# FARMERS MARKETS, LOW INCOME COMMUNITIES AND GOVERNMENT ASSISTANCE PROGRAMS

by

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ABSTRACT

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Since the passage in 1976 of the Farmer-to-Consumer Direct Marketing Act, there has been a sharp rise in number of farmers markets in this country, from approximately 600 in the 1970s to over 7,000 today. With this increase, farmers markets began to attract attention not only from farmers and consumers, but also from public policy experts. Some research has suggested that farmers markets may be a way to alleviate the poor access to healthy foods in low-income communities, in areas known as food deserts. The WIC Farmers Market Nutrition Program (FMNP) and the Seniors Farmers Market Nutrition Program (SFMNP) are both efforts to connect low-income individuals with farmers market produce. However, there is little data to suggest that farmers markets are located in food deserts often enough to have an impact. Additionally, previous research has shown that the average farmers market customer is an older, highly educated, middle-to-upper income female suggesting that low-income communities have not embraced farmers markets.

This research seeks to shed more light on these issues. By combining data from a database of farmers markets maintained by the USDA's Agricultural Marketing Service, the food desert locator created by the USDA's Economic Research Service and demographic data collected by the 2006-2010 American Community Survey, this study provides a clearer vision of the community that farmers markets serve.

The research reveals that farmers markets in a census tract are correlated with percentage of Hispanic population, percentage identifying as “Some Other Race”, percentage of households living in poverty and the percentage of households receiving SNAP/food stamps. However, there was no correlation between farmers markets and food deserts.

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# CHAPTER 1

# INTRODUCTION

## 1.1 Background

In the early 1970s, there were approximately 600 farmers markets in the United States. By 2001, that number had risen to roughly 3,000, an increase of 500% in just over 30 years (Brown, 2000). According to the most recent count by the U.S. Department of Agriculture, there are currently 7, 205 farmers markets in operation in the country (USDA Agricultural Marketing Service, 2011). There can be no doubt that the prevalence of farmers markets is on the rise, far outpacing the population growth rate of the country. Because of their relatively recent popularity, there is an emerging field of study with great opportunity for exploration related to these institutions that have implications for urban design and planning (especially in relation to public space), local economies, agricultural economic systems, nutrition, health and food security.

Their increase can be partially attributed to a number of federal programs that have been created to promote farmers markets. The passage of the Farmer-to-Consumer Direct Marketing Act of 1976 promoted the expansion of direct marketing of agricultural goods through programs such as farmers markets or community supported agriculture cooperatives. In 1992, Congress created the WIC farmers' market nutrition program (FMNP) " to provide fresh, unprepared, locally grown fruits and vegetables to WIC participants, and to expand the awareness, use of, and sales at farmers' markets" (U.S. Department of Agriculture, Food & Nutrition Service, 2011a). Then in 2002, Congress created the Senior's Farmers Market Nutrition Program (SFMNP) which "provides low-income seniors with coupons that can be exchanged for eligible foods (fruits, vegetables, honey, and fresh-cut herbs) at farmers' markets, roadside stands, and community supported agriculture programs" (U.S. Department of

Agriculture, Food & Nutrition Service, 2011b). These programs seek to alleviate an economic barrier to shopping at farmers markets.

Implicit and sometimes explicit in these programs is the idea that farmers markets may be a solution to the nutritional and dietary problems that affect low-income individuals. In fact, the Centers for Disease Control and Prevention lists as one of their strategies and solutions to fighting childhood obesity "provide incentives to existing supermarkets and farmers' markets to establish their businesses in low-income areas or to sell healthier foods" (U.S. Department of Health and Human Services, Centers for Disease Control, 2011). The rise in obesity has brought into focus the lack of access to fresh produce and healthy food options to low-income communities where the food geography is dominated by fast food or convenience stores, also known as "food deserts" (Sharma et al., 2009; Zenk et al., 2009). A number of studies have suggested that farmers markets may be a way to help alleviate food deserts. One study done of food deserts in New York City found that "fruit and vegetable markets and farmers' markets may also be important sources of healthy food" (Bader et al., 2010). The same study also found that:

Fruit and vegetable markets and farmers' markets increased access to healthy food most in predominantly Hispanic, Asian, and immigrant neighborhoods, with the least effect in predominantly black neighborhoods. These smaller markets also increased access to healthy food more in higher-poverty than lower-poverty neighborhoods. Although use of farmers' markets is often associated with affluent and well-educated consumers, farmers' markets actually played a more important role in the food environment of the highest-poverty neighborhoods, where they represented 10 percent of accessible healthy food outlets. (Bader et al., 2010)

As the study suggests, nearly all of the research that has been done on farmers markets to date has come to the same conclusion: that farmers market shoppers are disproportionally older (probability of shopping at a farmers market increases with age and the

most dominant age bracket is 50-60), highly educated, females with a middle to upper level income (Onianwa et al., 2006; Lyon et al., 2008; Feagan, Morris & Krug, 2004; Henneberry et al., 2009). These programs seem to operate on the assumption that low-income individuals would shop more at farmers markets if the cost were not prohibitive. So there seems to be a disconnect between the community that could receive the most benefit from farmers market, the community that is targeted by the FMNP and the SFMNP, and the community that shops most at farmers markets.

Though FMNP and SFMNP seek to alleviate the economic barrier of low-income consumers shopping at farmers markets, there may be other barriers. There may also be geographic barriers, cultural barriers and barriers of shopper preference. Research has shown that the largest factor determining where people shop is geographic proximity and that this is even more important for low-income shoppers than for upper-income shoppers (Bell et al., 1998; Lloyd & Jennings, 1978). Despite this, there is little research that provides socioeconomic data for the neighborhood where farmers markets operate. Therefore, there is no way to know whether the recipients of these programs even live near a farmers market or whether the nearest farmers market accepts program vouchers.

The purpose of this study is to provide a description of the neighborhoods in which farmers markets operate, specifically looking at the presence of food deserts and key socioeconomic factors, and to determine, in light of the results, whether promoting farmers markets to low-income shoppers is an effective use of government resources or practical based on geography. The goal is to begin to shed light on a field where more research is needed. This will be an exploratory evaluation intended to gather information for improving these programs and understanding the urban food geography, not a summative evaluation meant to assess any particular program.

## 1.2 Previous Research

There has been a good amount of research done on the availability of affordable, healthy foods in the inner city and especially in minority neighborhoods. A 2007 study found that "nearly 50% of high poverty neighborhoods had no grocery stores within their boundaries" and that "children in high poverty neighborhoods consumed fewer servings of fruits and vegetables...than children in low poverty neighborhoods" (Mishi-Brunt et al., 2007). Studies show that residents in poor urban areas pay more for food than residents in middle-class suburban areas due mostly to a lack of access to supermarkets and increased prices at corner-stores and convenience stores (Chung & Meyers, 1999). This and the prevalence of fast food options in these areas have played at least some role in the prevalence of obesity and nutritional problems in African American and Latino communities (Freeman, 2007). All this is exacerbated by the fact that location is the single largest factor in where you shop and that low-income shoppers are more likely to do their grocery shopping close to their homes while upper-income shoppers are more likely to travel farther to a shopping center (Bell et al., 1998; Lloyd & Jennings, 1978).

There are been a handful of case studies or small scale studies focusing on one or two farmers markets within a limited geographic area but, these generally focus on the customers at the market, not the neighborhood that surrounds it (Feagan et al., 2004; Lyon et al., 2009; Onianwa et al., 2006; Velasquez et al., 2005; Zepeda & Leviten-Reid, 2004). A number of studies have shown that the typical farmers market shopper is white, female, over 50 and middle to high income (Feagan et al., 2004; Henneberry et al., 2009; Lyon et al., 2009; Onianwa, Wheelock & Mojica, 2005). One case study of farmers markets in the San Francisco Bay Area gives a description of a market that is an exception to this because it deliberately caters to the neighborhood around it, the West Oakland Farmers' Market. Its goals is to "provide organic food grown by African-American farmers in a largely African-American, low-income, food-insecure community…[and] posits local food systems as a response to racism and

inequality" (Alkon, 2008). Working to keep prices low and providing a system so customers could use food stamps, the West Oakland Farmers' Market was able to create access to fresh produce that would not have been available otherwise. The West Oakland Farmers Market is the exception and shows that these characteristics can vary depending on the farmers market, the demographic it caters to and the benefits it seems to offer. In West Oakland, the focus is on social justice, customers at the market were a majority black and they listed "support for black farmers and small-business-people as their more important reason for market attendance" (Alkon, 2008). Because the West Oakland Farmers Market shows that the demographic makeup of a community can impact the functions of the farmers market, and vice versa, it is all the more important to assess the neighborhood surrounding markets.

With the exception of the Oakland Farmers' Market case study and to some extent, the study of food deserts in New York City (Bader et al., 2010), no other study to date has assessed farmers' markets in relation to the neighborhood in which they operate. Every other existing study looks at the consumers at the market or the economic impact of the market, but not the relationship it has with the community surrounding it. This will be the only large-scale evaluation of farmers markets in terms of community. Approaching this subject from an urban affairs perspective will help to define the role of farmers' markets within their community, assess whether farmers markets can help to alleviate the problem of food deserts, and inform how to tailor relevant government programs for maximum effectiveness. Whether the main goal of these programs is to increase business at farmers markets or to provide better nutrition for low-income families, this research will help to direct those efforts. Importantly, it will begin to examine whether those two goals are at odds with one another or if they can complement each other.

## 1.3 Evaluation Design

This study will be a formative evaluation designed to provide more information about the communities in which farmers markets operate and the government programs related to

them. Using data previously collected in the U. S. Department of Agriculture's Agricultural Marketing Service's Farmers Markets Directory, the 2006-2010 American Community Survey 5 year estimates and the U. S. Department of Agriculture's Economic Research Service's Food Desert Locator, this data will be analyzed together to give a more complete picture of farmers markets in the state of Texas and how they impact low-income communities.

The key questions this study seeks to answer are as follows:

1. What are the demographics surrounding farmers markets?

2. How often are farmers markets located in food deserts? Are they any more likely to be located in a food desert than not?

3. Are markets in low-income neighborhoods and/or food deserts more or less likely to accept FMNP or SFMNP?

4. Aside from income, are there any other socio-economic factors that increase the likelihood of a farmers market in a neighborhood?

5. Do any of these socio-economic factors increase the likelihood that the farmers market will accept FMNP or SFMNP?

For practical reasons, this will not be a nation-wide evaluation, but will focus solely on farmers markets in Texas.

# CHAPTER 2

# METHOD

## 2.1 Data Gathering

The USDA's Agricultural Marketing Service's National Farmers Markets Directory contains an extensive listing of farmers markets throughout the nation which includes: the market's location, their ability to accept FMNP, SFMNP, WIC, WICcash, and a great deal of other information not relevant to this study such as the types of produce sold there (U.S. Department of Agriculture, Agricultural Marketing Service, 2010). The Farmer-to-Consumer Direct Marketing Act of 1976, which created the Farmers Market Promotion Program of the USDA, states:

> direct marketing from farmers to consumers shall mean the marketing of agricultural commodities at any marketplace (including, but not limited to, roadside stands, city markets, and vehicles used for house-to-house marketing of agricultural commodities) established and maintained for the purpose of enabling farmers to sell (either individually or through a farmers' organization directly representing the farmers who produced the commodities being sold) their agricultural commodities directly to individual consumers, or organizations representing consumers, in a manner calculated to lower the cost and increase the quality of food to such consumers while providing increased financial returns to the farmers (Farmer-to-Consumer Direct Marketing Act of 1976, 1982.)

The directory of farmers markets compiled by the Agricultural Marketing Service and used in this study is based upon that very broad definition. However, for the purposes of this study, greater inclusiveness is useful in looking at any possible source of fresh produce within a neighborhood. The U. S. Department of Agriculture, Agricultural Marketing Service (USDA

AMS), National Farmers Markets Directory is self-reported information from local farmers markets though the USDA AMS "makes a concentrated effort to solicit new and updated market information" on an annual basis (U. S. Department of Agriculture, Agricultural Marketing Service, 2011). There are certainly flaws inherent in this method of collection, including missing smaller, informal markets and not accounting for newer markets. However, the list provides information on the largest, most established markets in the state at a given point in time.

Demographic and economic information was collected for 5,224 census tracts in Texas (U. S. Census Bureau, American Community Survey, 2010). Although there are 5,265 census tracts in Texas, there were 40 tracts that were missing any population, demographic or economic data in the 2006-2010 American Community Survey 5 year estimates. Those tracts were excluded from any analysis so there were only 5,224 tracts considered. The data collected included total population, gender, age, race, ethnicity, income, and the number of households receiving food stamps/SNAP benefits. All economic data collected from the ACS is collected in terms of households not individuals (household income, number of households receiving food stamps/SNAP, etc). Data was collected for gender, age, race, ethnicity and income in order to compare the neighborhood demographics to the number of studies that show that the typical farmers market shopper is white, female, over 50 and middle to high income. (Feagan et al., 2004; Henneberry et al., 2009; Lyon et al., 2009; Onianwa et al., 2005). Data on population was collected simply to give a broader picture of the area in which farmers markets operate. Data was collected on the number of households on food stamps/SNAP to indicate whether the surrounding population would have access to and/or be able to take advantage of the SNAP Farmers Market Nutrition Program. The ACS does collect data on the number of households receiving food stamps/SNAP benefits where at least one person in the household is over the age of 60, which would be a good indicator of eligibility for Senior Farmers Market Nutrition Program benefits. Unfortunately, there were so many census tracts for which this data was missing that it was not useful.

Lastly, the U. S. Department of Agriculture, Economic Research Service uses the definition developed by the Healthy Food Financing Initiative (a partnership between the Departments of Treasury, Agriculture and Health and Human Services) along with data from the 2000 Census to locate food deserts in the United States (U. S. Department of Agriculture, Economic Research Services, 2011). The "Healthy Food Financing Initiative (HFFI) Working Group considers a food desert as a low-income census tract where a substantial number or share of residents has low access to a supermarket or grocery store" (U. S. Department of Agriculture, Economic Research Services, 2012) (see Appendix for full Food Desert Locator Documentation). Therefore an area with no grocery store but a large farmers market would still be considered a food desert. This provides the opportunity to repeat Bader's work in Texas to see if accounting for farmers markets would decrease the number of food deserts (Bader, 2010).

## 2.2 Data Analysis

The geographic information provided by the U. S. Department of Agriculture, Agricultural Marketing Services' Farmers Market locator was paired with the demographic and economic information from the ACS to determine which of these census tracts contained farmers markets and, if so, which government assistance programs those farmers markets were able to accept. There are 156 farmers market located in 129 census tracts. Next, the listing of the 678 food deserts provided by the USDA's Economic Research Service Food Desert Locator was added to this information to indicate which census tracts were also food deserts. Once all this information was compiled together, it was analyzed to determine any relevant relationships between these factors.

Statistical analysis of this data was done in SPSS to determine if there was a true correlation between any of these factors. A Pearson's correlation was run which included the number of farmers markets, population, gender, median age, race, ethnicity, median household income, number of households living in poverty and the number of households receiving

SNAP/food stamp benefits. Four factors were positively correlated with the number of farmers markets. An analysis of variance confirmed that these four factors were significantly different between census tracts with farmers markets versus those without. Finally, a linear regression analysis was completed including all four factors. This analysis revealed that there is one factor (out of the four) that is the single best predictor of farmers markets in a census tract. Detailed summaries of the results of these tests are below.

# CHAPTER 3

# RESULTS

## 3.1 Geography of Farmers Markets

The majority of the farmers markets in Texas are clustered within a few key metropolitan statistical areas (MSAs). The San Antonio MSA has by far the largest number with 48 farmers markets. Austin-Round Rock, Dallas-Fort Worth-Arlington, El Paso, Houston-Sugarland-Baytown, and San Antonio account for 75% of all farmers markets in the state of Texas. There several MSAs that have only a few farmers markets and five that have none at all. Additionally, there were 14 farmers markets located in 12 separate counties that were not part of any metropolitan statistical area (i.e. rural markets). Other counties, not within metropolitan statistical areas that contained farmers markets include: Brown, Cherokee (2), Deaf Smith, Dewitt, Fayette, Grayson, Lamar, Nacogdoches, Navarro (2), Polk, Walker and Wharton.

Table 3.1 Geography of Farmers Markets

| *Metropolitan Statistical Area (MSA)* | *Number of Farmers Markets* |
|---|---|
| Abilene | 1 |
| Amarillo | 1 |
| Austin-Round Rock | 28 |
| Beaumont-Port Arthur | 1 |
| Brownsville-Harlingen | 0 |
| College Station-Bryan | 1 |
| Corpus Christi | 5 |
| Dallas-Fort Worth-Arlington | 20 |
| El Paso | 11 |
| Houston-Sugar Land-Baytown | 10 |
| Killeen-Temple-Fort Hood | 3 |
| Laredo | 1 |
| Longview | 1 |

Table 3.1- continued

| | |
|---|---|
| Lubbock | 2 |
| McAllen-Edinburg-Mission | 0 |
| Midland | 1 |
| Odessa | 0 |
| San Angelo | 1 |
| San Antonio | 48 |
| Sherman-Denison | 0 |
| Texarkana | 2 |
| Tyler | 2 |
| Victoria | 1 |
| Waco | 0 |
| Wichita Falls | 2 |
| Other Counties[2] | 14 |
| Total | 156 |

The map below shows the visual representation of farmers markets locations throughout the state (USDA - Agricultural Marketing Service, 2011). The clustering around MSAs is apparent from the map though it is difficult to get an exact count of any kind from this image.

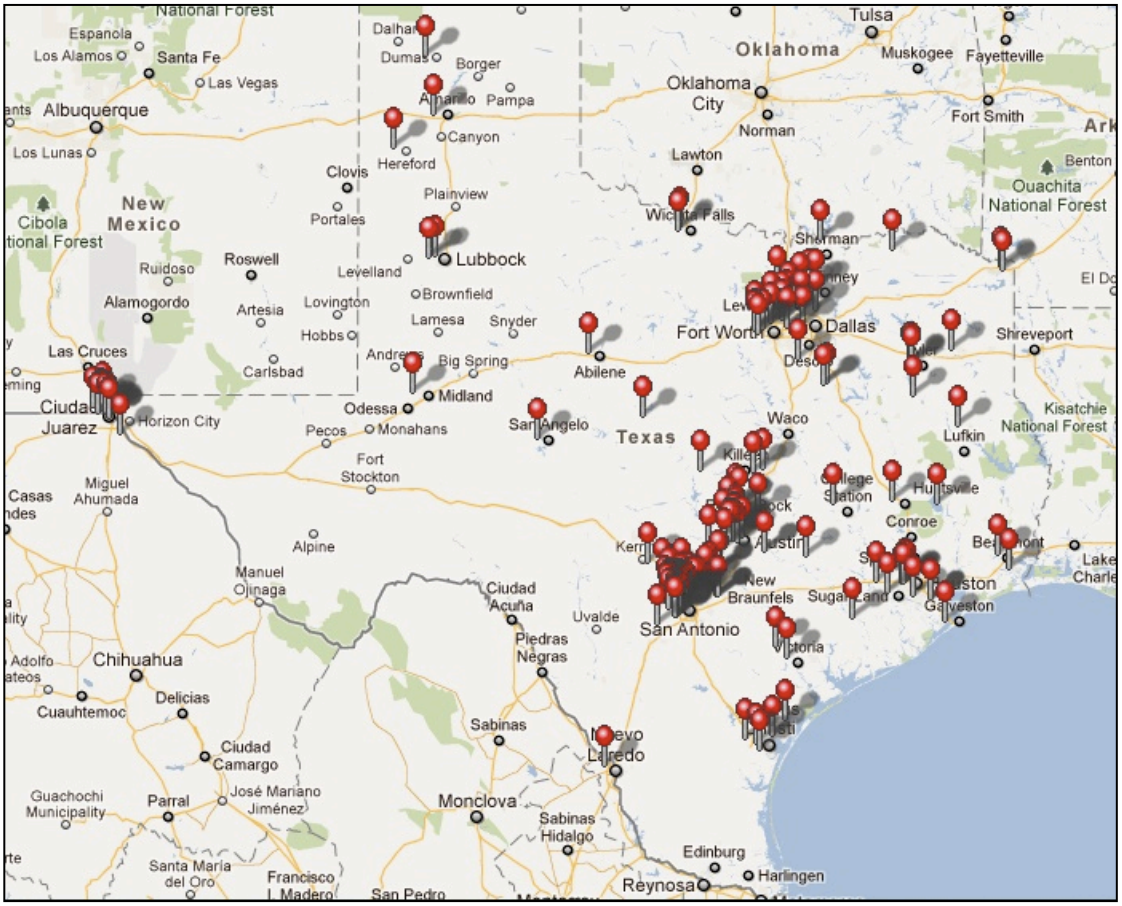


Figure 3.1 Map of Farmers Markets in Texas

## 3.2 Demographics of Farmers Markets Neighborhoods

First, census tracts with farmers markets were compared to those without farmers markets to look for any key differences between the two. There was no significant difference in the population, gender distribution or median age between the two groups.

Table 3.2 General Characteristics

| | All Census Tracts | With Farmers Markets | No Farmers Markets |
|---|---|---|---|
| Total Population | 4653.88 | 4654.27 | 4653.87 |
| Males | 2308.34 | 2332.96 | 2307.72 |
| Females | 2345.54 | 2321.31 | 2346.16 |
| Median Age | 34.91 | 34.07 | 34.93 |

There are subtle differences in the racial makeup of the two groups including what seems to be a difference in the Black/African American population with 8.62% in tracts with farmers markets, as compared to 11.86% in neighborhoods without farmers markets. However, this difference was not statistically significant. There was, however, a statistically significant correlation between those who identified as "Some Other Race" in the two groups (p=.002) with 12.63% in tracts with farmers markets and 9.85% in tracts without farmers markets.

Table 3.3 Race

| | All Census Tracts | | With Farmers Markets | | No Farmers Markets | |
|---|---|---|---|---|---|---|
| White | 3350.58 | 72.00% | 3407.98 | 73.22% | 3349.13 | 71.96% |
| Black/African American | 548.37 | 11.78% | 401.34 | 8.62% | 552.09 | 11.86% |
| Asian | 173.21 | 3.72% | 121.49 | 2.61% | 174.52 | 3.75% |
| American Indian | 22.91 | 0.49% | 25.04 | 0.54% | 22.86 | 0.49% |
| Native Hawaiian | 3.64 | 0.08% | 3.51 | 0.08% | 3.64 | 0.08% |
| Some Other Race | 461.63 | 9.92% | 587.64 | 12.63% | 458.44 | 9.85% |
| Biracial | 93.55 | 2.01% | 107.27 | 2.30% | 93.20 | 2.00% |

There is a difference in the Hispanic or Latino population between the two groups. Census tracts with farmers markets were, on average 47.56% Hispanic while those without farmers markets were only 36.43% Hispanic. This difference is statistically significant at the .01 level (p=.000).

Table 3.4 Ethnicity

| | All Census Tracts | | With Farmers Markets | | No Farmers Markets | |
|---|---|---|---|---|---|---|
| Hispanic or Latino | 1707.02 | 36.68% | 2162.68 | 47.56% | 1695.48 | 36.43% |

Neighborhoods with farmers markets earn, on average, $10,000 less per year per household than census tracts without farmers markets. This, in turn, increases the percentage living below the poverty line (19.14% in FM tracts versus 16.27%) receiving food stamps or SNAP benefits (13.11% in FM tracts versus 10.35%). There is a significant correlation between the presence of farmers markets and number of households living in poverty (p=.001) and

between the presence of farmers markets and the number of households receiving food stamps (p=.000).

Table 3.5 Economics

| | All Census Tracts | | With Farmers Markets | | No Farmers Markets | |
|---|---|---|---|---|---|---|
| Mean Household Income | $66,379.16 | | $56,377.09 | | $66,631.48 | |
| Living in Poverty | 760.34 | 16.34% | 890.95 | 19.14% | 757.04 | 16.27% |
| Receiving Food Stamp/SNAP | 170.41 | 10.43% | 222.49 | 13.11% | 169.09 | 10.35% |

An analysis of variance found that four factors were correlated with the presence of farmers markets in a neighborhood: Hispanic population (F=14.507, p=.000), percent living below poverty (F=11.154, p=.001), percent of households receiving food stamps (F=14.621, p=.000), and percent identifying as "Some Other Race" (F=9.297, p=.002). However, a linear regression analysis reveals that the single best predictor for farmers markets is the number of households receiving food stamps or SNAP benefits.

## 3.3 Food Deserts and Farmers Markets

In 5224 census tracts, 678 (12.97%) are food deserts and 129 (2.47%) contain farmers markets. The overlap between these two, food deserts that also contain farmers markets is only 20 (or 0.38%).

Table 3.6 Census Tracts with Food Deserts and Farmers Markets

| County | Census Tract | Farmers Market | Food Desert |
|---|---|---|---|
| Atascosa County | 9605 | South Texas Farmers Market Association | Yes |
| Bexar County | 1101 | Pearl Farmers Market | Yes |
| Bexar County | 1309 | South Texas Farmers Market Association II | Yes |
| Bexar County | 1609.01 | Central Texas Farmers Market Assoc. | Yes |
| Bowie County | 105 | Texarkana Texas Farmers Market | Yes |
| Brown County | 9501 | Brownwood Area Farmers Market | Yes |
| Dallas County | 91.01 | Four Seasons Markets at Firewheel | Yes |
| El Paso County | 104.04 | El Paso Growers Association II | Yes |
| El Paso County | 11.11 | Valley Growers Association III | Yes |
| El Paso County | 34.03 | El Paso Farmers Market | Yes |
| El Paso County | 9 | Valley Growers Association IV | Yes |
| Galveston County | 7232 | Galveston West End Market | Yes |

Table 3.6 – continued

| | | | |
|---|---|---|---|
| Galveston County | 7251 | Kemah Farmers and Open Air Market | Yes |
| Hays County | 102 | San Marcos/New Braunfels Farmers Market Association | Yes |
| Lamar County | 3 | Market Square Farmers Market | Yes |
| Lubbock County | 24 | Apple Country Farmers Market II | Yes |
| Taylor County | 105 | Northside Farmers Market | Yes |
| Travis County | 21.11 | SFC Farmers Market | Yes |
| Travis County | 8.03 | Steiner Ranch Farmers Market | Yes |
| Victoria County | 2.02 | Victoria Farmers Market | Yes |

A quick glance at the map of food deserts in Texas compared to the map of farmers markets (above) reveals that there are large swaths of food deserts around the border and panhandle area where there are relatively few farmers markets (USDA – Economic Research Service, 2011).

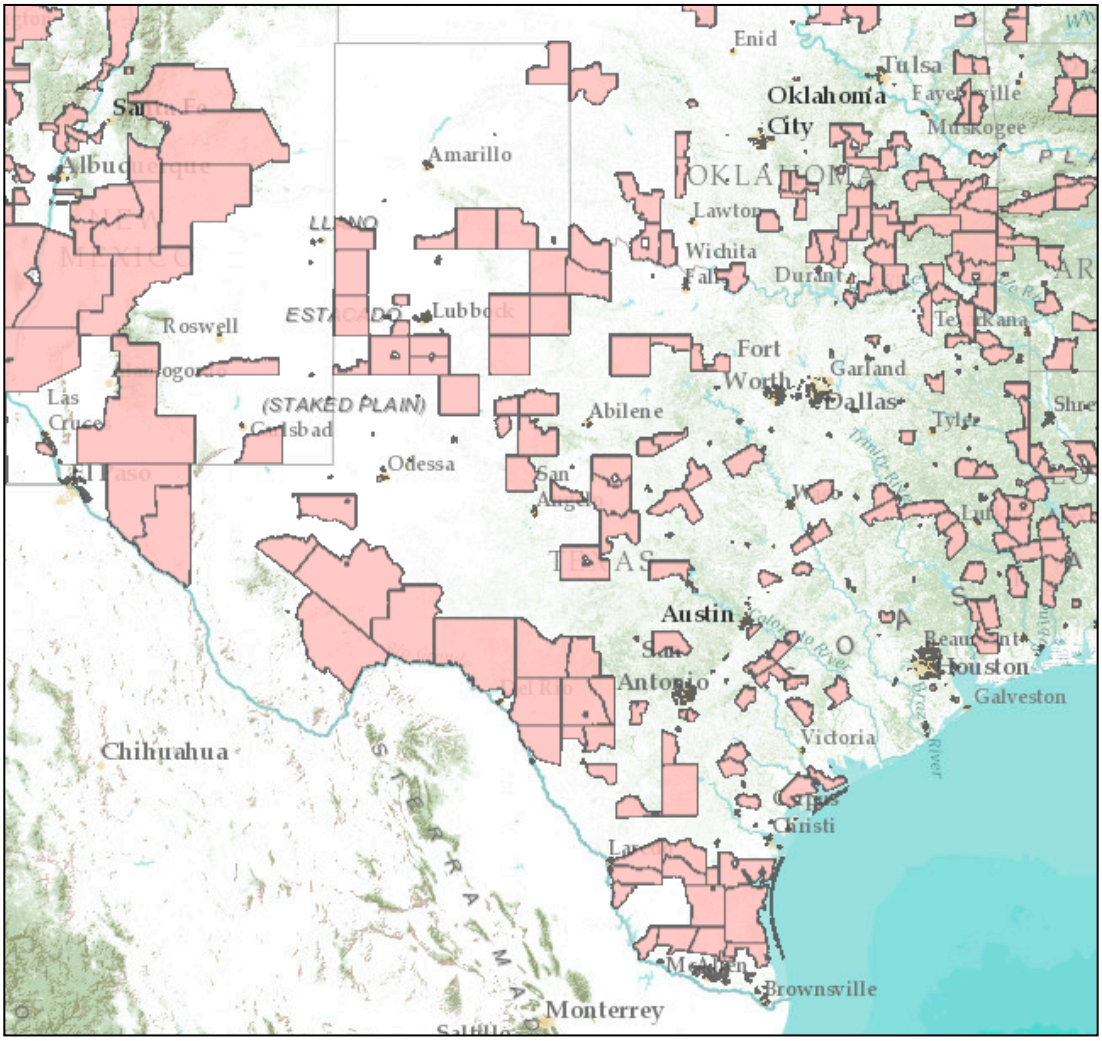


Figure 3.2 Map of Food Deserts in Texas

Though it is difficult to see on the state-level map, a closer view of the five MSAs where farmers markets are concentrated shows that there are food deserts in those areas, but the overlap between food deserts and farmers markets is not high.

In 5224 census tracts, 678 (12.97%) are food deserts and 129 (2.47%) contain farmers markets. The overlap between these two, food deserts that also contain farmers markets is only 20 (or 0.38%).

Table 3.7 Neighborhood Distributions of Food Deserts and Farmers Markets

| | All Census Tracts | | With Farmers Markets | | No Farmers Markets | |
|---|---|---|---|---|---|---|
| All Neighborhoods | 5224 | 100% | 129 | 2.47% | 5095 | 97.53% |
| Food Desert | 678 | 12.97% | 20 | 0.38% | 658 | 12.59% |
| Non-Food Desert | 4546 | 87.21% | 109 | 2.09% | 4417 | 84.55% |

When you look at the food deserts alone, the percentage with farmers markets is higher, but still not significant. Of the 678 tracts that were designated food deserts, 20 (or 2.95%) also contained farmers markets while the vast majority, 658 (97.05%) did not.

Table 3.8 Farmers Markets as a Percentage of Food Deserts

| | Total | | With Farmers Markets | | No Farmers Markets | |
|---|---|---|---|---|---|---|
| All Food Deserts | 678 | 100% | 20 | 2.95% | 658 | 97.05% |

Looking at this same number from the other perspective, as a percentage of farmers markets, 15.50% of farmers markets were located in food deserts. Though this number appears to be higher, it is still not significant.

Table 3.9 Food Deserts as a Percentage of Farmers Markets

| | Total | | Food Desert | | Non Food Desert | |
|---|---|---|---|---|---|---|
| All Farmers Markets | 129 | 100% | 20 | 15.50% | 109 | 84.50% |

Additionally, being located in a food desert did not have any impact on whether a market would accept government assistance programs (WIC, WICcash, SFMNP, or SNAP).

## 3.4 Comparing Farmers Markets

Out of 156 farmers markets in the state of Texas, only 18 (11.53%) accept WIC, 9 (5.77%) accept WICcash, 11 accept SFMNP (7.05%) and 14 (8.97%) accept SNAP.

Table 3.10 Government Assistance Programs

| | WIC | WICcash | SFMNP | SNAP |
|---|---|---|---|---|
| Number | 18 | 9 | 11 | 14 |
| Percent | 11.53% | 5.77% | 7.05% | 8.97% |

The 9 farmers markets that accepted WICcash had higher Hispanic population and higher rates of "Some Other Race". These correlations were both statistically significant. Hispanic was significant with at the .05 level (p=.035) while "Some Other Race" was also significant at the .05 level (p=.031). However, with such a small sample size, it is difficult to draw any true conclusion from this. There were no other correlations between the acceptance of government subsidy programs and neighborhood demographics including the percentage of the population that had received food stamps.

Table 3.11 WICcash

| | All Neighborhoods | | With WICcash | | No WICcash | |
|---|---|---|---|---|---|---|
| Hispanic | 2166.82 | 46.60% | 2933.71 | 60.20% | 2118.44 | 46.68% |
| Some Other Race | 585.74 | 12.60% | 901.14 | 19.21% | 569.65 | 12.55% |

# CHAPTER 4

## DISCUSION

Looking at the geographic distribution of farmers markets, it is clear that a large number cluster around large MSAs (Austin-Round Rock, Dallas-Fort Worth-Arlington, El Paso, Houston-Sugarland-Baytown, and San Antonio) with a smaller number scattered throughout the state in other MSAs and in rural areas. It is unsurprising that there would be a greater number of markets in metropolitan areas as more people means a larger potential customer base. Additionally, there seems to be some link between Hispanics and farmers markets, which may also support a link between farmers markets and urban areas as recent immigrants have tended to settle in cities at a greater rate than in rural areas (Waldinger, 1989). There may be other factors, as well, that draws farmers markets to metropolitan areas such as more lenient city permitting.

The fact that San Antonio has by far the largest number of farmers markets may skew the results to show that Hispanic population is more important than it actually is since that area has a large Hispanic population. There may be a third factor like farmers market friendly city ordinances that accounts for the correlation. Though there is a large cluster around El Paso, if the Hispanic population were the sole factor, you would expect to see more farmers markets along the border where the Hispanic population is also higher than average.

The fact that Hispanics and those identified as "Some Other Race" are both correlated with farmers markets and WICcash while no other racial group shows any correlation is likely not coincidental. A Census 2000 Brief discussing race and Hispanic origin in the 2000 Census found that "most respondents who reported Some other race are Hispanic" (Grieco, Cassidy & Bureau of the Census, 2001). So it is not unexpected that there would be a strong

correlation between those two groups. "Some Other Race" may in this case be thought of as a stand in or reflection of the Hispanic population.

While it is clear that there is some correlation between the Hispanic population and farmers markets, the nature of this relationship is unclear. Perhaps the answer is simply that San Antonio has municipal regulations that allow for more farmers markets and because they also have high Hispanic populations, the two become connected. Another theory might be that the Mexican-style "mercado" is more similar in nature to farmers markets than to grocery stores so Hispanics are more comfortable shopping there. Or perhaps, like in the example of the Oakland farmers market, there is a movement to support immigrant farmers within the community who sell their produce at these markets. But, of course, these are only suppositions; much more research would be needed to establish any of these theories. In fact, this research does not show that Hispanics are actually more likely to shop at farmers markets, only that they are more likely to live near them. Future research should examine San Antonio in more detail to determine why there are so many farmers markets in that area as well as a survey of Hispanic shoppers to gain a better understanding of their shopping habits and preferences.

There is no correlation between farmers markets and food deserts. This only means that farmers markets are not currently filling that gap in Texas. Previous research shows that farmers markets are a source of fresh produce in areas that would otherwise be food deserts in New York City (Bader, 2010). It would be informative if future research compared the two areas to determine the cause of the difference.

An interesting result of this research is the seemingly contradictory relationship between farmers markets and food stamp/SNAP recipients. There is a positive correlation between the presence of a farmers market and the number of food stamp/SNAP recipients. Despite that, there is no correlation between the number of food stamp/SNAP recipients and whether a market actually accepts food stamps/SNAP. Unfortunately, all the results related to the government assistance programs are tenuous at best; the sample size is simply to small to

come to any real conclusion about these issues. Still, it is certainly true that if farmers markets were to increase their acceptance of government assistance programs, they would have a large customer base from the surrounding community upon which to draw. In the regression analysis, number of households receiving SNAP/food stamps is actually the single best predictor for the presence of a farmers market. Perhaps the other three factors shown to be correlated with farmers markets (Some Other Race, Hispanic and number of households living in poverty) are more strongly correlated with farmers markets as a result of their strong correlation with the number of households receiving SNAP/food stamps.

The findings that farmers markets are positively correlated with Hispanic population, those identifying as "Some Other Race", rates of households living in poverty, and rates of food stamp/SNAP recipients seems to fly in the face of the previous research that the average farmers market shopper is White and upper income. Of course, the fact that the community surrounding the farmers market has these characteristics does not necessarily mean that the farmers market's customers share the same characteristics or that Hispanics are shopping at the farmers market. It could be that there are still white, upper class customers coming from other neighborhoods to shop at the farmers markets while the surrounding community finds another source of food. Either scenario is interesting for its own reason and this question certainly deserves more research with more attention with both the actual customers versus the community makeup in mind.

# CHAPTER 5

# CONCLUSION

This research yields some insight into the state of farmers markets in Texas. The accuracy of the data collected, the geographic scale of the study and the scope of the research limit it. The listing of farmers market upon which this research is based, supplied by the USDA's Agricultural Marketing Services' National Farmers Market Directory does not distinguish between large and small markets or between markets that open seasonally or on particular days of the week versus those open year round. For the purposes of this study, greater inclusiveness was preferable as any source of fresh produce would be beneficial, but future research should find a way to quantify these differences.

Limiting this study to Texas farmers markets creates an issue with external validity. The results may not be relevant to any other geographic location. Previous studies of farmers' market customers have shown great similarities at farmers markets across the United States with the exclusion of the Oakland Farmers Market, which proved to be a major exception based on the market's focus and the neighborhood's demographic makeup. However, this study will be the basis for future work on a larger geographic scale. Considering the correlation between the Hispanic population and farmers markets, it would be interesting to do a national study comparing states with large Hispanic populations (Texas, New Mexico, Arizona, California, etc) to those with very small Hispanic populations. Regardless of whether this study has any external validity, it certainly sheds light on the state of farmers markets in Texas.

There is clearly an economic difference between census tracts that contain farmers markets versus those that do not. Although the per capita income is not significantly correlated, the number of households on SNAP/food stamps is as is the number of households living in poverty. Census tracts with farmers markets are more likely to be more economically

disadvantaged. This is an encouraging result for government programs like FMNP and SFMNP as it shows that there is no geographic barrier to low-income recipients shopping at farmers markets. FMNP and SFMNP seek to alleviate another important barrier to low-income consumers shopping at farmers markets, economic barriers. However, there may be other barriers still to overcome such as culture or shopping preference.

While knowing the neighborhood demographics surrounding farmers markets is useful, it is really only half of the equation. The next step is to do a large-scale evaluation of the actual customers at the farmers markets. Without knowing the customer demographics it is difficult to paint a full picture. Judging from the community, there is the possibility that farmers markets in Texas defy the norm in terms of ethnicity and income. If they do not, it would be useful to find out why there is a disconnect between the community in which they operate (the logical customer base) and the actual customers. This research is a necessary first step, but certainly not the last.

APPENDIX A

USDA ECONOMIC RESEARCH SERCICE
FOOD DESERT LOCATOR
DOCUMENTATION

The following is cited entirely from the USDA Economic Research Service *Food Desert Locator Documentation* page (USDA Economic Research Service, 2012).

Definition of a Food Desert

While there are many ways to define a food desert, the Healthy Food Financing Initiative (HFFI) Working Group considers a food desert as a *low-income census tract* where a substantial number or share of residents has *low access* to a supermarket or large grocery store. To qualify as low-income, census tracts must meet the Treasury Department's New Markets Tax Credit (NMTC) program eligibility criteria. Furthermore, to qualify as a food desert tract, at least 33 percent of the tract's population or a minimum of 500 people in the tract must have low access to a supermarket or large grocery store.

The NMTC program defines a *low-income census tract* as: any census tract where (1) the poverty rate for that tract is at least 20 percent, or (2) for tracts not located within a metropolitan area, the median family income for the tract does not exceed 80 percent of statewide median family income; or for tracts located within a metropolitan area, the median family income for the tract does not exceed 80 percent of the greater of statewide median family income or the metropolitan area median family income.

*Low access* to a healthy food retail outlet is defined as more than 1 mile from a supermarket or large grocery store in urban areas and as more than 10 miles from a supermarket or large grocery store in rural areas. The distance to supermarkets and large grocery stores is measured by the distance between the geographic center of the 1-km square grid that contains estimates of the population (number of people and other subgroup characteristics) and the nearest supermarket or large grocery store. Once the distance to the nearest supermarket or large grocery store is calculated for each grid cell, the estimated number of people or housing units more than one mile from a supermarket or large grocery store in urban tracts (or 10 miles for rural census tracts) is aggregated to the census tract level. (A census tract is considered rural if the centroid of that tract is located in an area with a population of less than 2,500, and all other tracts are considered urban tracts.) If the aggregate number of people in the census tract with low access is at least 500 or the percentage of people in the census tract with low access is at least 33 percent, then the census tract is considered a food desert.

Application of these criteria results in 6,529 food-desert census tracts in the continental U.S. (food deserts are not yet defined for Alaska and Hawaii). Roughly 75 percent of these food-desert tracts are urban, while the remaining 25 percent are rural. An estimated total of 13.6 million people in these census tracts have low access to a supermarket or large grocery store—that is, they live more than 1 or 10 miles from a supermarket or large grocery store. Of these 13.6 million people, 82.2 percent are in urban areas.

***Note**:* Some census tracts that contain supermarkets or large grocery stores may meet the criteria of a food desert if a substantial number or share of people within that census tract is more than 1 mile (urban areas) or 10 miles (rural areas) from the nearest supermarket. Furthermore, some residents of food desert census tracts may live within 1 or 10 miles of a supermarket; these residents are *not* counted as low access and thus not counted in the 13.6 million total.

Many low-income census tracts in dense urban areas are smaller than 1 square kilometer. For these tracts, grid-level population data are not available. The level of access in these tracts was

assessed by determining whether each tract centroid fell within a 1-mile radius of a supermarket or large grocery store. Census tracts in which centroids fell within the 1-mile radius were assumed to have adequate access. Tracts in which centroids fell outside of the 1-mile radius were assumed to be low access tracts and everyone in the tract was considered as having low access to a

The way that a small set of urban census tracts—those smaller than 1-kilometer square—were designated as "low-income" was corrected on December 28, 2011. The low-income designation used in the 2009 ERS report to Congress (based on poverty status alone) had been applied to these small census tracts instead of the low-income designation used by the NMTC program (based on poverty and median income criteria). An additional 29 urban tracts that meet the NMTC definition of low-income and the low-access criterion have been added to the Food Desert Locator. This results in an additional 102,300 people in food desert census tracts that have low access to a supermarket or large grocery store, bringing the total to 13,563,920, in all 6529 tracts.

Data Sources

Data on population and income come from the 2000 Census of Population and Housing. The 1-km square grid data come from the Socioeconomic Data and Applications Center. Census population data, which are released at the block group level, are first allocated to blocks and then allocated aerially down to the grid level.

Information on supermarket and large grocery store locations comes from a directory of supermarkets and large grocery stores (food stores with at least $2 million in sales that contain all the major food departments found in a traditional supermarket). The directory was developed from a list of stores authorized to receive Supplemental Nutrition Assistance Program (SNAP) benefits, augmented by data from Trade Dimensions TDLinx (a Nielsen company), a proprietary source of individual supermarket store listings, both for the year 2006. Details on these data sources can be found in the 2009 ERS report, *Access to Affordable and Nutritious Food: Measuring and Understanding Food Deserts and Their Consequences*.

Definitions of Indicators Mapped to Food Deserts

The Food Desert Locator includes characteristics only for census tracts that qualify as food deserts. All store data come from the 2006 directory of stores, and all population and household data come from the 2000 Census of Population and Housing. For the 140 urban census tracts for which grid-level data are not available, all people in the tract are assumed to have low-access to a supermarket or large grocery store.

***Urban tract status***

*Definition* This variable indicates whether a census tract is an urban or rural tract. Urban and rural are defined in the Census Urbanized Area definitions where rural areas are sparsely populated areas with fewer than 2,500 people, and urban areas are areas with more than 2,500 people. A census tract is urban if the geographic centroid of the tract is in an area with more than 2,500 people; all other tracts are rural.

***Number of people with low access to a supermarket or large grocery store***

*Definition* Estimated number of people in the census tract that lives more than one mile from a

supermarket or large grocery store (urban tracts) or more than 10 miles from a supermarket or large grocery store (rural tracts). The total number of people in each grid cell that is either 1 or 10 miles from a supermarket or large grocery store was aggregated at the tract level to produce the census tract total.

***Percentage of people with low access to a supermarket or large grocery store***

*Definition* Percentage of the total population in the census tract that lives more than one mile from a supermarket or large grocery store (urban tracts) or more than 10 miles from a supermarket or large grocery store (rural tracts). The total number of people in each grid cell that is either 1 or 10 miles from a supermarket or large grocery store was aggregated at the tract level to produce the census tract total. The census tract total was then divided by the total 2000 Census population count for that tract to produce the percentage of people with low access.

***Number of housing units without a vehicle with low access to a supermarket or large grocery store***

*Definition* Estimated number of occupied housing units in the census tract that does not own a vehicle and is more than one mile from a supermarket or large grocery store (urban tracts) or more than 10 miles from a supermarket or large grocery store (rural tracts). The number of occupied housing units that reports not owning a vehicle within grid cells that are either 1 or 10 miles from a supermarket or large grocery store was aggregated to the census tract level. Vehicle access was based on a question from the 2000 Census long-form that asked respondents whether the housing unit had access to an automobile, van, or truck of 1-ton-load capacity or less.

***Percentage of housing units without a vehicle with low access to a supermarket or large grocery store***

*Definition* Percentage of occupied housing units in the census tract that does not own a vehicle and is more than one mile from a supermarket or large grocery store (urban tracts) or more than 10 miles from a supermarket or large grocery store (rural tracts). The number of occupied housing units that reports not owning a vehicle within grid cells that are either 1 or 10 miles from a supermarket or large grocery store was aggregated to the census tract level. This total was divided by the total number of occupied housing units in the tract to produce the percentage of housing units without a vehicle with low access. Vehicle access was based on a question from the 2000 Census long-form that asked respondents whether the housing unit had access to an automobile, van, or truck of 1-ton-load capacity or less. The total number of occupied housing units used to calculate this variable come from 2000 Census long-form data.

The Census long-form data on total occupied housing units are used because questions on vehicle ownership are part of the long-form questionnaire, not the short-form questionnaire. Housing unit totals from the short and long forms are not identical but are very close.

***Number of low-income people with low access to a supermarket or large grocery store***

*Definition* Estimated number of low-income people in the census tract that is more than 1 mile from a supermarket or large grocery store (urban tracts) or more than 10 miles from a

supermarket or large grocery store (rural tracts). Low-income is defined as annual household income less than or equal to 200 percent of Federal poverty thresholds for family size. The number of low-income people in each grid cell that is either 1 mile (urban tracts) or 10 miles (rural tracts) from a supermarket or large grocery store is aggregated to the census tract level.

***Percentage of total population that is low-income and has low access to a supermarket or large grocery store***

*Definition* Percentage of the total population in the census tract that has low income and is more than 1 mile from a supermarket or large grocery store (urban tracts) or more than 10 miles from a supermarket or large grocery store (rural tracts). Low-income is defined as annual household income less than or equal to 200 percent of Federal poverty thresholds for family size. The number of low-income people in each grid cell that is either 1 mile (urban tracts) or 10 miles (rural tracts) from a supermarket or large grocery store is aggregated to the census tract level. This total is divided by the total number of people in the census tract to obtain the percentage of low-income, low-access people in the census tract. The total population estimate for this calculation comes from Census long-form data.

The Census long-form data on total population are used because questions on income are part of the long-form questionnaire, not the short-form questionnaire. Population totals from the short and long forms are not identical but are very close.

***Number of people age 0-17 with low access to a supermarket or large grocery store***

*Definition* Estimated number of children age 0 through 17 in the census tract that lives more than 1 mile from a supermarket or large grocery store (urban tracts) or more than 10 miles from a supermarket or large grocery store (rural tracts). The total number of children in each grid cell that is either 1 mile (urban tracts) or 10 miles (rural tracts) from a supermarket or large grocery store was aggregated at the tract level to produce a census tract total.

***Percentage of the total population that is age 0-17 and has low access to a supermarket or large grocery store***

*Definition* Percentage of children age 0 through 17 in the census tract that lives more than 1 mile from a supermarket or large grocery store (urban tracts) or more than 10 miles from a supermarket or large grocery store (rural tracts). The total number of children in each grid cell that is either 1 mile (urban tracts) or 10 miles (rural tracts) from a supermarket or large grocery store was aggregated at the tract level to produce a census tract total. This total was then divided by the total number of people within the census tract.

***Number of people age 65+ with low access to a supermarket or large grocery store***

*Definition* Estimated number of people age 65 or older in the census tract that lives more than 1 mile from a supermarket or large grocery store (urban tracts) or more than 10 miles from a supermarket or large grocery store (rural tracts). The total number of older people in each grid cell that is either 1 mile (urban tracts) or 10 miles (rural tracts) from a supermarket or large grocery store was aggregated at the tract level to

produce a census tract total.

***Percentage of the total population that is age 65+ and has low access to a supermarket or large grocery store***

*Definition* Percentage of people age 65 or older in the census tract that lives more than 1 mile from a supermarket or large grocery store (urban tracts) or more than 10 miles from a supermarket or large grocery store (rural tracts). The total number of older people in each grid cell that is either 1 mile (urban tracts) or 10 miles (rural tracts) from a supermarket or large grocery store was aggregated at the tract level to produce a census tract total. This total was then divided by the total number of people within the census tract.

REFERENCES

Alkon, A. (2008). Paradise or pavement: the social constructions of the environment in two urban farmers' markets and their implications for environmental justic and sustainability. *Local Environment, 13*(3), 271-289.

Bader, M.D.M., Purciel, M., Yousefzadeh, P., Neckerman, K.M. (2010). Disparities in Neighborhood Food Environments: Implications of Measurement Strategies. Economic Geography, 86(4), 409-430.

Bell, D. R., Ho, T., Tang, C. S. (1998). Where to Shop: Fixed and Variable Costs of Shopping. *Journal of Marketing Research*, 35(3), 352-369.

Brown, A. (2001). Counting Farmers Markets. *Geographical Review, 91*(4), 655-674.

Chung, C., Myers Jr., S.L. (1999). Do the Poor Pay More for Food? An Analysis of Grocery Store Availability and Food Price Disparities. *The Journal of Consumer Affairs, 33*(2), 276-296.

Farmer-to-Consumer Direct Marketing Act of 1976. Pub. L. 94–463, § 3,Oct. 8, 1976, 90 Stat. 1982.

Feagan, R., Morris, D., Krug, K. (2004). Niagara Region Farmers' Markets: local food systems and sustainability considerations. *Local Environment, 9*(3), 235-254.

Freeman, A. (2007). Fast Food: Oppression Through Poor Nutrition. *California Law Review, 95*, 2221-2259.

Grieco, E.M., Cassidy, R.C., & Bureau of the Census (DOC), W.n. (2001). Overview of Race and Hispanic Origin: Census 2000 Brief. Retrieved from ERIC database. (ED453345)

Henneberry, S. R., Whitacre, B., Agustini, H.N. (2009). An Evaluation of the Economic Impacts of Oklahoma Farmers Markets. *Journal of Food Distribution Research, 40*(3), 64-78.

Lloyd, R. & Jennings, D. (1978). Shopping Behavior and Income: Comparisons in an Urban Environment. *Economic Geography*, 54 (2), 157-167.

Lyon, P., Collie, V., Kvarnbrink, E., Colquhoun, A. (2009). Shopping at the farmers' market: consumers and their perspectives. *Journal of Foodservice, 20*, 21-30.

Mishi-Brunt, C., Haire-Joshu, D., Elliot, M., Brownson, R. (2007). *Fruit and Vegetable Intake and Obesity in Preadolescent Children: The Role of Neighborhood Poverty and Grocery Store Access.* American Journal of Health Education, 8(5), 258-265.

Onianwa, O., Mojica, M., Wheelock, G. (2006). Consumer Characteristics and Views Regarding Farmers Markets: An Examination of On-Site Survey Data of Alabama Consumers. *Journal of Food Distribution Research, 37*(1), 125-131.

Onianwa, O., Wheelock, G., Mojica, M. (2005). An Analysis of the Determinants of Farmer-to-Consumer Direct-Market Shoppers. *Journal of Food Distribution Research, 26*(1), 130-134.

Sharma, S., Xia, C., Arcan, C., Mattingly, M., Jennings, S., Song, H., & Gittelsohn, J. (2009). Assessment of dietary intake in an inner-city African American population and development of a quantitative food frequency questionnaire to highlight foods and nutrients for a nutritional invention. *International Journal Of Food Sciences & Nutrition*, *60*155-167. doi:10.1080/09637480902755061

Velasquez, C., Eastman, C., Masiunas, J. (2005). An Assessment of Illinois Farmers' Market Patrons' Perceptions of Locally-Grown Vegetables. *Journal of Vegetable Science, 11*(1), 17-26.

Waldinger, R. (1989). Immigration and Urban Change. *Annual Review of Sociology*, 15, 211-232. Retrieved from JSTORE at http://libproxy.uta.edu:2055/stable/2083225.

U. S. Census Bureau, 2005-2009 American Community Survey 5 year estimates. (2010) Retrieved from http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

U. S. Department of Agriculture, Agricultural Marketing Service. (2011) Farmers Market Geographic Data. http://www.ams.usda.gov/farmersmarkets

U. S. Department of Agriculture, Agricultural Marketing Service. (2010) Farmers Market Geographic Data. Retrieved from https://explore.data.gov/d/wfna-38ey

U. S. Department of Agriculture, Economic Research Services. (2012) Food Desert Locator Documentation. www.ers.usda.gov/Data/FoodDesert/documentation.html

U. S. Department of Agriculture, Economic Research Services. (2011) Food Desert Locator Data. Retrieved from http://www.ers.usda.gov/data/fooddesert/downloadData.html

U. S. Department of Agriculture, Food & Nutrtition Service. (2011a) *WIC Farmers Market Nutrition Program.* http://www.fns.usda.gov/wic/fmnp/FMNPfaqs.htm

U. S. Department of Agriculture, Food & Nutrtition Service. (2011b) *WIC Senior Farmers Market Nutrition Program.* http://www.fns.usda.gov/wic/seniorfmnp/SeniorFMNPoverview.htm

U. S. Department of Health and Human Services, Centers for Disease Control, (2011) *Overweight and Obesity Strategy and Solutions.* http://www.cdc.gov/obesity/childhood/solutions.html

Zenk, S.N., Schulz, A.J., Lachance, L.L., Mentz, G., Kannan, S., Ridella, W., Galea, S. (2009) Multilevel Correlates of Satisfaction with Neighborhood Availability of Fresh Fruits and Vegetables. *Annals of Behavioral Medicine,* (38), 48-59.

Zepeda, L., Leviten-Reid, C. (2004). Consumers' Views on Local Food. *Journal of Food Distribution Research, 35*(3), 1-6.

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