.communityfarmalliance.org/BridgingTheDivide.pdf>.

<sup>18</sup> Community Health Councils Inc. *Does Race Define What's in the Shopping Cart? Community Health and Education*. Los Angeles, CA: Community Health Councils Inc., 2008.

<sup>19</sup> Cotterill, R., and Franklin, A. "The Urban Grocery Store Gap." Food Marketing Policy Center, University of Connecticut. *Food Marketing Policy Issue Paper 8* (1995).

<sup>20</sup> D.C. Hunger Solutions. *Healthy Food, Healthy Communities: An Assessment and Scorecard of Community Food Security In the District of Columbia*. Washington, DC: D.C. Hunger Solutions, 2006. Available at <http://www.dchunger.org/pdf/healthfoodcomm.pdf>.

<sup>21</sup> Fisher, B., and Strogatz, D. "Community Measures of Low-Fat Milk Consumption: Comparing Store Shelves with Households." *American Journal of Public Health* 89, no.2 (1999): 235–237.

<sup>22</sup> Urban and Environmental Policy Institute. *Food Access in Central and South Los Angeles: Mapping Injustice, Agenda for Action. A Report on Project CAFE: Community Action on Food Environments*. Los Angeles, CA: Urban and Environmental Policy Institute, 2007. Available at [http://departments.oxy.edu/uepi/cfj/publications/project\\_cafe.pdf](http://departments.oxy.edu/uepi/cfj/publications/project_cafe.pdf).

<sup>23</sup> Franco, M., Roux, A., Glass, T., Caballero, B., and Brancati, F. "Neighborhood Characteristics and Availability of Healthy Foods in Baltimore." *American Journal of Preventive Medicine* 35, no.6 (2008): 561–567.

<sup>24</sup> Gallagher, M. *Examining the Impact of Food Deserts on Public Health in Chicago*. Chicago, IL: Mari Gallagher Research and Consulting Group, 2006. Available at [http://www.marigallagher.com/site\\_media/dynamic/project\\_files/1\\_ChicagoFoodDesertReport-Full\\_.pdf](http://www.marigallagher.com/site_media/dynamic/project_files/1_ChicagoFoodDesertReport-Full_.pdf).

<sup>25</sup> Gallagher, M. *The Chicago Food Desert Report*. Chicago, IL: Mari Gallagher Research and Consulting Group, 2009. Available at [www.marigallagher.com](http://www.marigallagher.com).

<sup>26</sup> Galvez, M., Morland, K., Raines, C., et al. "Race and Food Store Availability in an Inner-City Neighbourhood." *Public Health Nutrition* 11 (2007): 624–631.

<sup>27</sup> Giang, T., Karpyn, A., Laurison, H., Hillier, A., Burton, M., and Perry, D. "Closing the Grocery Gap in Underserved Communities: The Creation of the Pennsylvania Fresh Food Financing Initiative." *Journal of Public Health Management and Practice* 14, no.3 (2008): 272-279.

<sup>28</sup> Glanz, K., Sallis, J., Saelens, B., and Frank, L. "Nutrition Environment Measures Survey in Stores (NEMS-S) Development and Evaluation." *American Journal of Preventive Medicine* 32, no. 4 (2007): 282-289.

<sup>29</sup> Hartford Food System. *Connecticut's Supermarkets: Can New Strategies Address the Geographic Gaps?* Hartford, CT: Hartford Food System, 2006. Available at <http://www.hartfordfood.org/pubs/supermarkets.pdf>.

<sup>30</sup> Helling, A., and Sawicki, D. "Race and Residential Accessibility to Shopping and Services." *Housing Policy Debate* 14, no.1 (2003): 69-101.

<sup>31</sup> Horowitz, C., Colson, K., Hebert, P., and Lancaster, K. "Barriers to Buying Healthy Foods for People with Diabetes: Evidence of Environmental Disparities." *American Journal of Public Health* 94 (2004): 1549–1554.

<sup>32</sup> Hosler, A., Rajulu, D., Fredrick, B., and Ronsani, A. "Assessing Retail Fruit and Vegetable Availability in Urban and Rural Underserved Communities." *Preventing Chronic Disease* 5, no.4 (2008): 1-9. Available at [http://www.cdc.gov/pcd/issues/2008/oct/07\\_0169.htm](http://www.cdc.gov/pcd/issues/2008/oct/07_0169.htm).

<sup>33</sup> Hosler, A., Varadarajulu, D., Ronsani, A., Fredrick, B., and Fisher, B. "Low-Fat Milk and High-Fiber Bread Availability in Food Stores in Urban and Rural Communities." *Journal of Public Health Management Practice* 12 (2006): 556–562.

<sup>34</sup> Inagami, S., Cohen, D., Finch K. B., and Asch, S. "You are Where you Shop: Grocery Store Locations, Weight, and Neighborhoods." *American Journal of Preventive Medicine* 31, no.1 (2006): 10-17.

<sup>35</sup> Jetter, K., and Cassidy, D. "The Availability and Cost of Healthier Food Alternatives." *American Journal of Preventive Medicine* 30 (2006): 38–44.

<sup>36</sup> Kaufman, P. "Rural Poor Have Less Access to Supermarkets, Large Grocery Stores." *Rural Development Perspectives* 13 (1998): 19–26. Available at <http://www.ers.usda.gov/publications/rdp/rdp1098/rdp1098c.pdf>.

- <sup>37</sup> Manjarrez, C., and Cigna, J. *Food Stamp Participation and Market Access in the District of Columbia*. Discussion Brief No. 3. Washington, DC: Urban Institute, 2006. Available at [http://www.urban.org/UploadedPDF/311343\\_dcfoodstamp.pdf](http://www.urban.org/UploadedPDF/311343_dcfoodstamp.pdf).
- <sup>38</sup> Moore, L., and Roux, A. "Associations of Neighborhood Characteristics with the Location and Type of Food Stores." *American Journal of Public Health* 96 (2006): 325–331.
- <sup>39</sup> Moore, L., Roux, A., and Brines, S. "Comparing Perception-Based and Geographic Information System (GIS)-Based Characterizations of the Local Food Environment." *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 85, no.2 (2008).
- <sup>40</sup> Morland, K., and Filomena, S. "Disparities in the Availability of Fruits and Vegetables Between Racially Segregated Urban Neighbourhoods." *Public Health Nutrition* 10, no.12 (2007): 1481-1489.
- <sup>41</sup> Morland, K., Wing, S., Roux, A., and Poole, C. "Neighborhood Characteristics Associated with the Location of Food Stores and Food Service Places." *American Journal of Preventive Medicine* 22 (2002): 23–29.
- <sup>42</sup> Morland, K., Wing, S., and Roux, A. "The Contextual Effect of the Local Food Environment on Residents' Diets: The Atherosclerosis Risk in Communities Study." *American Journal of Public Health* 92, no.11 (2002): 1761-1767.
- <sup>43</sup> Morton, L., and Blanchard, T. "Starved for Access: Life in Rural America's Food Deserts." *Rural Realities* 1, no.4 (2007). Available at [www.ruralsociology.org/pubs/ruralrealities/issue4.html](http://www.ruralsociology.org/pubs/ruralrealities/issue4.html).
- <sup>44</sup> Neckerman, K., Bader, M., Purciel, M., and Yousefzadeh, P. *Measuring Food Access in Urban Areas*. New York, NY: Columbia University, 2009. Available at [http://www.npc.umich.edu/news/events/food-access/neckerman\\_et\\_al.pdf](http://www.npc.umich.edu/news/events/food-access/neckerman_et_al.pdf).
- <sup>45</sup> Powell, L., Auld, C., Chaloupka, F., O'Malley, P. M., and Johnston, L. D. "Associations Between Access to Food Stores and Adolescent Body Mass Index," *American Journal of Preventive Medicine* 33, no.4 (2007).
- <sup>46</sup> Powell, L., Slater, S., Mirtcheva, D., Bao, Y., and Chaloupka, F. "Food Store Availability and Neighborhood Characteristics in the United States." *American Journal of Preventive Medicine* 44 (2007): 189–195.
- <sup>47</sup> Rundle, A., Neckerman, K., Freeman, L., Lovasi, G., Purciel, M., Quinn, J., Richards, C., Sircar, N., and Weiss, C. "Neighborhood Food Environment and Walkability Predict Obesity in New York City." *Environmental Health Perspectives* 117 (2009): 442–447.
- <sup>48</sup> Sacramento Hunger Coalition. *The Avondale/Glen Elder Community Food Assessment. Food Security in a South Sacramento Neighborhood*. Sacramento, CA: Sacramento Hunger Coalition, 2004.
- <sup>49</sup> Shaffer, A. *The Persistence of L.A.'s Grocery Gap: The Need for a New Food Policy and Approach to Market Development*. Center for Food and Justice, Urban and Environmental Policy Institute, Occidental College. 2002. Available at [www.departments.oxy.edu/uepi/publications/the\\_persistence\\_of.htm](http://www.departments.oxy.edu/uepi/publications/the_persistence_of.htm).
- <sup>50</sup> Sharkey, J., and Horel, S. "Neighborhood Socioeconomic Deprivation and Minority Composition are Associated with Better Potential Spatial Access to the Ground-Truthed Food Environment in a Large Rural Area." *The Journal of Nutrition* 138 (2008): 620–627.
- <sup>51</sup> Sharkey, J., Scott, H., Daikwon, H., and Huber, J. "Association Between Neighborhood Need and Spatial Access to Food Stores and Fast Food Restaurants in Neighborhoods of Colonias." *International Journal of Health Geographics* 8, no.9 (2009): 1-17.
- <sup>52</sup> Sloane, D., Diamount, A., Lewis, L., et al. "Improving the Nutritional Resource Environment for Healthy Living Through Community-Based Participatory Research." *The Journal of General Internal Medicine* 18 (2003): 568–575.
- <sup>53</sup> Small, M. L, and McDermott, M. "The Presence of Organizational Resources in Poor Urban Neighborhoods: An Analysis of Average and Contextual effects." *Social Forces* 84 (2006): 1697-1724.
- <sup>54</sup> Smith, D. *Food Deserts in the Willamette: A Study of Food Access in Lane County, Oregon*. [Master's thesis]. Eugene, OR: University of Oregon, 2003.
- <sup>55</sup> Sparks, A., Bania, N., and Leete, L. "Finding Food Deserts: Methodology and Measurement of Food Access in Portland, Oregon." Paper prepared for Institute of Medicine, Workshop on the Public Health Effects of Food Deserts, January 26, 2009. Washington, DC, 2009.

- <sup>56</sup> Social Compact Inc. *Baltimore Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods.* Washington, DC: Social Compact Inc., 2008.
- <sup>57</sup> Social Compact Inc. *Cincinnati Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods.* Washington, DC: Social Compact Inc., 2007.
- <sup>58</sup> Social Compact Inc. *Detroit Grocery Initiative Catalyzing Grocery Retail Investment in Inner-City Neighborhoods.* Washington, DC: Social Compact Inc., 2008.
- <sup>59</sup> Social Compact Inc. *City of Fresno Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods.* Washington, DC: Social Compact Inc., 2009.
- <sup>60</sup> Social Compact Inc. *City of Tampa Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods.* Washington, DC: Social Compact Inc., 2008.
- <sup>61</sup> Social Compact Inc. *Harlem Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods.* Washington, DC: Social Compact Inc., 2008.
- <sup>62</sup> Social Compact Inc. *Houston Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods.* Washington, DC: Social Compact Inc., 2007.
- <sup>63</sup> Social Compact Inc. *Los Angeles Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods.* Washington, DC: Social Compact Inc., 2008.
- <sup>64</sup> Social Compact Inc. *Louisville Metro Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods.* Washington, DC: Social Compact Inc., 2008.
- <sup>65</sup> Social Compact Inc. *San Francisco Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods.* Washington, DC: Social Compact Inc., 2008.
- <sup>66</sup> Social Compact Inc. *Southeast Fort Worth Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods.* Washington, DC: Social Compact Inc., 2008.
- <sup>67</sup> Social Compact Inc. *Washington DC Neighborhood Market DrillDown. Catalyzing Business Investment in Inner-City Neighborhoods.* Washington, DC: Social Compact Inc., 2008.
- <sup>68</sup> Sustainable Food Center. *Access Denied. An Analysis of Problems Facing East Austin Residents in Their Attempts To Obtain Affordable, Nutritious Food.* Austin, TX: Sustainable Food Center, 1995. Available at [http://www.sustainablefoodcenter.org/library/Access\\_Denied.pdf](http://www.sustainablefoodcenter.org/library/Access_Denied.pdf).
- <sup>69</sup> Tanaka, K., Mooney, P., et al. *Lexington Community Food Assessment: 2004-2007.* Lexington, KY: Department of Community & Leadership Development, University of Kentucky, 2008. Available at <http://www.uky.edu/Ag/CLD/doc/CommunityFoodAssessmentReport04-07.pdf>.
- <sup>70</sup> Tchumtchoua, A. *Town-Level Assessment of Community Food Security in Connecticut.* Food Marketing Policy Center. University of Connecticut, 2005. Available at [http://digitalcommons.uconn.edu/cgi/viewcontent.cgi?article=1000&context=fpmc\\_mono](http://digitalcommons.uconn.edu/cgi/viewcontent.cgi?article=1000&context=fpmc_mono).
- <sup>71</sup> The Food Trust. *Stimulating Supermarket Development: A New Day for Philadelphia.* Philadelphia, PA: The Food Trust, 2004. Available at [http://www.thefoodtrust.org/pdf/SupermktReport\\_F.pdf](http://www.thefoodtrust.org/pdf/SupermktReport_F.pdf).
- <sup>72</sup> The Food Trust. *The Need for More Grocery Stores in New York. Special Report.* Philadelphia, PA: The Food Trust, 2008. Available at [http://www.thefoodtrust.org/catalog/download.php?product\\_id=147](http://www.thefoodtrust.org/catalog/download.php?product_id=147).
- <sup>73</sup> The Food Trust. *The Need for More Supermarkets in Chicago.* Philadelphia, PA: The Food Trust, 2008. Available at [http://www.thefoodtrust.org/catalog/download.php?product\\_id=147](http://www.thefoodtrust.org/catalog/download.php?product_id=147).
- <sup>74</sup> University of Virginia School of Architecture, Department of Urban and Environmental Planning. *The Charlottesville Region Food System: A Preliminary Assessment [Student Report].* Charlottesville, VA: University of Virginia School of Architecture, Department of Urban and Environmental Planning., 2006. Available at [http://www.virginia.edu/ien/docs/06FINALRept\\_Jun06\\_CvilleFood.pdf](http://www.virginia.edu/ien/docs/06FINALRept_Jun06_CvilleFood.pdf).
- <sup>75</sup> Thurman, S. *Measuring Access to Food in Charlottesville, VA.* Charlottesville, VA: University of Virginia, 2007. Available at <http://www.virginia.edu/ien/docs/07FoodClassFINAL%20PAPERS/AccessTransportation.pdf>.

- <sup>76</sup> Tsai, S. *Needs Assessment: Access to Nutritious Foods in East Oakland and South Hayward*. [Master's Thesis]. Berkeley, CA: University of California at Berkeley School of Public Health and Alameda County Public Health Department, 2003.
- <sup>77</sup> Unger, S., and Wooten, H. *A Food Systems Assessment For Oakland, CA: Toward A Sustainable Food Plan*. [Master's Thesis]. Berkeley, CA: Oakland Mayor's Office of Sustainability and University of California, Berkeley, 2006.
- <sup>78</sup> Wang, M., Kim, S., Gonzalez, A., MacLeod, K., and Winkleby, M. "Socioeconomic and Food-Related Physical Characteristics of the Neighborhood Environment are Associated with Body Mass Index." *Journal of Epidemiology and Community Health* 61 (2007): 491–498.
- <sup>79</sup> Zenk, S.H., Schulz, A. J., Hollis-Neely, T., Campbell, R.T., Watkins, G., Nwankwo, R., and Odoms-Young, A. "Fruit and Vegetable Intake in African Americans Income and Store Characteristics." *American Journal of Preventive Medicine* 20, no.1 (2005).
- <sup>80</sup> Zenk, S., Schulz, A., Israel, B., James, S., Bao, S., and Wilson, M. "Neighborhood Racial Composition, Neighborhood Poverty, and the Spatial Accessibility of Supermarkets in Metropolitan Detroit." *American Journal of Public Health* 95 (2005): 660–667.
- <sup>81</sup> Zenk, S., Schulz, A., Israel, B., Sherman, J., Bao, S., and Wilson, M. "Fruit and Vegetable Access Differs by Community Racial Composition and Socioeconomic Position in Detroit, Michigan." *Ethnicity & Disease* 16 (2006): 275-280.
- <sup>82</sup> Fresno Metro Ministry. *Fresno Fresh Access: Community Food Assessment Report. 2003-2005*. Fresno, CA: Fresno Metro Ministry, 2005. Available at [http://fresnometmin.org/fmm/pdfs/CFA\\_Summary\\_9-14-05.pdf](http://fresnometmin.org/fmm/pdfs/CFA_Summary_9-14-05.pdf).
- <sup>83</sup> Kaufman, L., and Karpati, A. *Food Matters: What Bushwick Families' Food Habits Teach us about Childhood Obesity*. New York, NY: New York City Department of Health and Mental Hygiene, 2007.
- <sup>84</sup> Fulfrost, B. *Mapping the Markets: The Relative Density of Retail Food Stores in Densely Populated Census Blocks in the Central Coast Region of California*. Santa Cruz, CA: University of California, Santa Cruz, 2006. Available at <http://casfs.ucsc.edu/research/MappingTheMarkets.pdf>.
- <sup>85</sup> Williams, D. *Food Security and Access in Akron Ohio*. [Master's Thesis]. Akron, OH: University of Akron, 2002.
- <sup>86</sup> San Francisco Food Alliance. *2005 San Francisco Collaborative Food System Assessment*. San Francisco, CA: San Francisco Food Alliance, 2005.
- <sup>87</sup> California Center for Public Health Advocacy. *Searching for Healthy Food: The Food Landscape in California Cities and Counties*. Davis, CA: California Center for Public Health Advocacy, 2007.
- <sup>88</sup> Andrews, M., Kantor, L., Lino, M., and Ripplinger, D. "Using USDA's Thrifty Food Plan to Assess Food Availability and Affordability." *Food Access* 24, no.2. (2001): 45-53.
- <sup>89</sup> Block, D., and Kouba, J. "A Comparison of the Availability and Affordability of a Market Basket in Two Communities in the Chicago Area." *Public Health Nutrition* 9, no.7 (2006): 837–845.
- <sup>90</sup> Lopez, R. *Community Food Security in Connecticut: An Evaluation and Ranking of 169 Towns*. Storrs, CT: Hartford Food System, 2005. Available at [http://www.hartfordfood.org/pubs/cfs\\_connecticut.pdf](http://www.hartfordfood.org/pubs/cfs_connecticut.pdf).
- <sup>91</sup> Moore L., Roux, A., Nettleton, J., and Jacobs, D. "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." *American Journal of Epidemiology* 167 (2008): 917–924.
- <sup>92</sup> Raja, S., Ma, C., and Yadav, P. "Beyond Food Deserts: Measuring and Mapping Racial Disparities in Neighborhood Food Environments." *Journal of Planning Education and Research* 27 (2008): 469-482.
- <sup>93</sup> Rose, D., Bodor, N., Swalm, C., Rice, J., Farley, T., and Hutchinson, P. *Deserts in New Orleans? Illustrations of Urban Food Access and Implications for Policy*. Ann Arbor, MI: University of Michigan National Poverty Center/USDA Economic Research Service Research, 2009. Available at [http://www.npc.umich.edu/news/events/food-access/rose\\_et\\_al.pdf](http://www.npc.umich.edu/news/events/food-access/rose_et_al.pdf).
- <sup>94</sup> Sekhobo, J., and Berney, B. "The Relation of Community Occupational Structure and Prevalence of Obesity in New York City Neighborhoods—An Ecological Analysis." *Journal of Hunger & Environmental Nutrition* 3, no.1 (2008): 76-83.

- <sup>95</sup> USDA Economic Research Service. *Access to Affordable and Nutritious Food: Measuring and Understanding Food Deserts and Their Consequences. Report to Congress.* Washington, DC: U.S. Department of Agriculture, 2009. Available at <http://www.ers.usda.gov/Publications/AP/AP036/AP036.pdf>.
- <sup>96</sup> Gordon, C., Ghai, N., Purciel, M., Talwalkar, A., and Goodman, A. *Eating Well in Harlem: How Available Is Healthy Food?* New York, NY: New York City Department of Health and Mental Hygiene, 2007.
- <sup>97</sup> Graham, R., Kaufman, L., Novoa, Z., and Karpati, A. *Eating In, Eating Out, Eating Well: Access to Healthy Food in North and Central Brooklyn.* New York, NY: New York City Department of Health and Mental Hygiene, 2006.
- <sup>98</sup> Papavasiliou, F., Essig, C., Barlett, P., and Rolls, A. *Is Healthy Eating Possible in DeKalb County? An Assessment of Food Availability, Access, and Cost in Two Neighborhoods.* Decatur, GA: Atlanta Local Food Initiative, DeKalb County Board of Health, 2007.
- <sup>99</sup> Gittelsohn, J., Franceschini, M., Rasooly, I., Ries, A., Ho, L., Pavlovich, W., Santos, V., Jennings, S., and Frick, K. "Understanding the Food Environment in a Low-Income Urban Setting: Implications for Food Store Interventions." *Journal of Hunger & Environmental Nutrition* 2, no.2 (2008): 33-50.
- <sup>100</sup> Short, A., Guthman, J., and Raskin, S. "Food Deserts, Oases, or Mirages? Small Markets and Community Food Security in the San Francisco Bay Area." *Journal of Planning Education and Research* 26 (2007):352.
- <sup>101</sup> City Harvest. *The Melrose Community Food Assessment.* New York, NY: City Harvest, 2009. Available at [http://www.cityharvest.org/images/pdf/Melrose\\_CFA\\_2007.pdf](http://www.cityharvest.org/images/pdf/Melrose_CFA_2007.pdf).
- <sup>102</sup> King, R., Leibtag, E., and Behl, A. "Supermarket Characteristics and Operating Costs In Low-Income Areas," *Agricultural Economics Reports.* Washington, DC: United States Department of Agriculture, Economic Research Service, 2004.
- <sup>103</sup> Hrisanti, A., Chong, T., Dang, J., et al. *The East Baltimore Nutritional Environment: Formative Research with Community Leaders.* Baltimore, MD: Healthy Stores Project, 2003. Available at <http://www.healthystores.org/images/downloads/eastbalt.pdf>.
- <sup>104</sup> Sturm, R. "Disparities in the Food Environment Surrounding U.S. Middle and High Schools." *American Journal of Public Health* 122 (2008): 681–690.
- <sup>105</sup> Hunger Task Force of Milwaukee. *Hunger in Milwaukee, Some Food for Thought.* Milwaukee, WI: Hunger Task Force of Milwaukee, 2002. Available at [http://www.hungertaskforce.org/userimages/publications\\_foodforthought\\_report.pdf](http://www.hungertaskforce.org/userimages/publications_foodforthought_report.pdf).
- <sup>106</sup> City Harvest. *Mount Hope Community Food Assessment Report.* New York, NY: City Harvest, 2009. Available at [http://www.cityharvest.org/images/pdf/Mount\\_Hope\\_CFA.pdf](http://www.cityharvest.org/images/pdf/Mount_Hope_CFA.pdf).
- <sup>107</sup> Zenk, S., and Powell, L. "U.S. Secondary Schools and Food Outlets." *Health & Place* 14 (2008): 336–346.
- <sup>108</sup> Blanchard, T., and Lyson, T. "Access to Low Cost Groceries in Nonmetropolitan Counties: Large Retailers and the Creation of Food Deserts." Mississippi, MS: Southern Rural Development Center, 2006. Available at <http://srdc.msstate.edu/measuring/blanchard.pdf>.
- <sup>109</sup> Blanchard, T., and Lyson, T. "Food Availability & Food Deserts in the Nonmetropolitan South." Mississippi, MS: Southern Rural Development Center, 2006. Available at [http://srdc.msstate.edu/focusareas/health/fa/fa\\_12\\_blanchard.pdf](http://srdc.msstate.edu/focusareas/health/fa/fa_12_blanchard.pdf).
- <sup>110</sup> Blanchard, T., and Lyson, T. "Retail Concentration, Food Deserts, and Food Disadvantaged Communities in Rural America." Mississippi, MS: Southern Rural Development Center, 2009. Available at [http://srdc.msstate.edu/focusareas/health/fa/blanchard02\\_final.pdf](http://srdc.msstate.edu/focusareas/health/fa/blanchard02_final.pdf).
- <sup>111</sup> Hatfield, D., and Gunnell, A. *Food Access in California Today.* Portland, OR: Ecotrust, 2005. Available at [http://www.vividpicture.net/documents/12\\_Food\\_Access\\_in\\_CA\\_Today.pdf](http://www.vividpicture.net/documents/12_Food_Access_in_CA_Today.pdf).
- <sup>112</sup> Liese, A., Weis, K., Pluto, D., Smith, E., and Lawson, A. "Food Store Types, Availability, and Cost of Foods in a Rural Environment." *Journal of the American Dietetic Association* 107 (2007): 1916–1923.
- <sup>113</sup> New Mexico Food and Agriculture Policy Council. *Closing New Mexico's Rural Food Gap.* Santa Fe, NM: New Mexico Food and Agriculture Policy Council, 2006. Available at [http://www.farmtotablenm.org/closing\\_nm\\_food\\_gap\\_4pgs.pdf](http://www.farmtotablenm.org/closing_nm_food_gap_4pgs.pdf).

- <sup>114</sup> Sharkey, J., and Horel, S. "Characteristics of Potential Spatial Access to a Variety of Fruits and Vegetables in a Large Rural Area." School of Rural Public Health, Texas A&M Health Science Center, 2009. Available at <http://www.npc.umich.edu/news/events/food-access/sharkey.pdf>.
- <sup>115</sup> Vallianatos, M., Shaffer, A., and Gottlieb, R. "Transportation and Food: The Importance of Access." Los Angeles, CA: Center for Food and Justice, Urban and Environmental Policy Institute, 2002. Available at <http://www.uepi.oxy.edu>.
- <sup>116</sup> Frontier Nutrition Project. *Trinity County Food Security Assessment*. Weaverville, CA: Frontier Nutrition Project, 2001. Available at [http://www.foodsecurity.org/cfa/trinity\\_cty\\_food\\_assessment.pdf](http://www.foodsecurity.org/cfa/trinity_cty_food_assessment.pdf).
- <sup>117</sup> Morton, L., Oakland, J., Bitto, E., Sand, M., and Michaels, B. *Iowa Community Food Assessment Project Report, 2001-02*. Des Moines, IA: Iowa State University Family Nutrition Program, 2002. Available at <http://www.soc.iastate.edu/extension/pub/tech/lowaCommunityFoodAssessmentReport.pdf>.
- <sup>118</sup> The lack of community-based studies on this topic is likely due to the difficulty of accessing data on eating behaviors for small geographies or individuals.
- <sup>119</sup> Rose, D., and Richards, R. "Food Store Access and Household Fruit and Vegetable Use among Participants in the US Food Stamp Program." *Public Health Nutrition* 7, no.8 (2004):1081-1088.
- <sup>120</sup> Laraia, B., Siega-Riz, A., Kaufman, J. and Jones, S. "Proximity of Supermarkets is Positively Associated with Diet Quality Index for Pregnancy." *American Journal of Preventive Medicine* 39 (2004): 869–875.
- <sup>121</sup> Jago, R., Baranowski, T., Baranowski, J., Cullen, K., and Thompson, D. "Distance to Food Stores and Adolescent Male Fruit and Vegetable Consumption: Mediation Effects." *International Journal of Behavioral Nutrition and Physical Activity* 4 (2007): 4-35. Available at <http://www.ijbnpa.org/content/4/1/35>.
- <sup>122</sup> Caldwell E., Kobayashi, M., DuBow, W., and Wytinck, S. "Perceived Access to Fruits and Vegetables Associated with Increased Consumption." *Public Health Nutrition*, 12, no.10 (2008): 1743-50.
- <sup>123</sup> Cheadle A., Psaty, B., Curry, S., Wagner, E., Diehr, P., Koepsell, T., and Kristal, A. "Community-Level Comparisons Between Grocery Store Environment and Individual Dietary Practices." *Preventive Medicine* 20, no.2 (1991): 250-261.
- <sup>124</sup> Alberti, P., Hadi, E., Cespedes, A., Grimshaw, V., and Bedell, J. *Farmers' Markets—Bringing Fresh, Nutritious Food to the South Bronx*. New York, NY: New York City Department of Health and Mental Hygiene, 2008. Available at <http://www.ci.nyc.ny.us/html/doh/downloads/pdf/dpho/dpho-farmersmarket.pdf>.
- <sup>125</sup> Morland, K., Diex Roux, A., and Wing, S. "Supermarkets, Other Food Stores, and Obesity: The Atherosclerosis Risk in Communities Study." *American Journal of Preventive Medicine* 30, no.4 (2006): 333-339.
- <sup>126</sup> Chen, S., Raymond, F., and Snyder, S. "Obesity in Urban Food Markets: Evidence from Georeferenced Micro Data." West Lafayette, IN: Purdue University, 2009. Available at [http://www.npc.umich.edu/news/events/food-access/chen\\_et\\_al\\_revised.pdf](http://www.npc.umich.edu/news/events/food-access/chen_et_al_revised.pdf).
- <sup>127</sup> Liu, G., Wilson, J., Qi, R., and Ying, J. "Green Neighborhoods, Food Retail and Childhood Overweight: Differences by Population Density." *American Journal of Health Promotion* 21, no.4 (2007): 317-325.
- <sup>128</sup> Auchincloss, A., Diez-Roux, A., Brown, D., Erdmann, C., and Bertoni, A. "Neighborhood Resources for Physical Activity and Healthy Foods and Their Association with Insulin Resistance." *Epidemiology*, 19 (2008):146–157.
- <sup>129</sup> Morland, K., and Evenson, K. "Obesity Prevalence and the Local Food Environment." *Health & Place* 15, no.2 (2009): 491-495.
- <sup>130</sup> Goldstein, I., Loethen, L., Kako, E., and Califano, C. *CDFI Financing of Supermarkets in Underserved Communities: A Case Study*. Philadelphia, PA: The Reinvestment Fund, 2008. Available at <http://www.trfund.com/resource/downloads/policypubs/CDFIStudySummary.pdf>.
- <sup>131</sup> Anchor effects are commonly recognized by practitioners and assumed in economic impacts studies, but there are few empirical studies of their scale or scope.
- <sup>132</sup> Gallagher, M. *Examining the Impact of Food Deserts on Public Health in Detroit*. Chicago, IL: Mari Gallagher Research and Consulting Group, 2007. Available at [http://www.marigallagher.com/site\\_media/dynamic/project\\_files/1\\_DetroitFoodDesertReport\\_Full.pdf](http://www.marigallagher.com/site_media/dynamic/project_files/1_DetroitFoodDesertReport_Full.pdf).
- <sup>133</sup> Several analyses have described how the lack of market activity in distressed urban communities



serves as a barrier to business development. See Peri Sabety, *Using Information to Drive Change*, Washington, DC: The Brookings Institution, 2004. Available at [http://www.brookings.edu/~/media/Files/rc/reports/2004/07metropolitanpolicy\\_sabety/framingpaper.pdf](http://www.brookings.edu/~/media/Files/rc/reports/2004/07metropolitanpolicy_sabety/framingpaper.pdf). Also, Robert Weissbourd, *The Market Potential of Inner-City Neighborhoods: Filling the Information Gap (Attracting Business Investment to Neighborhood Markets)*. Washington, DC: The Brookings Institution, 2004. Available at [http://www.brookings.edu/~/media/Files/rc/reports/2004/07metropolitanpolicy\\_sabety/framingpaper.pdf](http://www.brookings.edu/~/media/Files/rc/reports/2004/07metropolitanpolicy_sabety/framingpaper.pdf).

<sup>134</sup> Office of Housing and Urban Development. *New Markets: The Untapped Retail Buying Power in America's Inner Cities*. Washington, DC: The Office of Housing and Urban Development, 1999.

<sup>135</sup> Porter, M. "The Competitive Advantage of the Inner City," *Harvard Business Review*, 73, no.3 (1995): 55-71.

<sup>136</sup> Lavin, M. "Supermarket Access and Consumer Well-Being: The Case of Pathmark in Harlem." *International Journal of Retail and Distribution Management* 33, no.5 (2005): 388-398.

<sup>137</sup> Pristin, T. "Harlem's Pathmark Anchors a Commercial Revival on 125th Street," *The New York Times*, November 13, 1999. Available at: <http://www.nytimes.com/1999/11/13/nyregion/harlem-s-pathmark-anchors-a-commercial-revival-on-125th-street.html?pagewanted=1>.

<sup>138</sup> The majority of supermarket jobs are part-time (84 percent of jobs analyzed in the study). The Reinvestment Fund. *The Economic Impacts of Supermarkets on their Surrounding Communities*, Philadelphia, PA: The Reinvestment Fund, 2008.

<sup>139</sup> The Food Trust. "The Pennsylvania Fresh Food Financing Initiative Providing Healthy Food Choices to Pennsylvania's Communities." Philadelphia, PA: The Food Trust. Available at <http://www.thefoodtrust.org/pdf/FFFI%20Brief.pdf>.

<sup>140</sup> This study did not account for the probable displacement effects associated with transferring sales from one store to another. The Reinvestment Fund. *The Economic Impacts of Supermarkets on their Surrounding Communities*, Philadelphia, PA: The Reinvestment Fund, 2008.

<sup>141</sup> Social Compact Inc., *Inside Site Selection: Retailers' Search for Strategic Business Locations*. Washington, DC: Social Compact Inc., 2008. Available at [http://www.icsc.org/srch/government/briefs/200805\\_insitesite.pdf](http://www.icsc.org/srch/government/briefs/200805_insitesite.pdf)

<sup>142</sup> Economic Research Service, Food CPI and Expenditures: Table 14, [http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures\\_tables/table14.htm](http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures_tables/table14.htm).

<sup>143</sup> For a more detailed discussion of strategies to address the lack of access to healthy foods see: Flournoy, R. and Treuhaft, S. *Healthy Food, Healthy Communities: Improving Access and Opportunities through Food Retailing*, Oakland, CA: PolicyLink, 2009. Available at [www.policylink.org](http://www.policylink.org).

<sup>144</sup> In 2004, child health and nutrition advocates and Representative Dwight Evans successfully campaigned for an initial infusion of \$10 million in state funds to launch Pennsylvania Fresh Food Financing Initiative (FFFI), a public-private partnership which provides low-cost loans and grants to support retail projects in underserved communities. (An additional \$20 million followed.) An independent Community Development Financial Institution (The Reinvestment Fund) leveraged these public funds with private capital, tax credits, and other mechanisms to create a \$165 million fund.

<sup>145</sup> Sturm, R., and Datar, A. "Body Mass Index in Elementary School Children, Metropolitan Area Food Prices and Food Outlet Density." *Journal of Public Health* 119 (2005):1059-1068.







**Headquarters:**  
1438 Webster Street  
Suite 303  
Oakland, CA 94612  
t 510 663-2333  
f 510 663-9684

**Communications:**  
55 West 39th Street  
11th Floor  
New York, NY 10018  
t 212 629-9570  
f 212 629-7328

[www.policylink.org](http://www.policylink.org)

One Penn Center, Suite 900  
1617 John F. Kennedy Blvd.  
Philadelphia, PA 19103  
t 215 575-0444  
f 215 575-0466

[www.thefoodtrust.org](http://www.thefoodtrust.org)