Finding food assistance and food retailers in Detroit

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The Great Recession, officially lasting from December 2007 to June 2009, had a dramatic and sustained impact on work, earnings, and poverty in most communities in the United States. Even though the recession officially ended in 2009, the effects of the downturn persist for many low-income households whose work opportunities and earnings have not returned to prerecession levels. In particular, unemployment and poverty rates have remained above prerecession levels longer than they have after any other recession in modern times.[1] Similarly, rates of food insecurity, Supplemental Nutrition Assistance Program (SNAP) participation, and use of emergency food assistance programs increased during the downturn and also remain well above prerecession levels.[2]

Since the Great Recession there also has been a great deal of interest in the effect of spatial context on household food insecurity and food shopping choices. Much of the research to date has been focused on the presence of "food deserts," areas without large supermarkets or grocery chains that are key sources of affordable and fresh food. Living in food deserts or areas distant from food retailers is thought to make it difficult for households to purchase adequate food and healthy food items, which should lead to lower levels of household food security. Aspects of place may matter to receipt of food assistance as well. For example, some evidence suggests that the presence of nonprofit food assistance programs also can vary widely by neighborhood and across communities, ironically being less accessible to low-income populations most in need.[3] As with food retailers, we might expect spatial access to food assistance programs to shape decisions to participate.

In this article, we link survey data from the first two waves of the Michigan Recession and Recovery Study (MRRS) in metropolitan Detroit to unique information about the location of key food resources in metro Detroit. Specifically, we examine household spatial access to three types of food resources that often are hypothesized to be associated with food assistance and food security outcomes among low-income households: SNAP administrative offices, food pantries, and SNAP-licensed food retailers. Research findings summarized in this article contribute to the study of place, poverty, and food assistance program participation in several ways.[4] First, we are able to link food resource access to key demographic characteristics in a representative sample from a large metropolitan area. Second, we develop precise measures of spatial access to food resources; such measures may be useful to researchers looking to identify factors associated with food security, SNAP participation, or other household food outcomes in subsequent work. Finally, amidst mounting public and private efforts to improve access to food resources, our findings may be relevant to decisions about how and where to allocate program investments.

Access to local food resources

Proximity to local food resources, which include food retailers, restaurants, nonprofit organizations, and public agencies, may shape a variety of household food shopping behaviors, experiences of food insecurity, and decisions to enroll in food assistance.[5] While there are many different types of food resources that may be relevant to household food choices and outcomes, here we focus on access to food assistance programs and local food retailers.

Access to food assistance programs

The spatial presence and accessibility of food assistance resources may be associated with program participation for a variety of reasons. Closer proximity to food assistance program offices should be positively correlated with household knowledge about food assistance programs, benefits, and eligibility. Such information is critical to decisions to apply for assistance.[6] Closer proximity to food assistance programs also may lower commuting costs for eligible households, making it easier to visit offices with application questions, documentation, and eligibility recertification.[7] The commuting burden to local SNAP offices may be particularly relevant when considering that many clients need to complete recertification visits or submit application materials amidst complex daily commutes between work, child care, and home.[8] To the extent that food assistance program participation increases household food security, scholars and policymakers may be concerned with spatial access to food assistance programs beyond the implications of access for enrollment.

Access to food retailers

It is hypothesized that the local retail food environment is connected to household food security and other household food outcomes, because the types of stores nearby shape the products that can be purchased, the prices paid for those

products, and the travel costs associated with food shopping. Particular attention is paid to supermarkets and large grocery stores that carry a wider array of fresh food and offer lower food prices than other types of food retailers. It is expected that closer proximity to supermarkets and large grocery stores, as opposed to convenience stores or specialty stores, will increase the ability of low-income households to have more frequent, affordable, complete, and nutritious meals.[9] Areas containing few or no supermarkets or large grocery stores commonly are described as "food deserts."

While it is often argued that lower-income neighborhoods and areas with concentrations of racial and ethnic minorities live greater distances from supermarkets or large grocery stores and have less access to such food retailers than predominantly white, higher-income areas, the research evidence is decidedly mixed. Predominantly black and Hispanic neighborhoods have been found to have less access to supermarkets and large grocery stores than predominately white areas. Lower-income areas also have been found to contain fewer chain grocery stores or supermarkets than middle- or upper-income areas.[10] Yet, other studies do not find significant differences in food retailer access across race and class groups. For example, a study of Erie County, New York, found white, black, and racially mixed census block groups to have access to similar numbers of supermarkets within a five-minute drive when controlling for population size and median household income. Black and racially mixed neighborhoods had far greater access to smaller groceries and specialty food retailers within a five-minute drive than white neighborhoods.[11] Similarly, a U.S. Department of Agriculture (2009) project examining food retailer access nationally found the median U.S. household to be 0.85 miles from the nearest supermarket, with the median nonwhite household 0.63 miles from the nearest supermarket, and the median white household 0.96 miles from the nearest supermarket.[12]

The lack of consensus in research findings tends to reflect differences in how food access is conceptualized and measured.[13] Research using more sophisticated measures of food resource access that take into account a broad array of stores and accurately calculate store travel times or distances appear less likely to find race or class gaps consistent with the food desert hypothesis. Similarly, few studies are able to link the location of a representative sample of households in a local space to the location of different types of food resources. Even fewer studies have information about household food behaviors or outcomes that can be linked to measures of food resource access.[14]

Our study design

We examine food resource access in metropolitan Detroit with a particular focus on three types of local food resources often thought to be associated with household food acquisition, consumption, and security: SNAP administrative offices, food pantries, and licensed SNAP retailers.

The Michigan Recession and Recovery Study (MRRS)

Data on household characteristics and location come from the MRRS, a panel survey of a representative sample of working-age adults in the three-county Detroit metropolitan area (Macomb, Oakland, and Wayne counties). The MRRS gathers detailed information about employment history, income sources, education and training, safety net program participation, material hardships, health and mental health, marital and relationship status, and basic household demographics. In Wave 1, the MRRS completed hour-long in-person interviews between late October 2009 and March 2010 with 914 adults between the ages of 19 and 64. A second wave of hour-long in-person interviews was completed between April and August 2011 with 847 of the original 914 respondents. When survey weights are applied, the MRRS sums to the American Community Survey (ACS) estimated total population count for Macomb, Oakland, and Wayne counties of metropolitan Detroit.[15] Below, we report analyses that linked data from MRRS households with income at or below three times the federal poverty line pooled across the two survey waves to information about access to SNAP eligibility offices, food pantries, and SNAP retailers in metropolitan Detroit.

SNAP administrative office locations

Measures of spatial access to SNAP administrative offices are based on the location of 23 SNAP administrative offices in the three-county Detroit metropolitan area that were in operation in March 2011.[16] Even though Michigan and many other states have pursued SNAP modernization efforts to reduce the need for face-to-face visits for enrollment in SNAP, such alternative options to visiting one's nearest local office were not in place during the MRRS data collection.[17] As a result, we believe it is extremely likely that MRRS respondents were required to visit one of these 23 SNAP offices at some point in the enrollment, verification, and recertification processes.[18]

Table 1
Characteristics of MRRS Households at or below 300 Percent of Federal Poverty Line

Household or Respondent Characteristic	Percentage of Respondents
Household income	
At or below the federal poverty line	35.1%
100–200% of the federal poverty line	33.1
200–300% of the federal poverty line	31.8
Respondent is black	43.7
Geographic location of household	
Urban	33.3
Suburban	66.7
Household received SNAP benefits in past year	38.1

Notes: All households have income within 300 percent of the federal poverty line. Data are pooled across two survey waves, and are weighted. Unweighted $N = 969$.
Source: Michigan Recession and Recovery Study.

Food pantry survey

A list of 407 charitable nonprofit food pantries or emergency food programs located in the study area of the MRRS were compiled from online directory listings and the United Way of southeastern Michigan 2-1-1 directory in Spring 2012. A letter of invitation to participate in a short survey was sent to each listed pantry, followed by attempts to complete a 10-minute telephone survey about location, program services, client characteristics, and funding. Of the 407 listed programs, 332 were identified to be operational at the time of the survey. Interviews were completed with 263 of these 332 charitable food programs for a response rate of 79.2 percent. To be included in access calculations, a program or provider had to be operating an assistance program at the time of the interview.[19]

SNAP retailer data

Finally, the location of food retailers in metro Detroit was obtained from a USDA Food and Nutrition Service list of food retailers licensed to accept SNAP benefits in the State of Michigan for the years 2008 and 2010.[20] A two-step process was used to code SNAP food retailers into two broad store type categories: (1) large chain and non-chain grocery stores or supermarkets; and (2) non-grocery food retailers (i.e., drug stores, gas stations, convenience stores, specialty food stores). First, we identified well-known national and regional chain stores (e.g., Kroger, 7-11) and coded them appropriately. We then entered the street addresses of the remaining SNAP retailers into Google Maps and used street view images of each store to code retailers as grocery store/supermarkets or non-grocery food retailers. Only food retailers that provided visual evidence (e.g., signs, visible displays, advertised prices) of carrying a full line of groceries, including fresh foods, were coded as a grocery store or supermarket. Given that coding was based only on what could be observed from a street view, we believe that our estimates provide a conservative estimate of available grocery stores. These data, therefore, likely understate the number of retailers that might, in actuality, carry a line of groceries that is broad enough for a family to meet all their food needs.

Calculating access to food resources

With these unique data we are able to accurately connect households in Detroit to an array of important food resources. In this article we report three different types of access measures for each type of local food resource.[21] One set of food assistance resource access measures determines the distance between MRRS respondents' street address and the street address of a given food resource (e.g., SNAP administrative office, SNAP retailer). Second, we use these distance calculations to determine whether a respondent was within one, two, or three miles of a particular food resource. Finally, we determine the number of SNAP retailers, SNAP grocery stores or supermarkets, and SNAP non-grocery stores within a one-mile radius of each respondent's residential location.[22]

Access to SNAP offices

Table 2 shows mean distance to SNAP administrative offices by household income level and SNAP receipt. Poor households in Detroit live closer on average to SNAP offices than households with income just above the federal poverty threshold. For example, as shown in the first column, households at or below the poverty line live about one mile closer to a SNAP office on average compared to households with income between 100 percent and 200 percent of poverty and to households with income between 200 percent and 300 percent of poverty. Similarly, black respondents live about 1.5 miles closer on average to a SNAP office than nonblack respondents. The urban-suburban difference is even greater, with urban residents living on average more than two miles closer to a SNAP office than suburban residents. As expected, SNAP residents in metropolitan Detroit tend to live closer to a SNAP administrative office than poor households not receiving SNAP.

Table 2 also shows the share of households within one, two, and three miles of a SNAP office. We find that poor households are disproportionately likely to live within relatively short distances of SNAP offices. For example, about 70 percent of Detroit households with income below the poverty line live within three miles of a SNAP office,

Table 2
Proximity to SNAP Office among MRRS Households at or below 300 Percent of Federal Poverty Line

	Proximity to SNAP Office			
	Average Miles to Nearest	Percent Within 1 Mile	Percent Within 2 Miles	Percent Within 3 Miles
Household Income				
At or below poverty line	2.5♣	14.9%♦	45.5%♣♦	70.7%♣♦
100–200% of poverty line	3.4♦	8.9♦	28.4♦	47.3♦
200–300% of poverty line	3.5♦	3.7♣	24.6♦♣	44.1♦
Race				
Black	2.3♦	14.3	54.9♦	80.7♦
Nonblack	3.8♦	5.5	16.3♦	34.1♦
Residential Area				
Urban	1.6♦	21.3♦	70.0♦	94.2♦
Suburban	3.8♦	3.4♦	15.0♦	34.8♦
Program Participation				
Receiving SNAP	2.6♦	15.9♦	46.4♦	67.9♦
Not receiving SNAP	3.4♦	5.3♦	25.1♦	46.3♦

Notes: For household income, which has three subcategories rather than two as in the other categories, ♣ indicates a statistical difference only between that cell and each of the other two at or below the 0.10 level. For the other categories, ♦ indicates a statistically significant difference between the two cells at or below the 0.10 level. Household survey weights applied. Data are pooled across the two waves. Unweighted $N = 969$.

Sources: Michigan Recession & Recovery Study; State of Michigan Department of Human Services (DHS); Detroit Food Pantry Survey.

compared to less than half of near-poor households. Black respondents and urban residents are considerably more likely to live within three miles of a SNAP office than nonblacks and suburban residents. Households receiving SNAP are also all considerably more likely to live within three miles of a SNAP office than households not receiving SNAP. This latter finding persists even when we limit analysis to households with income at or below 200 percent of poverty (not shown in Table 2).

Access to food pantries

Table 3 shows the results of an analysis of proximity to food pantries. While differences in the average distance to food pantries follow a similar pattern to distance to SNAP offices, the magnitude of the differences is much smaller. We find large urban-suburban differences in distance to the nearest food pantry, with urban residents being almost one mile closer to a food pantry compared to suburban residents. Poor households were more likely than near-poor households to be within one mile of a food pantry; however, nearly every household with income at or below 300 percent of the poverty line in metropolitan Detroit is within three miles of a food pantry.

Table 3
Proximity to Food Pantry among MRRS Households at or below 300 Percent of Federal Poverty Line

	Proximity to Food Pantry			
	Average Miles to Nearest	Percent Within 1 Mile	Percent Within 2 Miles	Percent Within 3 Miles
Household Income				
At or below poverty line	1.0♣	63.0%♣	85.7%	93.9%
100–200% of poverty line	1.3♦	46.2♦	79.5	92.4
200–300% of poverty line	1.4♦♣	42.0♦	78.0	92.4
Race				
Black	0.8♦	74.5♦	89.5	95.7
Nonblack	1.5♦	32.3♦	74.7	90.8
Urban	0.6♦	87.6♦	96.7♦	100.0♦
Suburban	1.5♦	32.5♦	73.5♦	89.5♦
SNAP recipients	1.0♦	65.8♦	85.1	93.0
Not receiving SNAP	1.4♦	41.6♦	78.8	92.9

Notes: For household income, which has three subcategories rather than two as in the other categories, ♣ indicates a statistical difference only between that cell and each of the other two at or below the 0.10 level. For the other categories, ♦ indicates a statistically significant difference between the two cells at or below the 0.10 level. Household survey weights applied. Data are pooled across the two waves. Unweighted $N = 969$.

Sources: Michigan Recession & Recovery Study (MRRS); State of Michigan Department of Human Services (DHS); Detroit Food Pantry Survey.

Access to food retailers

In contrast to some reports and research on food retailer access in low-income communities that identify large gaps in access to food retailers, we find that poor households, black residents, and households located in the City of Detroit have greater access to SNAP retailers of all kinds, and to grocery stores or supermarket SNAP retailers than higher-income households, or households that do not participate in SNAP. We find that poor households in metropolitan Detroit are within one mile of 24 retailers accepting SNAP on average, including 2.7 grocery stores or supermarkets.

Households with black respondents are no more likely to live further away from a SNAP grocery store than nonblack households, although they are slightly closer to a non-grocery retailer on average. We do find that residents of Detroit are, on average, closer to SNAP grocery or supermarket retailers than suburban residents, by almost a quarter of a mile. Interestingly, we find that SNAP recipients are closer on average to SNAP grocery and non-grocery retailers than households not receiving SNAP. Such findings hold up when we consider households with income at or below 200 percent of poverty (not shown in Table 4).

Conclusions

Our findings provide several important insights into patterns of local food resource access in metropolitan Detroit. First, we find that many population subgroups identified in the research literature as being vulnerable to low food resource access, such as blacks or urban residents, have greater or comparable spatial access to several different types of food resources compared to less vulnerable population sub-groups. We also do not find much support for most conventional food desert hypotheses about access to food retailers among the poor and near poor. Second, we find respondents receiving SNAP tend to have closer proximity to SNAP offices, food pantries, and groceries that accept SNAP than those households not receiving SNAP.

Apart from advancing scholarly understandings of food resource access, we believe our work is relevant to policy, advocacy, and program implementation on the ground. Our findings suggest that proximity to food retailers may not be the critical ingredient to ensuring that people can purchase adequate food for a healthy and active life. Instead, greater attention may be placed on economic shocks, health limitations, and financial hardship, which are known to be associated with greater likelihood of experiencing food insecurity or other food outcomes. Improved understanding of spatial variation in food assistance resources and food retailers also could translate into more effective allocation of public program dollars and philanthropic resources. For example, apart from addressing household-level characteristics that may shape program participation, it may

Table 4
SNAP Licensed Food Retailer Access among MRRS Households at or below 300 Percent of Federal Poverty Line

	Average Distance to Nearest SNAP Retailer			Number of Stores within 1 mile		
	All Retailers	Grocery/ Supermarket	Non-Grocery	All Retailers	Grocery/ Supermarket	Non-Grocery
Household Income						
At or below poverty line	0.27♠	0.54♦	0.28♠	24.1♦	2.7♦	21.4♦
100–200% of poverty line	0.36♦	0.63♦	0.37♦	17.4♦	2.4♦	15.0♦
200–300% of poverty line	0.39♦	0.76♠	0.42♦	13.6♦	2.1♠	11.6♦
Race						
Black	0.25♦	0.55	0.25♦	27.9♦	2.8	25.1♦
Nonblack	0.41♦	0.71	0.43♦	11.3♦	2.1	9.3♦
Urban	0.18♦	0.50♦	0.19♦	34.6♦	3.25♦	31.4♦
Suburban	0.42♦	0.71♦	0.44♦	10.6♦	1.95♦	8.6♦
SNAP recipients	0.27♦	0.54♦	0.28♦	24.5♦	2.7	21.8♦
Not receiving SNAP	0.38♦	0.70♦	0.40♦	14.9♦	2.2	12.7♦

Notes: For household income, which has three subcategories rather than two as in the other categories, ♠ indicates a statistical difference only between that cell and each of the other two at or below the 0.10 level. Where all numbers in a subgroup are marked with ♦, all three cells are statistically different at or below the 0.10 level. For the other categories, ♦ indicates a statistically significant difference between the two cells at or below the 0.10 level. Household survey weights applied. Data are pooled across the two waves. Unweighted $N = 969$.

Sources: Michigan Recession & Recovery Study (MRRS); US Department of Agriculture, Food and Nutrition Service (FNS).

be important to consider how local communities can shape the local food resource environment to increase participation in SNAP or charitable emergency food programs. In the end, having an accurate understanding of how the local food resource context varies across a community may open a new suite of policy levers and mechanisms to support families in need.■

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[18]See Allard, Wathen, and Danziger, "Place, Poverty and Program Participation."

[19]Surveys were completed at the Population Research Center at NORC and the University of Chicago by a trained telephone survey interviewer between August 2012 and April 2013. When reaching a food assistance program, the survey interviewer asked to speak to the program executive or to a program manager that could answer some basic questions about the programs available on-site. Many organizations were not eligible for the survey: 37 were no longer operational; 29 were not food assistance programs; contact information could not be located for 9 other listings. Twelve programs refused to participate in the survey and 57 programs were never reached to complete calls. All organizations not completing surveys were contacted at least 10 times by the interviewer, but only 37 of the 57 programs not reached appeared to have a functioning phone system. A total of 1,674 call attempts were made.

[20]These lists represent retailers in Michigan that were authorized to receive SNAP at the end of the Fiscal Year (09/30/08 for 2008 data and 9/30/10 for 2010 data). Retailers apply to receive authorization to accept SNAP benefits. To become authorized, retailers must offer on a continuous basis food from three of four food groups (meat, poultry, fish; bread or cereal; vegetables or fruit; dairy), or must verify that at least 50 percent of retail sales come from eligible staple foods. The Food and Nutrition Service (FNS) at USDA reviews applications, conducts background checks for prior involvement with SNAP, and assesses store eligibility. FNS advises applicants that it may visit a store to confirm eligibility. See US Department of Agriculture, Food and Nutrition Service. 2015. "Retail Store Eligibility USDA Supplemental Nutrition Assistance Program." Retrieved April 29, 2015, from http://www.fns.usda.gov/snap/retail-store-eligibility-usda-supplemental-nutrition-assistance-program.

[21]Working papers cited above provide a more extensive array of measures, although our findings are robust across many different distance and travel-time calculations.

[22]Results reported here using straight-line distance access measures are very similar to results using access measures that take into account mode of transit and travel time. See Allard, Wathen, and Danziger, "Place, Poverty and Program Participation" and Allard and Shaefer, "Neighborhood Food Infrastructure, Economic Shocks and Very Low Food Security among Children."

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