A Study of Best Practices to Address Food Deserts in the United States

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Introduction

In order to examine and deliberate on the subject of food deserts, we must before all else establish a formal definition. It is also of utmost importance to make a distinction between urban food deserts and rural food deserts as there are different implications in the hurdles they face, which are outlined below.

What are food deserts?

As defined by the US Department of Agriculture (USDA), food deserts are “low-income census tracts with a substantial number or share of residents with low levels of access to retail outlets selling healthy and affordable foods (Ploeg and Williams, 2011).” Food deserts are determined both by low-income and low access thresholds as developed by the USDA.

Urban Food Deserts vs. Rural Food Deserts

In order for a census tract to be considered a food desert, it must meet the low-income and low-access requirements outlined by the USDA.

Both urban food deserts and rural food deserts maintain the same low-income “poverty rate of 20 percent or greater, or a median family income at or below 80 percent of the statewide or metropolitan area median family income (Ploeg and Williams, 2011).” However, urban food deserts and rural food deserts have different thresholds of low-access. Urban food deserts are census tracts in which “at least 33 percent of the population lives more than 1 mile from a supermarket or large grocery store (Ploeg and Williams, 2011).” Rural food deserts are rural census tracts in which “at least 33 percent of the population lives more than 10 miles from a supermarket or large grocery store (Ploeg and Williams, 2011).” Based on these definitions, “an estimated 18.8 million people, or 6.1 percent of the U.S. population, live in low-income and low access tracts and are more than 1 mile or 10 miles from a supermarket (USDA-ERS).”

Considerations

When it comes to food deserts, there are many factors that contribute to the circumstances surrounding the inaccessibility of fresh produce and other healthy foods. Outside conditions such as time constraints due to employment or familial responsibilities, access to private and public vehicular transportation, income, and education on what a healthy diet looks like are also important components.
Where are food deserts found?

According to an analysis conducted by the USDA Economic Research Service (ERS), “an estimated 13.5 million people in the United States have low access to a supermarket or large grocery store, with 82 percent [of these 13.5 million people] living in urban areas (Ploeg and Williams, 2011).” Generally, food deserts are found in communities with smaller populations or communities whose population is decreasing. Based on census data gathered from 1990 and 2000, there are 6,529 census tracts identified as being food deserts (Dutko et al., 2012). Table 1 below outlines the statistics surrounding these food deserts by low-income status.

| Table 1: “Number and Percentage of Food Desert Tracts by Rural and Urban Status and by Low-Income Status” |
|-------------------------------------------------|---------|---------|
| Food desert tracts                              | Overall | Rural   |
|                                                 | 6,529   | 2,204   |
| Number of low-income tracts                     | 24,927  | 6,519   |
| Total number of tracts                          | 64,999  | 13,827  |
|                                                 |         |         |
| Food desert tracts as percentage of low-income tracts | 26.2    | 33.8    |
| Food desert tracts as percentage of total tracts | 10.0    | 15.9    |

Note: Totals for rural and urban sets exclude tracts with greater than 50 percent of the population living in group quarters, which eliminates 710 tracts—116 rural and 594 urban. Low-income census tracts are those with: a poverty rate > 20 percent; median family income < 80 percent of statewide median family income (tracts outside metro areas) or median family income < 80 percent of the greater of statewide median family income (tracts outside metro areas) or the median family income of the metropolitan area.


USDA Food Access Research Atlas

Using the USDA’s Food Access Research Atlas, we have the ability to search any city within the US and identify existing food deserts. While the USDA reports that “the highest number of food deserts exist in states with the largest populations;” as seen in Figures 1-4 below, there are food deserts found throughout the US as represented in green (Wallace, 2018).
Figure 1: Food Deserts in the Greater United States

Figure 2: Food Deserts in the Western United States


Figure 3: Food Deserts in the State of Alaska


Figure 4: Food Deserts in the State of Hawaii

Affected Populations

Food desert tracts are often found in communities with smaller populations or communities with decreasing populations (Dutko et al., 2012). For this reason, they tend to have an increased number of vacancies or abandoned homes compared to non-food deserts as seen in Table 2 and 3 (Dutko et al., 2012).

The USDA ERS conducted an analysis using data collected from the American Community Survey (ACS) that individually compares rural and urban census tracts considered to be food deserts to non-food desert census tracts. This comparison revealed many disparities found between food deserts both urban and rural, and non-food deserts.

Socio-Economic Background

The study shows that food deserts affect disadvantaged individuals the most, with higher rates of poverty and unemployment, higher rates of the population receiving public assistance, and lower rates of secondary and higher education seen in food desert populations (see Figure 4). Additionally, food deserts are home to larger populations of minorities than non-food deserts, as seen in Figure 4 below. This suggests “that demographics may play a role in determining food access (Dutko et al., 2012).

Figure 5: “Mean Characteristics of Food Deserts Versus Other Tracts, Census 2000”


Source: Characteristics and Influential Factors of Food Deserts (p 9) by P. Dutko, M. Ploeg, and T. Farrigan, 2012, USDA ERR Number 140.
Various statistics comparing urban food desert tracts and urban non-food desert tracts are outlined in Table 2 below and some defining characteristics are touched upon in the following paragraph.

Demographically, the minority rate within urban food deserts was higher with a 69 percent larger population in 1990, which decreased to 53 percent between 2005-09 for reasons unknown. Economically, median family income in urban food deserts in 1990 was 36 percent lower than their counterparts, which increased to a 41 percent income gap between 2005-09. The population living below the poverty line in 1990 was also 94 percent higher in urban food deserts. While this decreased between 2005-09, it was still 89 percent higher in urban food desert tracts. Regarding education, urban food deserts also have larger populations of individuals aged 25 and older with less than a high school diploma standing at 49 percent larger in 1990 and 60 percent larger between 2005-09.

![Table 2: Socioeconomic Characteristics of Urban Tracts by Food Desert Status: 1990 Census, 2000 Census, and 2005-09 ACS](source)

Source: Characteristics and Influential Factors of Food Deserts (p 12) by P. Dutko, M. Ploeg, and T. Farrigan, 2012, USDA ERR Number 140.
Various statistics comparing rural food desert tracts and rural non-food desert tracts are outlined in Table 3 below and some defining characteristics are touched upon in the following paragraph.

Demographically, the minority rate within rural food deserts is higher with an 81 percent larger population in 1990, which decreased to 64 percent between 2005-09 for reasons unknown. Economically, median family income in rural food deserts in 1990 was 18 percent lower than their counterparts, which decreased to a 16 percent income gap between 2005-09. The population living below the poverty line in 1990 was also 46 percent higher in rural food deserts. While this decreased between 2005-09, it was still 34 percent higher in rural food desert tracts. Regarding education, rural food deserts also have larger populations of individuals aged 25 and older with less than a high school diploma standing at 16 percent larger in 1990 and 19 percent larger between 2005-09.

Table 3: Socioeconomic Characteristics of Rural Tracts by Food Desert Status: 1990 Census, 2000 Census, and 2005-09 ACS

<table>
<thead>
<tr>
<th>Variable</th>
<th>1990</th>
<th>2000</th>
<th>2005-09</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Food desert</td>
<td>Non-food desert</td>
<td>Percent difference</td>
</tr>
<tr>
<td><strong>Demographic</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total population</td>
<td>3,538.66 (1,878.267)</td>
<td>3,890.52 (1,838.160)</td>
<td>-0.09</td>
</tr>
<tr>
<td>Population density</td>
<td>0.59 (1.229)</td>
<td>0.59 (3.211)</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Economically</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>0.77 (0.278)</td>
<td>0.87 (0.19)</td>
<td>-0.12</td>
</tr>
<tr>
<td>Non-Hispanic Black/African-American</td>
<td>0.11 (0.206)</td>
<td>0.07 (0.147)</td>
<td>0.54</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.06 (0.16)</td>
<td>0.04 (0.107)</td>
<td>0.70</td>
</tr>
<tr>
<td>Minority</td>
<td>0.23 (0.278)</td>
<td>0.13 (0.19)</td>
<td>0.81</td>
</tr>
<tr>
<td>Age &gt; 25 w/ education less than high school diploma</td>
<td>0.36 (0.122)</td>
<td>0.31 (0.12)</td>
<td>0.16</td>
</tr>
<tr>
<td>Age &gt; 25 w/ bachelor's degree or higher</td>
<td>0.10 (0.0619)</td>
<td>0.13 (0.0778)</td>
<td>-0.20</td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median family income (dollars)</td>
<td>30,085.83 (6,971.205)</td>
<td>36,688.39 (9,265.964)</td>
<td>-0.18</td>
</tr>
<tr>
<td><strong>Percent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population w/ income &lt; poverty</td>
<td>0.24 (0.118)</td>
<td>0.16 (0.103)</td>
<td>0.46</td>
</tr>
<tr>
<td>Households receiving public assistance</td>
<td>0.12 (0.078)</td>
<td>0.06 (0.0503)</td>
<td>0.42</td>
</tr>
<tr>
<td>Vacant housing units</td>
<td>0.19 (0.139)</td>
<td>0.14 (0.132)</td>
<td>0.28</td>
</tr>
<tr>
<td>Population age 16+ in civilian labor force and unemployed</td>
<td>0.09 (0.0579)</td>
<td>0.07 (0.0401)</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Source: Characteristics and Influential Factors of Food Deserts (p 10) by P. Dutko, M. Ploeg, and T. Farrigan, 2012, USDA ERR Number 140.
Mobility

An especially important factor “in determining the ease of obtaining sufficient, healthy, and affordable food,” is access to private vehicular transportation (Dutko et al., 2012). With many low-income individuals having limited access to private vehicular transportation, public transportation infrastructure, bicycle infrastructure, and pedestrian infrastructure within communities are also important defining characteristics.

Within both urban and rural food desert tracts, there are higher rates of family households without access to vehicular transportation. Based on 1990 census data, urban food desert tract populations of occupied housing units without vehicle access were 38 percent higher than urban non-food desert tracts (see Table 4). This decreased in the following years according to ACS 2005-09 data, but the rate was still 24 percent higher compared to its counterparts (see Table 4). While there is a smaller percent difference between rural food desert tracts and rural non-food desert tracts compared to urban areas, the disparity persists. This smaller percent gap is attributed to a higher need for private vehicles due to “the greater dispersion of residences, retailers, schools, and places of work in rural areas (Dutko et al., 2012).” Rural food desert tract populations of occupied housing units without vehicle access were 24 percent higher than their counterparts based on 1990 census data (see Table 5). This decreased to 15 percent according to ACS 2005-09 data (see Table 5).

Table 4: Transportation & Mobility Characteristics of Urban Tracts by Food Desert Status: 1990 Census, 2000 Census, and 2005-09 ACS

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupied housing units w/o vehicle access</td>
<td>0.17 (0.137)</td>
<td>0.12 (0.161)</td>
<td>0.38</td>
<td>0.16 (0.118)</td>
<td>0.12 (0.151)</td>
<td>0.33</td>
<td>0.11 (0.0879)</td>
<td>0.09 (0.1257)</td>
<td>0.24</td>
</tr>
<tr>
<td>Population age 16+ commuting &lt; 25 minutes to work</td>
<td>0.69 (0.138)</td>
<td>0.62 (0.16)</td>
<td>0.12</td>
<td>0.65 (0.145)</td>
<td>0.59 (0.162)</td>
<td>0.11</td>
<td>0.65 (0.157)</td>
<td>0.57 (0.171)</td>
<td>0.13</td>
</tr>
<tr>
<td>Population age 16+ commuting &gt; 45 minutes to work</td>
<td>0.10 (0.074)</td>
<td>0.13 (0.1056)</td>
<td>-0.27</td>
<td>0.13 (0.0865)</td>
<td>0.16 (0.1118)</td>
<td>-0.21</td>
<td>0.12 (0.0941)</td>
<td>0.16 (0.118)</td>
<td>-0.23</td>
</tr>
<tr>
<td>Population commuting to work by private vehicle</td>
<td>0.87 (0.111)</td>
<td>0.85 (0.164)</td>
<td>0.02</td>
<td>0.88 (0.099)</td>
<td>0.85 (0.162)</td>
<td>0.03</td>
<td>0.87 (0.111)</td>
<td>0.84 (0.171)</td>
<td>0.03</td>
</tr>
<tr>
<td>Population commuting to work by public transport</td>
<td>0.05 (0.0779)</td>
<td>0.07 (0.1354)</td>
<td>-0.27</td>
<td>0.05 (0.0709)</td>
<td>0.07 (0.1323)</td>
<td>-0.30</td>
<td>0.05 (0.0747)</td>
<td>0.07 (0.138)</td>
<td>-0.33</td>
</tr>
<tr>
<td>Population commuting to work by foot/bike/other</td>
<td>0.06 (0.067)</td>
<td>0.05 (0.0607)</td>
<td>0.25</td>
<td>0.05 (0.058)</td>
<td>0.04 (0.0578)</td>
<td>0.22</td>
<td>0.08 (0.077)</td>
<td>0.08 (0.0715)</td>
<td>-0.05</td>
</tr>
<tr>
<td>Number of tracts</td>
<td>4,197</td>
<td>46,331</td>
<td></td>
<td>4,175</td>
<td>46,316</td>
<td></td>
<td>4,166</td>
<td>46,320</td>
<td></td>
</tr>
</tbody>
</table>

N/A = A variable was not available for that data year. Standard errors are in parentheses.

Source: Characteristics and Influential Factors of Food Deserts (p 12-13) by P. Dutko, M. Ploeg, and T. Farrigan, 2012, USDA ERR Number 140.
Table 5: Transportation & Mobility Characteristics of Rural Tracts by Food Desert Status: 1990 Census, 2000 Census, and 2005-09 ACS

<table>
<thead>
<tr>
<th>Variable</th>
<th>1990</th>
<th>2000</th>
<th>2005-09</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Food</td>
<td>Non-food</td>
<td>Percent</td>
</tr>
<tr>
<td></td>
<td>desert</td>
<td>desert</td>
<td>difference</td>
</tr>
<tr>
<td>Occupied housing units w/o vehicle access</td>
<td>0.11 (0.075)</td>
<td>0.09 (0.063)</td>
<td>0.24</td>
</tr>
<tr>
<td>Population age 16+ commuting &lt; 25 minutes to work</td>
<td>0.74 (0.134)</td>
<td>0.74 (0.124)</td>
<td>-0.01</td>
</tr>
<tr>
<td>Population age 16+ commuting &gt; 45 minutes to work</td>
<td>0.10 (0.0691)</td>
<td>0.10 (0.0629)</td>
<td>0.06</td>
</tr>
<tr>
<td>Population commuting to work by private vehicle</td>
<td>0.85 (0.098)</td>
<td>0.89 (0.073)</td>
<td>-0.04</td>
</tr>
<tr>
<td>Population commuting to work by public transport</td>
<td>0.01 (0.0122)</td>
<td>0.01 (0.0174)</td>
<td>0.22</td>
</tr>
<tr>
<td>Population commuting to work by foot/bike/other</td>
<td>0.08 (0.0575)</td>
<td>0.06 (0.0504)</td>
<td>0.31</td>
</tr>
<tr>
<td>Number of tracts</td>
<td>2,211</td>
<td>11,476</td>
<td></td>
</tr>
</tbody>
</table>

N/A = A variable was not available for that data year. Standard errors are in parentheses.


Source: Characteristics and Influential Factors of Food Deserts (p 10-11) by P. Dutko, M. Ploeg, and T. Farrigan, 2012, USDA ERR Number 140.
Why should planners care?

Food deserts impact disadvantaged individuals the most, with larger populations of minorities, higher rates of poverty and unemployment, and lower rates of secondary and higher education seen within their populace. Additionally, this project postulates that the inaccessibility of fresh foods has long-lasting adverse effects on an individual’s overall health. For this reason, it is important for planners to address the needs of food desert populations as it is their responsibility to work in the best interest of community members, working towards more equitable neighborhoods and improving overall quality of life for said individuals.

Health and Well-being

Maintaining a nutritious and balanced diet is highly important in preserving an individual’s health and overall well-being. Food desert populations face many barriers with regards to the affordability and accessibility of fresh, healthy foods. This results in a multitude of long-term negative health outcomes within these populations.

Obesity, Illness, and Disease

Food desert communities’ limited access to healthy, quality foods, leads their populations to be at an increased risk of obesity and disease. A study analyzing the impact of distances to stores and food prices on obesity in urban food deserts, found that these factors “were positively associated with obesity (Ghosh-Dastidar et al., 2014).” Meaning that further distances to supermarkets or grocery stores and healthy food products being priced at higher rates compared to processed, unhealthy foods, contributes to obesity outcomes.

“Obesity in children and adults increases the risk of [numerous] health conditions [such as] high blood pressure and high cholesterol..., type 2 diabetes..., osteoarthritis..., gallstones, and gallbladder disease. Childhood obesity is also associated with psychological problems such as anxiety and depression, low self-esteem and lower self-reported quality of life, social problems such as bullying and stigma, and obesity as adults. Adults with obesity have higher risks for stroke, many types of cancer, premature death, and mental illness such as clinical depression and anxiety (CDC, 2020).”

Within the US, obesity is considered one of the “leading causes of death, including deaths from diabetes, heart disease, stroke, and some types of cancer (CDC, 2020).” Given the severity of the health outcomes related to unhealthy eating, it is of utmost importance to increase healthy foods within food deserts where food accessibility and affordability is lacking.
Interviews

To further inform this project, a series of interviews were conducted with professionals working to increase food access within their communities to gain insight into what types of practices and initiatives were most successful in aiding community members.

Cultiva La Salud

Figure 6: Cultiva La Salud Location Map

Source: Google Maps, 2022.

Genoveva Islas the program director for Cultiva La Salud, a public health advocacy non-profit organization which maintains its focus on substantiating healthy eating and active living practices within the San Joaquin Valley, was interviewed to discuss the various initiatives enacted through the organization to bolster food accessibility and affordability to its respective communities. Prior to the COVID-19 pandemic, Cultiva La Salud received much of its funding through philanthropic measures along with various grants. However, with the start of the COVID-19 pandemic, the organization shifted much of its efforts towards COVID response operations which were primarily government funded.

Upon being asked about the viability of stands and vendors selling local produce in partnership with school districts, Genoveva outlined various shortcomings surrounding the model of the intervention. Some hardships faced in sustaining this model included difficulty in maintaining ongoing support from the schools themselves, community members, and finding individuals to operate the stands. Due to the small scale of the intervention, there was also an issue of seasonality in what types of produce were made available at these stands throughout various times of the year, and because of this many individuals would choose to shop elsewhere as the farm stands and vendors did not always provide the types of goods they were looking for.
However, Genoveva purported that with high involvement and support from local farmers and community members, this model could have a positive impact towards increasing access to local produce.

The introduction of EBT acceptance at farmer’s markets was also a topic of discussion within the interview. Upon being asked whether low-income individuals gravitated towards farmer’s markets despite them often being more expensive than your average grocery store or supermarket, Genoveva emphasized the significance of cultural context within these scenarios. Genoveva works primarily within Latino communities and noted that there were high levels of turnout in vendor settings where Latino culture was embraced in the types of food and produce that were provided, as well as selling at price points that are feasible for community members. Additionally, Genoveva also highlighted the importance of consultation with community members to identify and provide culturally relevant products and identifying what locations and times can best serve the community. In learning the purchasing patterns of community members, local farmers can not only increase their source of revenue, but also benefit community members by increasing the availability and purchasing of fresh local produce that contributes to the local economy.

From the educational standpoint, Genoveva maintains that we need to reinvest in teaching individuals how they can prepare healthy nutritious meals at home, as well as the systems and infrastructures that support healthy living, creating a shift from a highly processed diet to a more balanced, healthy diet.

**CalFresh Healthy Living, Fresno County Department of Public Health**

![Figure 7: Fresno County Department of Public Health Location Map](source: Google Maps, 2022)

Rosemarie Amaral the project director of the CalFresh Healthy Living Program (SNAP-ed) for the Fresno County Department of Public Health was interviewed to gain a better understanding of
what types of practices the program engages in. CalFresh Healthy Living is a statewide program that supplies benefits through funding from the USDA to qualifying low-income individuals to aid in the purchasing of food while also providing educational opportunities for healthy eating and living habits.

Rosemarie placed an emphasis on the value of community outreach in understanding what communities are in need of, as well as identifying what communities are open to being given assistance. Once these communities are identified, CalFresh is then able to provide education on what types of policy systems, environmental changes, and other changes of social determinants they can engage in to improve their communities. Additionally, Rosemarie advocated for working in tandem with local organizations to bolster the community’s ability to carry out the work initiated by CalFresh, to create long-term sustainability of these solutions. This way communities can learn to maintain these healthy practices to benefit themselves and CalFresh is able to move on to other communities and expand their scope of reach.

When asked about the importance of providing health education to the youth and within schools, Rosemarie asserted that it is a focal point in warranting healthy communities for the future. Creating a foundation of skills, nutritional and physical activity education early on within life instills a precedent of healthy habits. Not only does this knowledge empower the community, but it also encourages community members to engage in conversations with CalFresh representatives which can help reveal their needs given their specific circumstances.

CalFresh engages in a number of practices to increase access to healthy foods and beverages within communities aside from providing monetary benefits including partnering with school cafeterias to highlight to the promotion of more nutritious foods, working with local retailers to increase the sale of fruits and vegetables, and establishing community gardens and farmer’s markets. With regards to farmer’s markets, CalFresh also helps in making EBT available. Additionally, they aid in instituting Market Match within certified farmer’s markets which is a California healthy food incentive program that matches however much money an eligible individual spends at farmer’s market using EBT, essentially giving them double for their money’s worth. This incentivizes individuals to gravitate towards farmer’s markets and purchase healthy foods. Rosemarie also asserted that transportation plays a huge role in food accessibility, and that raising awareness around existing public transportation systems is important in giving community members the means to access farmer’s markets and local retailers.
Keith Bergthold, the executive director of Fresno Metro Ministry, a non-profit organization which advocates for the health and well-being of the community, was interviewed to gain insight into the inner workings of the organization, especially regarding the Food to Share program. Fresno Metro Ministry is funded primarily through grants but has begun receiving backing through donations as local healthy food systems have progressed in recent years.

Food to Share is a multi-faceted program which addresses the needs of local food deserts in a variety of ways. The program identified the need to reduce food waste and recognized that recovering said waste could not only provide sustenance to the community, but also reduce greenhouse gases (GHG) in the process. Food to Share recovery and distribution is entirely based on donated foods from food distributions, school recoveries, retail food store recoveries, and private donations like that gathered from the Fresno Glean Team. Food to Share has partnered with St. Rest Baptist Church to develop a HUB which will broaden the scope of reach and capacity for food recovery, storage, and distribution. This facility will furnish several resources such as “a certified commercial kitchen, classroom and meeting spaces, nutritional education, and a rooftop garden (St. Rest Food to Share Investment Packet).”

When prompted about the significance of reaching out to the youth and school districts to provide health education, Keith discussed the implementation of a new program, Fresno Kids Healthy Food Solutions that is set to launch later this year. Fresno Metro Ministry has obtained grants to engage roughly 600 Fresno Unified students within this program mostly between the fourth and sixth grade. This program contains a curriculum Cooking Matters which is a free course educating individuals on cooking healthy meals, cooking skills, and nutrition; along with a brand-new curriculum named Future Food Leaders that covers multiple educational facets such as healthy food access, emergency hunger relief, food waste prevention and storage, food economy and infrastructure, and racial equity and justice healing frameworks. Additionally,
Keith touched upon Fresno Metro Ministry’s partnership with Urban Footprint, a corporation that is developing a food security insights tool, which aims to measure food insufficiency and insecurity within census block groups on a two-week basis. Through this partnership, backing from various grants, and pilot programs in various California counties such as Fresno, Santa Cruz, and San Diego; Fresno Metro Ministry has been working towards calibrating this large conglomerate of data with local data to increase efficiency and specificity in identifying communities’ nutritional needs to develop this new curriculum for the youth. Given this, youth intervention is certainly a focal point within the organization, as much time, effort, and resources have been allotted towards helping these younger generations.

Keith also stressed the importance of fostering strong relationships with community leaders, such as school superintendents and personnel involved in after school programs. Fresno Metro Ministry’s long-standing relationship with the school superintendent has allowed them to maintain a solid partnership with school districts, which has resulted in them being able to permeate schools with beneficial educational programs and initiatives in a meaningful, impactful way, leading to positive change.

The Yosemite Village (Yo’Ville) Community Garden and Urban Farm Incubator is another important undertaking which has increased food accessibility to the community of Fresno. By paying $3 a month, gardeners can use the community garden space and infrastructure to grow a variety of crops to sustain their diet or sell said produce at farm stands and farmer’s markets. This results in increased access to healthy foods, while also providing supplemental income to residents, and bolstering local social structures and economy.
Best Practices

The following section outlines the best practices gathered from conducted interviews and literary analyses of relevant interventions in addressing food deserts.

Farmer’s Markets and Mobile Farmer’s Markets

Based on interviews conducted with multiple working professionals working towards expanding food access within disadvantaged communities, farmer’s markets were identified as being one of the primary ways to increase healthy food access to both urban and rural communities. Farmer’s markets can provide a variety of local fresh fruits and vegetables at desired locations, increasing the accessibility and purchasing power of healthy foods for communities. The integration of EBT acceptance and Market Match at qualifying farmer’s markets furthers this accessibility to low-income individuals as well, as they can use their benefits to purchase high quality, healthy ingredients to maintain a nutritious diet. This not only aids community members by making healthy foods more accessible, but also benefits local farmers by expanding their customer base. Socially, farmer’s markets can also serve as community gathering spaces where residents can engage with one another, fostering a more interactive and involved community.

Mobile farmer’s markets have also been tried to address the inaccessibility to fresh foods within food desert areas and can be especially useful in rural settings where it can be difficult to find locations for traditional farmer’s markets that serve rural communities holistically. A study was conducted analyzing this practice based on a program carried out by a non-profit organization in Merced County that developed a mobile farmer’s market called Produce on the Go that aimed “to improve food access in a rural central California county by providing locally grown fruit, vegetables, and nuts for purchase through weekly visits by a mobile grocery truck.
(Ramirez et al., 2016).” The study concluded that “community engagement and involvement in decision making” is crucial to ensuring mobile farmer’s markets success. Community insight can help determine the most appropriate products, locations, days, and times for mobile farmer’s market interventions to best serve communities’ needs. This program expanded and was carried out successfully for several years, although its continued success and operation is unknown to this date.

Community Gardens and Container Gardening

Community gardens are another viable solution vested by both community leaders and residents towards addressing food accessibility within food deserts. Community gardens allow community members to have a hands-on approach to addressing their nutritional needs in a sustainable manner. Engaging in community gardens can have multiple benefits aside from increasing food accessibility for community members, such as providing opportunities for outdoor physical activity in relation to farming practices and upkeep, improved mental health, and the fostering of a sense of belonging within the community. Studies have shown that “shared accomplishments of planting, harvesting, and sharing not only the produce, but of one’s own contribution resulted in stronger community relationships, greater social interactions, and increased food security (Swafford et al., 2021).”

A study analyzing the efficacy of addressing food insecurity in food deserts for children through container gardening found that “hands-on activities of growing, harvesting, preparing, and tasting of specific produce were more effective methods than just educational presentations (Swafford et al., 2021).” The non-profit organization Children’s Defense Fund implemented a container garden training program within its Freedom Schools curriculum, in hopes to “increasing access to fresh produce and supplementing dietary intake for children, while also improving flavor of available foods often found in food deserts (Swafford et al., 2021).” The program outlined the materials needed to carry out container gardening with easy-to-follow, step-by-step instructions. Container gardening is convenient, accessible, and user-friendly in that it requires minimal outdoor space and primarily uses everyday household materials, solely requiring the purchase of potting soil and seedlings. This program allows children to foster valuable skills and personal experience in gardening methods, whilst reinforcing their knowledge about healthy food habits. While this container gardening training program was geared towards young children, this practice can also be extended to go beyond the youth, to young-adults and older generations.

Educational Initiatives

Education is identified as being one of the most significant initiatives in instilling healthy eating and living habits within communities. Increasing accessibility to fresh produce does not guarantee the increased consumption of healthy foods. Food deserts tend to have lower rates
of education, because of this, it is also important to provide knowledge on what a balanced, nutritious diet consists of. Additionally, providing supplemental education on cost-effective purchasing patterns, cooking skills, and recipes aids in the alimentation of sustaining a healthy diet on a long-term, consistent basis. Informing individuals facing food insecurity about the resources that are available to them such as the Supplemental Nutrition Assistance Program (SNAP), food banks, etc. can increase accessibility to healthy foods.

Supermarket Interventions

Supermarket interventions can serve as a highly beneficial long-term solution towards addressing food inaccessibility in food deserts but can be difficult to sustain long-term due to a variety of socio-economic determinants found within food desert communities. For this reason, it is important to identify and engage in practices that can best serve these communities in a long-term, sustainable manner. A study was conducted involving the analysis of 71 supermarket intervention case studies aimed to determine what factors contribute to the success of supermarket interventions in food deserts. The study revealed that non-profit or community-driven interventions had the highest rates of success, whereas “government-driven models with little community input have the highest rates of intervention failure (Brinkley et al., 2019).” “Where nearly one-third of the commercial and blended efforts (government-driven projects that included a community member or local nonprofit in some stage of project development) have closed after opening, none of the nonprofit or community-driven have opened and then closed (Brinkley et al., 2019).” Nonprofit or community-driven initiatives foster a level of investment and engagement by the community to support these venues through usership, increasing the likeliness of these stores to remain open. Supermarket interventions that involve community members in the decision-making process of these projects can have a large impact on not only increasing food accessibility but may also “be important to shifting other aspects related to health such as shopping habits, eating habits, and diet (Brinkley et al., 2019).”

Food Banks, Food Recovery, and Distribution

Food banks are another widely implemented resource for those facing food insecurity and can be used in food deserts to increase access to healthy produce. One way to do this in an affordable manner is through donation-based food recovery and distribution from local partnerships. The Fresno Metro Ministry Food to Share program has been highly successful in partnering with various local private and public entities such as schools, retail food stores, and local farmers in recovering food and distributing it at food banks or designated distribution centers. This model can not only help address the food access needs of food desert communities, but also simultaneously reduce food waste and GHG emissions.
Recommendations

As planners, we can help further food desert interventions by implementing goals, policies, and programs within general plans that support increased food accessibility and healthy living practices and working with cities to allocate funding towards these initiatives. Making zoning amendments which facilitate the establishment and allowances of farmer’s markets and community gardens can also increase access to healthy food options. Additionally, planners can aid supermarket interventions by creating incentives such as reduced land acquisition rates for developers who plan on developing food retail stores in food deserts that would help address the need for healthy food access within these communities.

One of the main takeaways gathered from this project is the fundamental need for community engagement in all interventions. The studies and interviews referenced within this project have asserted that interventions with high community engagement have been more successful in their endeavors to increase food accessibility in a long-term, sustainable way. Community engagement is essential in identifying what the needs of communities are and how to best address them. Keeping this in mind, it is of utmost importance for planners, community leaders, and other individuals or entities that are working toward increasing healthy food access within food deserts to continually involve community members throughout their decision-making process in order to best serve the needs of these communities.
Limitations

This senior project was carried out throughout the duration of one, ten-week quarter. While this project involved extensive research, personal communications with working professionals, and guidance from project advisor Keith Woodcock, there are limitations to this study. Although ample research and data was gathered to inform this project, given the short time frame in which the study was conducted the scope of research is limited in that not all types of food desert interventions were explored due to time constraints.
References


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