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Mis-Nourished Nation: Analysis of the Impact of SNAP Benefits on Food Deserts in the U.S.

Abstract

Researchers from a range of fields have been concerned with learning about and addressing food security and access issues, but have done less to tackle the specific issue of food deserts. Rooted in a historical analysis of diet and health, I examine how trends in agricultural subsidies and other structural factors contribute to a cycle of health issues, poverty and “mis-nourishment”. Further, I review and evaluate existing interventions. Then, with the use of grounded theory, I conduct a systematic review of sources within the EBSCO Host database concerning both “food access, insecurity and deserts” and “SNAP Benefits” to determine the effectiveness of the SNAP program in addressing the specific issue of food deserts. At the conclusion of my research, the literature led me to believe that, while the SNAP program increases food security, there is not sufficient evidence to prove that the SNAP program specifically targets the issue of food deserts. To better combat the problem of food deserts, other programs need to be established and combined with the SNAP program. Future work should investigate which interventions most effectively target the issue of food deserts, and further research is needed to assess how they can be combined with the SNAP program to address food insecurity.

Keywords

Food desert, food security, food access, Supplemental Nutrition Assistance Program

Disciplines

Food Security | Health Policy | Public Affairs, Public Policy and Public Administration

Comments

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Executive Summary

This research focuses on food policy and, specifically, food access and insecurity in the United States. One of the central terms of this project is “food desert”. The USDA defines 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 (Rhone 2019). 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” (Ploeg et al. 2009, 3). The terms “food desert” and “food insecurity” are not interchangeable but, often, sufferers of one are affected by both. The USDA defines food insecurity using a scale: food security is indicated by no reported access issues, whereas very low food security is indicated by reports of multiple indications of disrupted eating patterns and reduced food intake (Coleman-Jensen et al. 2019).

Both food deserts and food insecurity affect every corner of the U.S., and there are a variety of interventions used to broadly combat food insecurity or, more specifically, target food deserts. In this paper, I focus on the federal Supplemental Nutrition Assistance Program (SNAP) and review current researchers’ findings. Using grounded theory, I gathered sources from EBSCO Host that surfaced using the Boolean search, “food desert or food access or food insecurity” with the Boolean operator “and”, and “SNAP benefits”. I sorted the sources by facial and substantive relevance, coded for research terms and concepts, and later grouped those under themes. It is important to note that one source could be coded for multiple terms, concepts and themes. The data I collected indicated that 51.4% of sources used data to measure the SNAP program’s effectiveness at reducing food insecurity, 43.2% of sources used data to identify factors that affected participation in the SNAP program and 5.4% of sources conducted research to determine factors that affected store participation in the SNAP program.

The literature leads me to believe that the SNAP program decreases food insecurity. However, there is not sufficient evidence to prove that the SNAP program specifically targets the issue of food deserts. Many of the issues that affect participation and some of the analyses of participants’ diets indicate that the SNAP program may actually be working *with* food deserts. Evidence of this is indicated by the fact that many of the factors that affect participation can be linked to residency within a food desert; access to SNAP-participating stores, other community scale issues, and the data on SNAP usage indicating that four out of five of the most purchased foods can be found at limited-variety stores such as convenience stores. The research that used data to evaluate the SNAP program’s effectiveness at reducing food insecurity was mixed, but overall showed an increase in food security and nutritional benefits, citing increased vegetable and dairy consumption, decreased emergency food pantry usage, and more. To combat the specific issue of food deserts, other programs need to be established and combined with the SNAP program. Future work should investigate which interventions most effectively target the issue of food deserts, and further research is needed to assess how those interventions can be combined with the SNAP program.

I. Introduction

Adequate nutrition is something that all should have access to, but many Americans lack. While a variety of interventions have been used to address this, issues still persist. This research suggests that food deserts are a phenomenon that affect many food insecure Americans and yet, many existing interventions fail to target them. The USDA defines 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”. Low access to a healthy food retail outlet is defined as “more than one mile from a supermarket or large grocery store in urban areas and as more than ten miles from a supermarket or large grocery store in rural areas” (“Definition of a Food Desert”). The terms “food desert” and “food insecurity” are not interchangeable but often, sufferers of one are affected by both. The USDA defines marginal food insecurity as “one or two reported indications—typically of anxiety over food sufficiency or shortage of food in the house. Little or no indication of changes in diets or food intake”; low food security as “reports of reduced quality, variety, or desirability of diet. Little or no indication of reduced food intake”; and very low food security as “reports of multiple indications of disrupted eating patterns and reduced food intake” (“Definitions of Food Insecurity” 2019).

Both food deserts and food insecurity affect communities in every corner of the country, and there are a variety of interventions used to both broadly combat food insecurity and more specifically target food deserts. Federal interventions include food assistance programs such as the Supplemental Nutrition Assistance Program (SNAP) and subprogram, Women Infants and Children (WIC). State and municipal interventions include ordinances that limit the development of small box discount stores, relax regulations for farmer’s markets or create incentives for stocking healthy food items. Local or grassroots interventions include community gardens and

farmer's markets. In this paper, I will be focusing on the Supplemental Nutrition Program (SNAP), and review some of the problems current researchers are focusing on.

To begin, I will review current literature on factors that initially created and currently contribute to the problem of food deserts. Following that, I will delve into the reasons why food deserts need to be prioritized, such as the cost to the public and ethical concerns. Next, I will give an overview of my methodology before my analysis of the data and finally, I will state my conclusion and offer policy recommendations.

II. Review of the Literature

The problem of food deserts is difficult to address because it does not align with the effects of poverty from the past. In the distant past, excess body fat was seen as a symbol of wealth and prosperity because of the struggle with food shortages and famine that the general population experienced. As time went on, however, and intensive farming was developed in conjunction with the mechanisation of the food industry, famine was eradicated in the developed world. The subsequent increased availability of highly palatable, high-energy foods along with decreased levels of physical activity has ultimately led to an increasing imbalance between energy input and expenditure in the general population (Ferris 2011).

One of the most detrimental aspects of the development of those intensive farming practices in the U.S. is the type of food production they have focused on. In the U.S., current federal agricultural subsidies, “focus on financing the production of corn, soybeans, wheat, rice, sorghum, dairy, and livestock, the two latter of which are in part via subsidies on feed grains” (Seigel 2016). These foods in their most basic form, are not the issue. The issue is what they are converted into:

“A large proportion of these subsidized commodities are converted into high-fat meat and dairy products, refined grains, high-calorie juices and soft drinks

(sweetened with corn sweeteners), and processed and packaged foods. For example, 30% to 40% of the corn, more than half of the soybeans, and almost all of the sorghum grown in the United States are used as feed for US cattle and livestock, while approximately 5% of the corn is converted into high-fructose corn syrup, and the other half of the soybeans are converted into oils” (Seigel 2016).

Prioritizing the production of these commodities is why the American public will find some form, or derivative, of corn on the majority of the packaged foods in grocery stores across the country (“Corn Products” 2017), and what ultimately makes them so cheap. As explained by Marion Nestle, a professor of nutrition, food studies, and public health at New York University: “that’s one of the reasons the relationship between agricultural subsidies and obesity is clear. Because prices of these staples are low, so are those of [high-fructose corn syrup], hydrogenated fats, and corn-fed meats. And the cheapest way to make foods taste good, she says, is to add sugars and fat” (Fields 2004, 822). An article featured on the National Center for Biotechnology Information, for example, compared healthier foods and overall diets with less healthier options, and found that healthier foods cost, on average, more than less healthful options (Rao 2013). From an economic perspective, the assumption that healthy food is a normal good would mean that the demand for healthy food would increase with income levels (Bitler 2011, 4).

Besides economic capital, there are additional ways healthy diets are inaccessible to lower income groups. Time is a commonly overlooked factor when considering people’s ability to maintain a healthy diet. Low-income individuals have less flexibility when it comes to work schedules—especially if they are straddling multiple jobs and family life. Fitting in healthier recipes—gathering ingredients and preparation—takes time, and contributes to a higher reliance on fast food and more convenient options. Education level is another factor that can leave individuals ill-equipped to evaluate the merits of certain food choices because of inadequate information (Biter 2011, 5). Poverty’s inverse relationship with education means poorer

individuals are those most often unaware of sound nutritional practices (Fields 2004; Chang et al. 2017). On top of these factors, a lack of local infrastructure, which often ends up affecting already disenfranchised populations, can leave residents with even less control: with no access to public transportation, their inability to access healthier foods and services is exacerbated. These are some of the many reasons why we see a correlation between people with lower incomes and higher levels of obesity (Ogden, 2017). Maintaining a healthy weight is a privilege that many people across the U.S. cannot afford. People living in food deserts are part of this population.

One of the final steps of this process is the way businesses take advantage of these communities. For instance, exploitative business decisions can be seen occurring throughout dollar stores in Cleveland, Ohio. Charles Bromley, the co-director of Shaker Square Alliance, a community group that has opposed the development of new dollar stores in Cleveland, explained how the whole strategy of Dollar Stores in the area “is to go to a neighborhood that has a lot of poor people who don’t have access to transportation and can only walk to and from the dollar store” (Sainato 2019). Once dollar stores and other limited variety stores, such as convenience stores, have a corner on the market, the fate of many of these communities is sealed.

A. Cost

Federal Food Access Programs

The problem of food deserts needs to be addressed because they come with a heavy cost to every U.S. citizen. There are a variety of federal programs that have been created to address food access, including: Women Infants and Children, also known as WIC, the Supplemental Nutrition Assistance Program, or SNAP Benefits; school meal programs; and more (“FNS Nutrition Programs”). A study carried out by the USDA found that, following the American Recovery and Reinvestment Act increase of SNAP benefits, food security in low-income

households improved significantly (Nord 2011, 31). In another study published in the American Journal of Public Health, Sonik (2019) stated that “The Supplemental Nutrition Assistance Program (formerly the Food Stamp Program) has been found to reduce food insecurity at current levels, but only partially: most recipients still experience food-related hardships” (1164).

The government spent \$68 billion on SNAP and other related food assistance programs in fiscal year 2018 (“Policy Basics: The Supplemental” 2019). While programs such as WIC and SNAP produce notable positive outputs and give low-income households more flexibility when it comes to their food budgets, they still do not address the lack of accessible, healthy food, or many of the other factors that contribute to food deserts. This is to say that, ultimately, if it is not addressing the cause of the problem of food insecurity, it is a cost that will continue to affect the pockets of every American.

Healthcare Expenditures

Another consequence of food deserts is the poor health of their residents. There is an abundance of research that indicates higher healthcare expenditures for food insecure individuals. Data from the National Health Interview Survey was used in a study that found an association between food insecurity and greater subsequent health care expenditures (Berkowitz 2018). Similarly, Sonik (2019) found that, in comparison to their more food-secure counterparts, food insecure individuals have higher health care expenditures by as much as 121%. In his “Call to Action to Decrease Overweight and Obesity”, the 2001 U.S. Surgeon General reported that, in 2000, the total cost of obesity, which is one of the major effects of living in a food desert, was estimated to be \$117 billion (\$61 billion direct and \$56 billion indirect) (Alston 2008, 470).

A study by the University of Kentucky Center for Poverty Research similarly found that healthcare expenditures in the United States are disproportionately related to preventable chronic

conditions due to poor nutrition, such as type 2 diabetes, and, further, that they are disproportionately concentrated among the poor (Berkowitz 2017, 3). The study also discussed the intricate and confusing nature of the issue:

“The relationship between food insecurity and chronic disease is likely bi-directional: poor health may make it harder to work, leading to lower income and increasing risk of food insecurity; conversely, food insecurity may incentivize purchases of cheaper but less healthy foods, or trade-offs between medications and healthcare to purchase food, leading to chronic disease, worse mental health, and poorer disease self-management” (Berkowitz 2017, 3).

Some research has focused on what methods can be used to address these issues specifically. The same study that identified food insecure individuals as having higher health care expenditures found states that expanded Medicaid coverage under the Affordable Care Act saw a 2.2% decline in very low food security (the most severe form of food insecurity measured for adults) (Sonik 2019).

Moellman (2019) looked at the economic effects Medicaid and SNAP benefits have produced both independently as well as combined. SNAP benefits, alone, reduced food hardship significantly, while the expansion of Medicaid had much less of an impact on households that did not qualify for SNAP. However, when there was expanded Medicaid *and* the individual qualified for SNAP benefits, the impact was higher than either SNAP benefits or Medicaid, alone (Moellman 2019, 23). There are clear benefits that result from the expansion of healthcare options—either on its own or in combination with other services. However, while better healthcare services can help alleviate some effects of food insecurity, there are many other targeted and less expensive ways food insecurity can be addressed, such as community gardens and targeted policy changes, which will be explored in more detail throughout this paper.

Agricultural economy

As mentioned earlier, government subsidies and corporate farming have maintained a great deal of influence over American diets. While some sources find the link between the American obesity epidemic and farm subsidies to be weak (Alston 2008), many more recent studies find a strong correlation. In a recent study published by the American Medical Association, researchers conducted a statistical analysis using Nutrition Examination Survey data. They calculated an individual-level subsidy score that estimated an individual's consumption of subsidized food commodities as a percentage of total caloric intake, and later compared it to rates of obesity. The results of the study suggest that diets of individuals with a higher subsidy score tend to be of lower nutritional quality, and that individuals who consume less subsidized foods have a lower probability of being obese (Siegel 2016). The article also discusses the findings in the larger context of federal dietary guidelines and the obesity epidemic. The authors assert that, while nutritional guidelines are focused on the population's need for healthier foods, to date, food and agricultural policies that influence food production and availability do not align with that objective (Siegel 2016).

In an effort to demonstrate the link between agricultural subsidies and the obesity epidemic, Franck (2016) cited general shifts in the American diet and specific ingredients over time, such as the 1000% increase in consumption of high-fructose corn syrup between 1970 and 1990. The major shifts were highlighted not only to note changes in types of foods but also the pricing of those foods: "This excessive intake of fats and sugars is worsened by the availability of extremely cheap caloric options" (Franck 2016, 327). Ultimately, it is the "hidden costs of inexpensive food, namely, the taxes paid toward various agricultural subsidies and the health costs associated with poor dietary practice" that many consumers fail to take into account (327).

Creating real change in places like food deserts could mean taking a stand against the structures that have brought us to many of the current trends in diet and obesity in the U.S. Inaction, either on a community or governmental level, in the face of an issue such as food deserts has the potential to communicate complacency on behalf of the American public. It signifies to the government and corporate farming culture that it is acceptable for certain communities' main source of nutrition to come from fast food restaurants and convenience stores that prepare their food or stock their shelves with ingredients that are made up primarily of highly subsidized and unhealthy foods.

B. Health

As previously addressed, the U.S. contradicts itself in many ways: it is one of the wealthiest countries in the world while simultaneously maintaining a high level of inequality and many other disparities among its population. The disconnect between the country's incredible and the experiences of so many citizens across the country has prompted global voices such as the World Health Organization to identify unprecedented rates of both obesity (more than 1/3 of all adults) and food insecurity (about 1/8 of the population) in the U.S. (Bowers 2018). The U.S. Department of Agriculture Economic Research Service published a report stating that over 10% of the U.S. lacks access to healthy food ("Food Insecurity by the Numbers" 2020). It is important to reemphasize the fact that, over time, weight trends have changed. In the past, where being overweight was seen as a luxury because it indicated the ability to afford nourishment, today, the maintenance of a healthy weight is a luxury. Because lower income Americans often live out of reach of healthy food, may lack the education to make healthy choices, or the time to prepare healthy meals, "A poor, overweight person therefore isn't necessarily a completely nourished person" (Fields 2004, 822). Furthermore, poorer people do not have the time or resources to be

able to utilize health clubs and may live in neighborhoods in which it is too dangerous to exercise outside (Fields 2004, 822).

Children are a part of the population that is highly affected by food insecurity. Radcliff et al. (2018) found that, “households that are food insecure are more likely to have children with poorer general health, more social and emotional disorders, a lower likelihood of completing high school, and an increased likelihood of hospitalizations” (244). In addition, children can sustain longer term problems as a result of food access issues in comparison to other groups. Darius Lakdawalla, an economist at the RAND Corporation and the National Bureau of Economic Research who investigates trends in U.S. obesity, emphasized how dietary complications have the potential to produce more severe complications in children: “Children who are obese or overweight are actually also often lacking the appropriate nutrients. It’s called ‘misnourishment’ rather than ‘malnourishment’” (Fields 2004, 822). According to the executive director of the Brandeis University Center on Hunger and Poverty, children can encounter serious physical and mental development problems, such as stunted growth and cognitive impairment as a result of the lack of appropriate nourishment (Fields 2004, 822). Kieth-Jennings (2019) found that, among children, food insecurity is also associated with frequent infections (1637). Possibly even more dangerous, however, are the effects food insecurity can have on children even before they are born. Studies that have compared pregnant mothers who received food assistance benefits to those who did not as the program was rolling out in the 1960s and 1970s found that mothers who had access during their pregnancy gave birth to fewer low birth rate babies (Keith-Jennings 2019, 1637).

While there are many issues that are more directly related to nutritional factors, being food insecure can also lead individuals to make sacrifices that affect their health negatively in

other ways. Sonik (2019) found that “compared with their food-secure counterparts, individuals with food insecurity postpone needed medical care and medications more often, use more emergency and inpatient care” (1163). Kushel (2006) looked at housing instability and food insecurity as barriers to healthcare for low-income Americans and found that, while many food insecure individuals may have had a usual source of care, they often postponed needed health care and medications (74). It is no coincidence that so many studies linking food security to healthcare access exist. When individuals lack access to healthy food, it is often the case that they also face barriers to other necessary services. Being food insecure or living in a food desert can mean that other services are equally as unavailable as healthy food, but it can also mean putting aside other needs in order to get food on the table. Ultimately, it is an ethical concern to ignore the detrimental health effects of food insecurity and food deserts.

C. Interventions

Federal Level

The Supplemental Nutrition Program (SNAP) and Women Infants and Children (WIC) are two of the federal government’s leading programs in combatting food insecurity. The SNAP program is designed to improve food security by providing nutrition assistance to families with limited resources who live at or below 130 percent of the poverty level (Radcliff et al. 2018, 244), and helps close to 40 million Americans afford a nutritious diet in an average month (Keith-Jennings 2019, 1636). Another Federal program, the Healthy Food Financing Initiative exists as a subcampaign of the Let’s Move Campaign, spearheaded by Michelle Obama. The Let’s move campaign aims to drive down obesity rates in the U.S. while the Healthy Food Financing Initiative more specifically focuses on food insecurity by providing federal funds to combat food deserts and more (Zeihnert 2011, 22). These programs, along with a variety of

others, are examples of some of the federal programs and campaigns that work to decrease food insecurity and increase food access. Programs such as SNAP and WIC improve the food security of households across the U.S. significantly (Nord 2011, 31), but less research has been done to identify their impact on food deserts. Part of the reason could be that the objectives of programs like SNAP and WIC are more broadly aimed at decreasing food insecurity. The Healthy Food Financing Initiative, on the other hand, more specifically targets food deserts in its action plan, which states that it seeks to “provide grants, loans, loan guarantees, and other assistance to expand retail outlets for farm products in food deserts” (Zeihnert 2011, 24). Additionally, the Healthy Food Financing Initiative is modeled after the Pennsylvania Fresh Food Financing Initiative, which also specifically targets the effects of food deserts, and will be discussed further in the following section on state and municipal interventions.

State and Municipal Level

There are a variety of state and municipal interventions that focus on addressing the issue of food deserts through innovative legislation. An example of a state intervention that was a major success is the Pennsylvania Fresh Food Financing Initiative. The Initiative was created after a national study identified Philadelphia as having the second lowest number of supermarket stores per capita of the nation’s major cities during the 1990’s. The state recognized that financing and capital gaps often act as barriers to supermarket development in underserved areas. In response, they formed the program to work to meet the financing needs of supermarket operators in underserved communities where infrastructure costs and credit needs could not be filled solely by conventional financial institutions (Giang et al. 2008).

Another intervention that many cities have been taking nationwide is the use of ordinances to expand food access while controlling businesses that attempt to take advantage of

food desert residents. Tulsa, Oklahoma, for example, implemented an ordinance that imposed distance restrictions on small box discount stores, which encapsulates businesses such as Family Dollar and Dollar General. The policy created a “dispersal standard” barring new small box discount stores from locating within one mile of any existing ones. The policy also created incentives for traditional grocery stores, as well as relaxed regulations on farmer’s markets and other fresh food providers (Donahue 2018). A similar ordinance implemented in New Orleans, Louisiana imposed distance restrictions on small box discount stores in addition to relaxed regulations on farmer’s markets and other fresh food providers (Thaxton 2018). These state and city interventions take a more targeted approach to greater effect in addressing the affects of food deserts.

Local Level

Grassroots efforts are another way communities combat the effects of food deserts, including community supported agriculture (CSA), farm to school initiatives and the two most popular and widely used interventions, community gardens and farmer’s markets. Community gardens are widely implemented, likely because of the low cost and effort it takes to establish them and the variety of benefits they offer. One study that looked at more than one hundred community gardens in Philadelphia found that community gardeners consumed a greater variety of vegetables and were less likely to consume dairy products, baked goods and soft drinks (Blair et al. 1991). Still, it is important to keep in mind the barriers that exist for many low-income people. Low-income households may initially hesitate to take money from their limited budgets and spend them on gardening inputs when the outcome of a crop is uncertain (Kantor 2001). However, overcoming these barriers can be especially beneficial for low-income people, because community gardening offers so many unique benefits apart from increased fruit and vegetable

intake. Becoming a community gardener can be an educational experience, but, more importantly, it gives the gardener a sense of purpose and agency to take control of their own food system, which is something many people in food deserts lack (Zeihnert 2011).

Farmer's markets are another widely used option that provide fresh fruits and vegetables when there is either a lack of local supermarkets or when the selection in existing supermarkets is inadequate. Larsen and Gilliland (2009) found that that residents of areas with poor supermarket access were paying more for groceries. This was because healthful foods like fruits and vegetables were harder to find, and smaller retailers such as convenience stores had higher prices than supermarkets. Boos (2010) used GIS (Geographic Information System) to identify a farmer's market in a Richmond, California food desert and then surveyed its customers. The findings showed that the market reached a local demographic of low-income, minority customers who would otherwise have limited access to healthy foods, creating an overall increase in food accessibility. Lowery et al. (2016) compared farmer's markets in 24 socioeconomically diverse Los Angeles neighborhoods. The study concluded that, while farmer's markets may not be the ultimate answer to food insecurity in low-income communities, they offer a variety of benefits and have the potential to be a part of a comprehensive package of solutions that could improve the health of the studied, and other similar, communities over time. The study identified a variety of benefits including the introduction of previously unknown fruits and vegetables to residents and also an increased sense of community.

Farmer's markets throughout the country have also been known to work with the federal SNAP program to give users access to fresh produce. Farmer's markets that accept Electronic Benefit Transfer (EBT), which is the card used to quickly utilize SNAP funds, eliminate a cost barrier for many low-income people, and take a crucial step in improving food accessibility

(Kantor 2001). Amaro and Roberts (2017) surveyed parents and caregivers, and found that “the majority of parents reported that the dollar-for-dollar match enabled them to afford to shop at the farmer’s markets using their SNAP funds” (2794). Farmer’s markets can take steps, such as working with federal assistance programs like SNAP, to make their services even more useful and accessible to low-income residents.

Although piecemeal research suggests that certain interventions may mitigate the impacts of food deserts in certain communities, no one has systematically reviewed the literature on food deserts. Thus, this project expands the research community’s understanding of best practices, *vis a vis* food deserts by providing an empirically founded systematic review of SNAP Benefits and its outcome. Specifically, this paper examines the literature on the impact of SNAP benefits on food deserts and, based on the aggregated data, makes recommendations for how SNAP benefits can be used to mitigate the effects of food deserts across the country.

III. Methodology

After acquainting myself with a range of local, state and federal interventions, I chose to focus on the Supplemental Nutrition Assistance Program (SNAP). While this intervention has a wide reaching effect, little has been done to specifically address its impact on food deserts. As I began my research, I conducted a boolean search in EBSCO host for “food desert or food access or food insecurity” with the boolean operator “and”, and “SNAP benefits”. I conducted this search in the EBSCO host database. Initially, I had entertained the possibility of utilizing multiple databases and more inclusive search terms, but decided against it. I was considering using “SNAP Benefits” or “Supplemental Nutrition Assistance Program” instead of just “SNAP Benefits”, but found that this lead to too many results, many of which were unfocused. It was “SNAP Benefits” that led to a manageable and more focused result list.

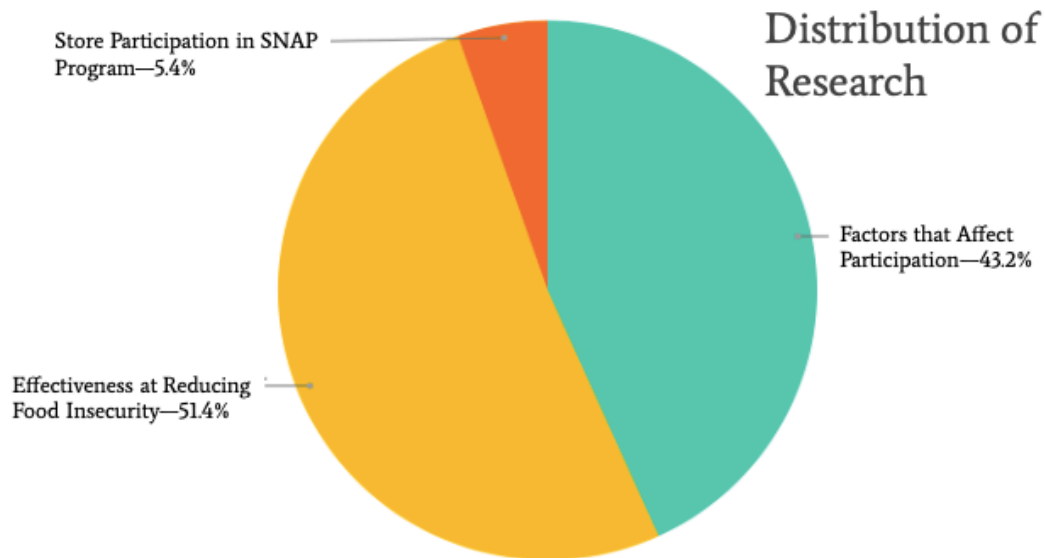
While conducting this search, I kept an excel sheet with columns for “total results”, where I simply recorded the total number of results, “facially relevant results” which I determined through reading the title, keyword lists and abstracts, and finally, “substantively relevant results”, which were the sources I ended up using for my original analysis. I categorized resources as “facially relevant” if they discussed SNAP benefits in relation to food deserts, food access or food insecurity. While I collected many of the “facially relevant” resources for sections of my introduction, problem definition and literature review, I only categorized a source as “substantively relevant” if it was original research on the SNAP program’s effectiveness in targeting the effects of food deserts or increasing food access or food security. I logged this information into an Excel sheet, pictured below.

"food deserts or food access or food insecurity" + SNAP Benefits	Total Results	Facially Relevant Results	Substantively Relevant Results
EBSCOHost	73	44	33

The next part of my research relied on grounded theory. Grounded theory is a comprehensive method that researchers use when approaching qualitative research. The technique relies on simultaneous involvement in data collection and analysis, theoretical sampling, and the creation of codes and categories that are based on data instead of preconceived hypotheses or other factors (Charmaz and Belgrave 2007). Using the grounded theory methodology, I coded each source and produced encapsulating themes that later allowed me to come to unbiased and meaningful conclusions. The first category of sources was coded as researching “factors affecting participation”. Further, they were given more specific labels to indicate *what* factor they were focusing on. I found there to be five subcategories: community scale issues; SNAP program requirements; access to information; access to SNAP-participating stores; and population/participant characteristics. The second category of sources was coded as assessing the “SNAP program’s effectiveness at reducing food insecurity”. Within this category,

I coded for five subcategories: dietary analyses; SNAP participant reliance on outside sources of support; program design; and benefit and time usage. Lastly, a very small percentage of the sources were coded as “supply side” and researched for what factors affected store participation in the SNAP program. Using Excel, the data spoke to the largest categories of research as being “factors that affect participation” and “effectiveness at reducing food insecurity”.

Topic	Number of Sources
Factors that Affect Participation	16
Effectiveness at Reducing Food Insecurity	19
Store Participation in SNAP Program	2



IV. Data Analysis

Factors that Affect Participation

Sources in this first category of research identified community scale issues, requirements of the SNAP program, access to information about the SNAP program, access to SNAP-participating stores and participant characteristics that affected participation in some form. Many sources stated basic participant characteristics before delving into their specific arena. A few sources identified participation by age group, such as identifying older adults as having a lower propensity to participate, children as being nearly half of all participants and participants being

less likely to have a high school diploma (Cohen 2019; Fernald and Gosliner 2019; Radcliff et al. 2018). A few sources found participant characteristics to be barriers themselves. Positionality affecting willingness to interact with government agencies and language and literacy issues were some of the factors that contributed to foreign-born individuals as having a lower propensity to participate (Cohen 2019; Radcliff et al. 2018). Radcliff et al. (2018) specifically found that “Hispanic noncitizen immigrants may be eligible for SNAP but opt out of obtaining SNAP benefits because of perceptions that it may affect immigration status or their opportunity to become a U.S. citizen” (248). Basic aspects of positionality can have major implications for participation, and recognizing them is key for the SNAP program’s success.

SNAP program design and requirements were also cited as playing a role in participation rates. Many sources discussed factors as basic as the time and effort required to apply and reapply as being barriers for many people (Cohen 2019; Radcliff et al. 2018; Robbins et al. 2017; Mayer et al. 2014). Robbins et al. (2017) specifically reported that low-income urban mothers found the requirement for separate recertification for complementary assistance programs such as WIC to be cumbersome (1550). Another barrier that was brought up was computer literacy. As the SNAP program has increasingly transitioned to operating online, computer literacy issues and lack of computer and internet access have presented problems. Robbins et al. (2017) found that low-income women in their study “consistently said they preferred to go to the Social Service office to make sure they could get the answers they needed and a receipt that they had submitted paperwork correctly” (1551). Time and access to internet and computers are examples of some of the small factors that have the potential to contribute to, or reduce rates of, participation. Their consideration is essential to the functionality of the SNAP program.

A few sources cited the work requirement of the SNAP program as being a barrier to participation. The work requirement applies to able bodied individuals without dependents (ABAWD), who account for 7.8% of SNAP users. This population (18-49) is limited to 3 months of SNAP benefits over a 3 year period, unless they are employed for at least 80 hours a month or participate in a workfare program. However, many factors can make finding a job difficult and the inability to find work, quickly, can leave many people without the support they need (Cohen 2019; Ku et al. 2019). Further, Cohen (2019) brought up the possibility of the issue worsening: “There are waivers for the time limit for ABAWD’s, but a Trump administration proposal could make it harder by ending most ABAWD waivers, except for in places with very high unemployment” (1649). The effects of this requirement were also discussed by Beatty et al. (2014), who asserted that households or individuals working to meet the requirement have less time available to spend in meal preparation and that “time spent in household meal procurement is significantly related to household food security status and SNAP participation” (70). The data indicates that the work requirement either directly or indirectly creates barriers for participation, which can ultimately leave many without the support they need.

The role of accessibility in participation rates was also discussed. Sources found both informational and physical accessibility issues. Mayer et al. (2014), for example, found that many individuals were simply unaware of their eligibility. Cohen (2019) found that even if individuals and families have a financial need for SNAP, their participation can be hampered by various obstacles such as poor customer service at SNAP centers and inadequate information about eligibility or benefits (1647). Many sources found that physical access to SNAP application sites were also an issue, but especially relevant to this research was the inadequate availability of local retail locations that accepted SNAP benefits (Radcliff et al. 2018; Racine et

al. 2018; Rigby et al. 2012; Grindal et al. 2016). Grindal et al. (2016) specifically looked at the effects of distance on the purchase of fruits and vegetables, and found that greater distance to food retailers was associated with lower spending on fruit and vegetables. Rigby et al (2012) researched the distribution of SNAP-accepting stores throughout different neighborhoods in Leon county, Florida, and found that less than half of the available stores accepted SNAP benefits, and more than 15% of the neighborhoods in the study had no SNAP-participating stores. Further, they found that the racial makeup of neighborhoods affected accessibility. Residents in primarily black neighborhoods, for example, had more limited access to SNAP-accepting stores (542-544). While some of these access issues speak to larger structural forces at play, they are important to consider in the context of the SNAP program.

Effectiveness at Reducing Food Insecurity

Sources in this second category of research conducted dietary analyses, researched SNAP participant reliance on outside sources of support, identified aspects of the program design, and looked at benefit and time usage in order to assess the SNAP program's effectiveness at reducing food insecurity. One way that sources analyzed the SNAP program's effectiveness at reducing food insecurity was through analyses of overall health. Multiple studies asserted an association between SNAP participation and an increase in overall health. They cited improved physical health, growth, and development in young children, as well as increased dietary diversity and reduced emergency department visits and health care expenditures (Ettinger de Cuba et al. 2019; Fernald and Gosliner 2019). Other studies conducted dietary analyses to gauge the effectiveness of the program. Collins and Klerman (2017) focused on SNAP's Summer Electronic Benefit Transfer for Children (SEBTC):

“In addition to increases in food expenditures and food security, among SNAP recipients in sites that used the SNAP model, SEBTC also resulted in moderate

improvements in three of eight measured child nutrition outcomes, including an increase in children's fruit and vegetable consumption (with and without fried potatoes) and consumption of dairy products. There was no impact on the consumption of whole grains, whether or not children usually drank nonfat or low-fat milk, or consumption of added sugars" (181).

Gordon et al. (2017) also found that SNAP's Summer Electronic Benefit Transfer for Children (SEBTC) had a positive impact on children's consumption of items from more healthful food groups.

Some studies analyzed specific factors in addition to participants' diets. Gassman and Schneck (2019), for example, looked at diet and anxiety in the context of SNAP benefits throughout the month, and found that "consumption of healthier foods such as vegetables, and overall calorie consumption are higher at the beginning of the SNAP month than the end" (1280). Multiple studies found there to be increased produce consumption when SNAP benefits were used at farmer's markets, or a desire to use SNAP benefits at farmer's markets to purchase fresh produce, but barriers created problems (Amaro and Roberts 2017; Cohen et al. 2019). There is a clear desire for healthier, fresher foods, but a disconnect exists between that desire and the actual ability of participants to use their SNAP benefits for the purchase of those foods. Another way that the SNAP program's effectiveness at reducing food insecurity was measured was through emergency pantry usage. Mabli and Worthington (2017) found that 13.6% of households used pantries at SNAP enrollment but not 6 months later, indicating that participation in SNAP was associated with a decrease in pantry use for all households. This study speaks to alternative ways that food security, and the effectiveness of programs like SNAP, can be measured.

Less positive results about dietary quality included data detailing some of the top purchased items by SNAP participants. Racine et al. (2018) researched current data on

SNAP participants' purchases: "Recent research examining the food and beverage purchases made at a supermarket chain in 2011 found that SNAP participants spent the most on the following five items: soft drinks, fluid milk products, ground beef, bagged snacks, and cheese" (845). There is conflicting data on sugar-sweetened beverage consumption. Nguyen and Powell (2015) found that SNAP participants' daily caloric intake of sugar-sweetened beverages was higher than SNAP-eligible nonparticipants and SNAP-ineligible nonparticipants. Ultimately, they found that participation in SNAP was significantly associated with 28.9 additional calories from sugar-sweetened beverages overall (84). However, Collins and Klerman (2017), who focused on SEBTC, found that the program did not result in children's increased consumption of sugar-sweetened beverages. Additional positive results from Gordon et al. (2017) indicated that the SEBTC program had a negative impact on the consumption of sugary foods and drinks.

Still other sources assessed the role of the design of the SNAP program in facilitating a reduction in food insecurity. SNAP benefits are administered at the beginning of each month, and recipients are responsible for allocating them throughout the month. An abundance of sources identified the benefit cycle as playing a role in changes in food security levels throughout the month, citing increasing stress levels throughout the benefit cycle, less food purchase and, specifically, less produce purchase throughout the benefit cycle and an overall increase in food insecurity at the end of the month (Gassman and Schneck 2019; Robbins et al. 2017; Amaro and Roberts 2017; Poblacion et al. 2017). Gassman and Schneck (2019) in particular conducted qualitative research on economically disadvantaged families with young children. Their research showed that "parents' feelings of daily food insecurity varied within the SNAP month and were substantially higher at the end of the month than at the beginning. Both

the food insufficiency and worry components of food insecurity increased throughout the SNAP month” (1280). Overall spending, caloric intake and consumption of healthier foods such as vegetables are higher at the beginning of the month than at the end. Additionally, SNAP recipients become more likely to borrow money from family or friends for food at the end of the month. Understanding participants’ navigation of the SNAP benefit cycle is essential for gauging the program’s effectiveness at reducing food insecurity.

Another issue in the design of the SNAP program, asserted by Ettinger de Cuba et al. (2019), is the decline and subsequent loss of benefits with the increase of participant income. While the program theoretically provides an appropriate gradual decline in benefits as income increases, households and individuals still face economic strain when benefits are reduced or cut off. Similar to the issue of allocation throughout the month, benefit allocation and decrease over broader timelines can be problematic.

Another aspect of the SNAP program design that creates problems for alleviating food insecurity is that, except for Alaska and Hawaii, benefits are not adjusted for different communities where the cost of living is much higher (Cohen 2019). Cohen (2019) looked at how neighborhood characteristics affect participation in SNAP and overall food access. Results of the study showed that compared to the national average cost for groceries of \$3.00 per meal, in Manhattan, the cost is \$5.70. For residents of public housing in New York City, the problem is further exacerbated by the gentrified surrounding community, which brings in expensive grocers (1649). Recognizing the wide variance in cost of living throughout the U.S. is vital to the SNAP program’s functionality.

Also brought up by Cohen (2019), and covered by a variety of other sources, were issues with the SNAP program’s basis on the Thrifty Food Plan. The Allotment of SNAP benefits is

based on the Thrifty Food Plan (TFP), a U.S. Department of Agriculture (USDA) food plan designed to achieve a nutritious diet at a minimal cost. While it has been asserted that adherence to the TFP produces positive outcomes such as increased fruit and vegetable intake and overall diet quality (Sanjeevi and Freeland-Graves 2018), multiple sources found issues with the plan, and Poblacion et al. (2017) even suggested its complete replacement. The affordability of TFP is attributed to the low cost of foods in its market basket and the assumption that most meals are prepared from scratch (Sanjeevi and Freeland-Graves 2018). Beatty et al. (2014) specifically addressed this aspect of the plan and asserted that the amount of time in meal preparation that the TFP calls for is a requirement that many households are unable to meet. One study also identified barriers to reach the TFP cost by SNAP recipients. Cohen (2019) notes that, although it is indexed for inflation, it has not been updated to reflect the substantial changes in household costs over the past 50 years, which was found to be a reason behind the continuing struggles of the New York City subjects in their study.

Based on these many forms of data, sources came to varying results on the SNAP program's effectiveness at reducing food insecurity. Some sources concluded that the SNAP program is ineffective in alleviating food insecurity, citing too little of an impact, a positive impact for only some participants or ineffective program design (Fernald and Gosliner 2019; Swavely et al. 2019; Poblacion 2017). However, a much larger percentage of sources found at least some kind of benefit from participation in the program. A variety of sources found improved food security among children (Ettinger de Cuba et al. 2019; Gordon et al. 2017; Collins and Klerman 2017). Some sources asserted overall health and diet benefits as well as psychological benefits such as stress alleviation around food (Sanjeevi and Freeland-Graves 2018; Amaro and Roberts 2017; Mabli and Worthington 2017; Ohls and Mabli 2015; Gassman

and Schneck 2019). Still, some sources found that the loss of SNAP benefits proved detrimental to food security and overall health (Ettinger de Cuba et al. 2019; Kim and Shaefer 2015).

Store participation in the SNAP Program

The topic with the least amount of coverage was store participation in the SNAP program. Through interviews of retailers who participated in the SNAP program, Haynes-Manslow et al. (2018) found that participation in the program was important for many from a philanthropic and financial standpoint: “SNAP recipients constitute a substantial proportion of shoppers at rural food stores and program participation was seen as an important strategy to serve one’s community” (64). However, the USDA’s changing rules and requirements can create barriers to participation (Manslow et al. 2018; Racine et al. 2018). Retailers, and especially limited variety stores, have to balance the USDA’s requirement for stocking healthful foods and the demand for them and whether those factors would produce waste and lost profit.

V. Conclusion and Policy Recommendations

The literature leads me to believe that the SNAP program mitigates the effects of food insecurity. Many of the sources included in this study found health benefits associated with participation in the program: increased dietary diversity and produce consumption, lower healthcare expenditures and an overall increase in food security. However, there is not sufficient evidence to prove that the SNAP program specifically targets the issue of food deserts. Many of the issues that affect participation and some of the analyses of participants’ diets indicate that the SNAP program may just be working around, instead of against, the phenomenon of food deserts. For example, one of the factors that affected participation was inaccessibility to SNAP participating stores (Radcliff et al. 2018; Racine et al. 2018). Members having SNAP benefits, but not having a grocery store to spend them, is perhaps the best example of how the SNAP

program does not address the issue of food deserts; even when members have the aid of the SNAP program, their location affects their ability to take advantage of them.

Other evidence that the program is not addressing the issue of food deserts can be found in the top purchased items. The aforementioned recent data from the USDA shows that four of the top five items most purchased by SNAP participants—soft drinks, bagged snacks, fluid dairy items and cheese—can all be purchased at limited variety stores (Racine et al. 2018). Taken out of context, the data can be, and *has* been, interpreted to mean that SNAP users need more guidance using their benefits. This has led to policy proposals that limit purchase of certain items deemed “unhealthy” (Pear 2011; Reiley 2019). However, by looking at the larger context, it quickly becomes clear that the issue is much more complex. Keeping in mind that residents of food deserts lack access to supermarkets, it comes as no surprise that a majority of their purchases are made at limited variety stores such as convenience and dollar stores, which greatly limits their choices. Another factor is the perishability of items; if residents have to travel further and have less time, purchasing more nonperishable items, and less fresh items is a safer choice (Lin et al. 2014; Racine et al. 2018). There are also larger structural forces at play. Moran et al. (2018) found that “retailers were more likely to promote [sugar-sweetened beverages] during SNAP benefit issuance compared with other days of the month through the use of displays and advertisements” (58). These are just a few examples of the many factors that play a role in the decision-making process of SNAP participants.

Making swift policy decisions, such as creating limitations for SNAP participants, ignores the myriad complicating factors that affect their food choices. It is misinformed, oversimplified, and risks damaging the relationship between the program and its users. Leung et al. (2017), whose study highlighted the perspectives of SNAP participants, found that some

individuals described exclusions for sugary beverages as unfairly limiting and paternalistic. It is also important to consider that, while some studies indicate less healthy purchases, more of the reviewed studies find that participation in SNAP resulted in a variety of nutritional benefits.

To combat the specific issue of food deserts, other interventions need to be established and combined with the SNAP program. Despite the SNAP program's inability to specifically target the issue of food deserts, no program or campaign has its reach, so it will always be instrumental in dealing with the general issue of food security and accessibility. State and municipal ordinances and grassroots efforts, such as community gardens and supporting access to farmer's market purchases that were reviewed earlier, are examples of interventions that combat the specific problem of food deserts. In combination with the SNAP program, there is potential for an all-encompassing approach. Future work should investigate which interventions most effectively target the issue of food deserts, and further research is needed to assess how they can be combined with the SNAP program to address food insecurity.

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