

**From Food Deserts to Food Oasis: Identifying and Developing Effective Policies to Combat
American Food Deserts**

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Abstract

The rise in the number of food deserts in the US has emphasized the imperative need to form strategies to expand food access. This study leverages existing literature to produce policy recommendations to combat the formation and persistence of food deserts in the US. We advocate for expanded education within schools and community organizations surrounding government assistance programs, the subsidization of online purchasing and delivery of food, the prioritization of community-based policies and partnerships, and the creation of incentives for grocery stores to sell healthier products. We argue that implementing our policy suggestions will decrease misconceptions regarding food access and government assistance as well as broaden access to healthy foods, improving public health outcomes across the United States.

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Introduction

Roughly 39.4 million Americans live in food deserts, severely limiting their access to healthy foods (USDA, 2017). As food deserts contribute to obesity and diet-related illnesses, their prevalence perseveres as a public health and public policy concern. Existing policies and programs have not successfully combated the persistence of food deserts, and thus, reform and new initiatives are necessary. The pervasiveness of food deserts is exacerbated by social, economic, and political factors that must each be confronted. To reduce the number of census tracts with food desert status across the United States, we recommend increased education regarding government assistance programs, subsidies for online purchasing and food delivery services, increased focus on community-oriented policies, and the creation of incentives for grocery stores to sell healthier foods.

Literature Review

Food Deserts and Their Causes

The USDA defines food deserts as “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.” These food deserts contribute to poor diet, obesity, and other diet-related illnesses (USDA, 2011). Food deserts also exacerbate food insecurity, which remains pervasive across the US. As recently as 2019, even after years of declining food insecurity, 10.5% of US households were still food insecure, the Brookings Institution reports (George & Tomer, 2021).

High poverty areas are more likely to be food deserts, and minority populations are disproportionately affected (Ver Ploeg, Dutko, & Breneman, 2012). The USDA’s latest food

access research report found that, in 2017, almost 39.5 million people (12.8% of the U.S. population) were living in low-income and low food access areas. Although there had been a 15% drop in the number of individuals living in a region with limited access to supermarkets since 2010, the overall number of low-income and low-access communities had still increased by 0.36% (USDA, 2017). Additionally, the higher the percentage of minority population, the more likely the area is to be a food desert (Ver Ploeg, Dutko, & Breneman, 2012), and about 30% more non-white residents face a lack of food access compared to white counterparts (Karpyn, Riser, Tracy, Wang, & Shen, 2019).

In conjunction with supermarket closures, low transportation accessibility, and low incomes, supermarket redlining is also a major cause of food deserts. Supermarket redlining occurs when large supermarkets have little incentive to locate their stores in inner-cities or low-income neighborhoods. Since large supermarkets provide fresh food at lower prices, their unwillingness to locate in inner-cities and low-income neighborhoods makes these areas vulnerable to becoming and staying food deserts (Mukherjee, 2020).

More broadly, the formation of food deserts can be traced to structural inequities that have formed cycles of poverty across generations. Long-term poverty and low food access cause people to rely on cheaper food that may not be healthy. These cheaper foods, such as junk food and sugary foods, are addictive (Fraser, 2013), therefore ingraining unhealthy eating behaviors. In urban food deserts, many low-income groups traveled farther away from their homes to access stores that were less expensive. These less expensive stores often emphasized junk food marketing and had less healthy options compared to their more expensive counterparts (Ghosh-Dastidar et al., 2014). Therefore, price plays a big factor in people's decisions, and many continue to buy junk food even when healthier foods are more readily available. Due to the

interdependent nature of many of the challenges facing disadvantaged communities, communities with low food access also often lack technical, managerial, and financial capacity needed to access funding and other forms of support to address food deserts (Balazs & Ray, 2015).

Supplemental Nutrition Assistance Program (SNAP)

SNAP may not be enough to mitigate food deserts. While SNAP increases food security, there is not enough evidence to show that SNAP specifically targets food deserts (Maynard, 2020). This may be because many of the factors that affect participation in SNAP can be linked to living in a food desert.

SNAP also struggles to tackle the malnutrition caused by food deserts, as the program has not been successful at improving nutrition among participants. Daily caloric, macronutrient, and micronutrient intake did not differ systematically between SNAP participants and income-eligible nonparticipants (Andreyeva, Tripp, & Schwartz, 2015). However, adult SNAP participants scored lower on the Healthy Eating Index than either group of nonparticipants, and children's diets among SNAP participants and low-income nonparticipants were both less nutritious than diets of higher-income children. As part of the Healthy Initiatives Pilot (HIP), participants received additional benefits on their SNAP card for purchasing the targeted fruits and vegetables. Although this initiative showed promise in providing healthier alternatives, SNAP participants did not undergo significant transformations in their consumption habits. While participants did report increases in the purchasing of fruits and vegetables, they did not change their shopping habits in terms of where they purchased fruits and vegetables and the frequency in which they purchased fruits and vegetables (Olsho, Klerman, Bartlett, & Logan, 2017).

Much like other government assistance programs, SNAP suffers from a social stigma that impacts its participation. Receiving financial aid from the government is still considered taboo, thus making the implementation of important policies a rather difficult, and potentially, ineffective process (Stuber & Schlesinger, 2006). For older participants, specifically, there is a widespread stigma against using government assistance programs, leading to elderly citizens having some of the lowest participation rates for SNAP. More generally, the stigma against social assistance programs is often present in grocery stores, schools, and communal networks, therefore creating hesitancy for eligible participants to enroll.

The implementation of SNAP is further limited by widespread confusion about the eligibility rules. Many people who meet the SNAP eligibility requirements may be unaware of their eligibility, as the requirements involve calculating for multiple factors, such as gross monthly income, net income, and asset value. Further contributing to eligibility barriers, the threshold for each of these requirements changes in accordance with how many people are currently living in a household. Furthermore, individuals who work fewer than 20 hours a week are allowed only three months of SNAP eligibility a year. These complicated requirements have led to the misuse of SNAP payments. The Department of Agriculture assistant inspector, Ann Coffey, reported nearly half a billion dollars in improper SNAP payments over the last five years, resulting in over 2,000 criminal convictions (Aussenberg, 2018). The stigma surrounding social assistance programs, coupled with confusion surrounding eligibility rules, presents many challenges in making SNAP accessible to all its eligible participants.

Opening New Supermarkets

The simple solution of opening more supermarkets in food deserts is ineffective unless paired with other policy interventions. Opening a supermarket in a food desert has had mixed

results in terms of increasing diet quality for residents. One study found that food desert residents did not experience a significant improvement in diet after a supermarket was opened in their neighborhood. While consumption of kilocalories, added sugars, and alcohol slightly decreased, fruit and vegetable consumption also slightly declined (Dubowitz et al., 2015). Additionally, a 2004 program in Pennsylvania to incentivize construction of supermarkets in inner city locations demonstrated that, while commuting distances to supermarkets were decreased, the construction of new supermarkets had limited positive effects on the health of residents (Bradeen, 2021).

The construction of new supermarkets increased people's perceptions of healthy food accessibility but had little effect on their consumption of fruit and vegetables (Bradeen, 2021). Increased supermarket construction without policy to address nutritional education, obesity, and poverty is therefore ineffective at improving healthy food accessibility for those living in food deserts. A recent study found that one new supermarket that opened through the Healthy Food Financing Initiative (HFFI), a federal investment program, improved food security and lowered the intake of added sugars among SNAP participants in the neighborhood, but there was not enough data to show whether SNAP participation was the reason for the success of the new supermarket (Cantor et al. 2020). This example suggests that, while opening supermarkets alone may be ineffective in combating food deserts, the strategy may be more effective in conjunction with programs like SNAP, which address other factors such as poverty.

USDA Programs

USDA grants and projects face issues with accessibility. The USDA combats food deserts with programs like NIFA grants, federally funded state nutrition education programs, and grant programs for private nonprofits (USDA, n.d.). The Community Food Project, for example, is a competitive grant under NIFA that has funded stores like Choctaw Fresh Produce in Mississippi

to supply fresh fruits and vegetables to local communities (USDA, 2021). The USDA also has Community Development Block Grant Programs to encourage local governments to plan for community food access. While public food program service providers, tribal organizations, and private nonprofit entities, including gleaners, are all eligible to apply for funding, this funding is not always readily accessible to them. Areas in need of financial and infrastructural planning and support to combat food deserts are generally already low-income communities with a lack of access to resources, such as people or organizations that will have knowledge of how to apply for such grants and funding.

The monetary limitations of these USDA programs pose another issue. Approximately 65,000 census tracts live in food deserts, but the Community Food Project, for example, only receives \$4,800,000 in program funding and gives out grants from \$0-\$400,000. This is not enough money to support the 39.4 million people living in areas with low income and low access to healthy food (Rhone, Ver Ploeg, Dicken, William, & Breneman, 2017). These grants are not aimed specifically at eliminating food deserts and thus have limited potential to help communities escape their food desert status.

Subsidizing Delivery and Online Purchasing

A recent SNAP program targeted towards online food purchase shows more promise in expanding food access among low-income communities. SNAP's Online Purchasing Pilot has established an alternative for households to utilize their SNAP rewards to purchase food online for pick-up or delivery from authorized merchandisers (USDA, 2020). This pilot was originally launched in New York in April 2019 and was further expanded throughout 2020 due to declining food access during the COVID-19 pandemic. In February 2020, online redemptions only accounted for 3% of total redemptions, but the value of online redemptions ultimately grew

about 86 times in value through December 2020. Creating an online alternative not only encourages consumers to use their SNAP benefits more often, but also makes it easier and more accessible for working families to get nutritious, affordable meals.

Amazon is among the authorized merchandisers in SNAP's Online Purchasing Pilot. Through Amazon Grocery and Amazon Fresh, customers can buy groceries online for delivery using their SNAP-EBT cards. Both services provide free shipping and have expanded the reach of online purchasing through SNAP. 99% of SNAP households are eligible to use their SNAP benefits for Amazon Grocery and Amazon Fresh (Hermann, 2022). By partnering with large corporations like Amazon, Walmart, and others, SNAP has successfully promoted online purchasing as a viable option for many low-income households to increase their access to affordable, healthy foods.

Food Education

K-12 students in America do not receive sufficient food education or support to make healthy food choices throughout their lives and become advocates for themselves. 61% of schools have no nutrition education coordination, and overall public education efforts have failed to reduce food deserts and insecurity. The food pyramid was created 30 years ago in 1992 and was last updated in 2005. It does not reflect the changing science and needs of people's health, but it is still taught and advertised in and out of schools across the country (Caroll, 2002).

SNAP has implemented a more effective nutritional educational program called SNAP-Ed, which focuses on providing people with methods to ensure healthy eating. SNAP-Ed works to help develop better dietary outcomes and improve food security, with studies indicating that SNAP-Ed has been effective in both, with a particular emphasis on the latter (Rivera, Maulding, & Eicher-Miller, 2019). Participants who attended at least two SNAP-Ed classes at

farmer's markets reported higher levels of self-efficacy in regards to purchasing and consuming fruits and vegetables. SNAP-Ed classes are also instrumental in promoting positive attitudes towards healthy eating, which helps overcome a potentially large burden for improved dietary intake; studies found that each additional class is associated with a 20% increase of cups of fruits and vegetables consumed on a daily basis. This is reflected in evidence that shows how those who attend SNAP-Ed classes are more likely to incorporate fruits and vegetables in their diets and demonstrate a better understanding of cost analysis for fruits and vegetables. In addition, food security has improved significantly through SNAP-Ed by equipping SNAP users with the food resource management skills necessary to increase household food security. SNAP-Ed is especially impactful in low-income communities, as these groups see the largest increase in their household food security (Andreyeva, Tripp, & Schwartz, 2015).

Policy Recommendations

Increasing SNAP Participation

To expand SNAP's success in mitigating food deserts, increasing SNAP participation by combating social stigma against government assistance is crucial. We recommend that SNAP partners with USAGov's Outreach and Marketing team to improve messaging, decrease stigmas, and clear confusion about eligibility. In the past, the USAGov Outreach and Marketing team has successfully increased attendance to the Smithsonian's live events through promotions and has worked with the Social Security Administration to host a Facebook Live event that was attended by 270,000 people (Loxson, 2018). The USAGov's Outreach and Marketing team's success in driving up participation for other US government programs suggests that SNAP participation can similarly be increased by improving the program's promotions and expanding its social media outreach, focusing specifically on messaging against social stigma. Better marketing may

normalize SNAP participation among targeted communities and also increase informational outreach on how to apply to SNAP and who is eligible for the program.

Another, less politically feasible strategy to grow SNAP participation is by eliminating some eligibility rules, especially those that are more complex, as they may cause confusion among current or prospective SNAP participants. For example, individuals who work fewer than 20 hours a week are allowed only three months of SNAP eligibility a year. This rule is not only complex, but it also limits benefits for participants who may make less income and thus may have more need for benefits. As a result, eliminating this rule would not only increase SNAP participation, but doing so may also improve food equity for the very poor. However, eliminating the rule that limits eligibility for those who work fewer hours may be politically unpopular. Conservatives may be especially resistant to accepting the trade-off that eliminating such a rule disincentivizes participants to find more work and may discourage them from seeking self-sufficiency.

Subsidizing and Requiring Healthier Options in Grocery Stores

Requiring healthier options in grocery stores has been shown to increase consumption of healthy foods and may effectively reduce food deserts if implemented on a larger scale. As part of the special supplemental nutrition program for Women, Infants and Children (WIC) in Boston, WIC-authorized stores were required to stock certain healthy foods that were subsidized under the program. The six-year study primarily focused on small stores because larger supermarkets already met requirements, and many food desert residents rely on corner stores and convenience stores in low-income neighborhoods. Under the new requirements, corner stores experienced the greatest increase in healthy food availability, with an even greater effect in black-majority census tracts. The policy was amended in 2009 to require a greater selection of subsidized, healthy

foods, which further increased the healthy food availability in corner and convenience stores (Cobb et al., 2015).

Requiring a healthy food selection in stores frequented by food desert residents had a profound impact on healthy food accessibility. However, policy is needed to address both availability and affordability. Subsidizing healthy foods has been successful at increasing healthy food purchases at affordable prices. One study found that SNAP users participating in a Healthy Incentives Program (HIP), which gave participants a 30% rebate on targeted fruits and vegetables, consumed 26% more fruits and vegetables than the control group. The study was conducted over a span of one year and indicates that a long-term application of such rebates could permanently encourage participants to increase consumption of fruits and vegetables. However, barriers still exist for many to take advantage of this program, as the rebate did not apply to all targeted food purchases, and the prices after rebate were not listed, making it difficult for consumers to know the prices of rebated products. Additionally, incomplete awareness, stigma, and imperfect understanding of the program limit its effectiveness (Olsho, Klerman, Bartlett, & Logan, 2017).

Rebates can be made simpler by providing healthy food subsidies to grocery stores rather than to consumers at the point of purchase. We therefore propose a program that requires healthy foods in grocery, corner, behind the glass, and convenience stores and subsidizes those healthy foods. With the aid of subsidies, these stores would be able to offer a larger selection of healthy foods at lower prices. We suggest funding the program through unhealthy food taxation. One study proposes a taxation rate of 10-15% on junk foods on a population-wide basis to decrease purchases of foods high in fat, sugar, and sodium (Niebylski et al., 2014). If implemented in tandem with our other recommended policies, junk food taxation could both improve diet

outcomes and provide funding for the proposed healthy food subsidies. This policy measure would target existing stores and new supermarkets constructed in identified food deserts.

While the proposed policy draws from case studies implemented on a city-wide basis, the policies were demonstrated to be successful in food deserts facing a variety of socioeconomic factors. This policy is also flexible in how many and what foods are to be required, as well as to what degree these foods are to be subsidized. As a result, the policy is highly adaptable to the changing needs of different communities. Additionally, by primarily addressing the issues of affordability and accessibility, two of the biggest barriers to health outcomes for food desert residents, this policy has the potential to improve health outcomes on a broad scale.

However, one of the primary challenges to implementation of this policy is political feasibility. Junk food taxation, in particular, could face major opposition from many producers and consumers. If this part of the policy became prohibitive to its implementation, the rest of the policy could be implemented without it. Regardless, funding remains another potential barrier, because subsidizing all healthy foods at the grocery-store level would cost more than a program like HIP, which offers rebates only to SNAP participants.

Subsidizing Delivery and Online Purchasing

Following the example of SNAP's successful Online Purchasing Pilot, we recommend subsidizing online purchasing for low-income individuals. Providing subsidies to online grocery platforms at a rate of around 10%-15%, based on local population and demographics, would encourage the purchase of healthier fruits and vegetables on grocery store websites and apps (Niebylski, Redburn, Duhaney, & Campbell, 2014). Discounts could also be provided conditionally. For example, the amount discounted could depend on the amount of healthy foods a consumer purchases. Additionally, reducing or completely eliminating delivery fees would

incentivize consumers to purchase groceries online and assist those who would otherwise encounter time or distance barriers to grocery shopping.

Low-income families stand to benefit the most from online grocery shopping, as it can be more convenient and time-saving than traditional grocery shopping. However, delivery fees and higher prices associated with online purchasing remain a barrier for low-income families. We thus anticipate that subsidizing delivery would create sustained growth in online purchasing for low-income families in food deserts. This would be especially impactful in rural regions, which experience higher food prices due to lack of grocery stores.

Policy subsidizing online purchasing, however, may face challenges in political feasibility. A potentially politically unpopular trade-off of this policy would be the loss of revenue for traditional grocery stores. One method of avoiding this trade-off would be to subsidize traditional grocery stores as well as online grocery stores, but doing so would require more funding, which poses another challenge in itself.

Food Education

Since education is instrumental to promoting healthy eating alternatives and expanding SNAP outreach, we recommend providing grant funding to schools and community organizations to establish nutrition education services and programs. The USDA allocates \$2 billion for reimbursing school food service departments for meals for low-income students, but more funding should be specifically allocated for food education in K-12 schools (Adams, 2014). This would fund initiatives centered around teaching students how to make healthy food choices and access government assistance programs like SNAP. Physical education and health classes could develop curriculum to reverse the negative stigma surrounding government assistance programs and help students develop healthy eating habits from a young age. Food education

funding for local community organizations can likewise facilitate the spread of information to people struggling with healthy food access.

Another method of supporting food education is to expand the existing SNAP-Ed program. SNAP-Ed is the nutritional education component of SNAP and is expected to receive \$486 million in funding from the USDA by 2023. More funding for SNAP-Ed would allow the program to continue to teach people how to shop for and cook healthy food, providing a crucial information resource for those living in food deserts. Funding towards SNAP-Ed could also be used to support several subprograms within SNAP-Ed, such as one teaching SNAP participants how to purchase bundles of groceries in groups. Educating consumers about group purchasing in SNAP-Ed would promote the consumption of healthy food in food deserts, as those who purchase groceries in groups would pay less in delivery fees and be able to spend more on healthy food. Furthermore, group purchasing can improve food security for groups of multiple households in a community, as opposed to individual households.

Community Partnerships and Local Policies

Local policy-making and community involvement are critical to developing and implementing policy that can successfully combat communities' food desert status. We recommend increased focus on local food access policy, as local policies can be tailored to community needs and thus have more direct impact on food deserts, compared to federal policies. Rebates and SNAP programs are federally funded, recognized, and promoted, but they have not been proven successful in all food deserts. In contrast, federal policy in conjunction with local community efforts have the potential to increase food accessibility among a wider range of people. These local efforts and actions can include opening a community grocery or

farmers market or implementing a food policy council that directly identifies and works to solve pressing issues the food desert faces.

To eliminate their food desert status, local governments must consider reallocating their budgets. More money can be allocated towards increased public transportation and the placement of public transportation stops near grocery stores to address any food inaccessibility due to transportation. Local governments can also allocate funds to school-centered meal programs and food pantries to address the stigmatization of government support and also increase accessibility to food and food education programs in the community. Additionally, local governments can work with other community agencies and organizations to expand informational outreach on food assistance programs and food education. Local governments can also subsidize urban farming initiatives or support them by approving the sale of vacant lots and food products. For example, cultivating a community garden could increase food access as well as provide jobs and economic opportunities that benefit the community.

Another community approach we recommend is the establishment of food policy councils dedicated specifically to eliminating communities' food desert status. This approach has been implemented in some food deserts across the country and has proven successful (Ecology Center, n.d.). In order to have a comprehensive understanding of its community's needs, each council would be made up of experts on grant-writing and federal assistance programs, community leaders and organizations, city council members and local municipality officials, and community residents. Experts on government funding play the essential role of finding financial backing for new policy, and the involvement of residents is additionally important for educating residents on healthy eating, mobilizing residents to create change in their community, and elevating diverse voices to better understand and address racial disparities. Each food policy

council member would receive assignments based on community needs and the development of sub-councils would encourage community outreach and involvement. These food policy councils and sub-councils can address the infrastructure that impacts community health, engage relevant stakeholder groups, and emphasize bottom-up community-based approaches to encourage local public policy reform that addresses community needs.

In order to keep communities on track to accomplish their goal of eliminating their food desert status, food policy councils can establish and monitor action plans. Action plans could look five to ten years into the future and address both pressing and long-term community needs. Local governments could study the locations of grocery stores, the amount of healthy foods available in these stores, and the accessibility of these stores by public and private transportation. Community-specific policy can then be formed to address any identified barriers to healthy food. To address long-term community needs and raise awareness towards the task of eliminating their food desert status, communities can also continually host events or programs, like temporarily hosting a farmer's market or teaching classes on healthy eating and cooking.

The fundamental role of food policy councils is to continuously monitor the community action plan to ensure the community is working toward eliminating their food desert status. Compared to federal policies, all of these community-based approaches can more easily be designed to suit the needs of individual communities. Federal policies would thus be more effective at reducing the number of food deserts in the US if coupled with local policy and community efforts.

Conclusion

The persistence of food deserts in the US threatens the nutritional health of 39.4 million Americans and remains a pressing public health issue. In this study, we have synthesized existing

literature to identify the causes of American food deserts and analyze existing policy. Drawing from past policy and case studies, we propose five policy recommendations to reduce the number of food deserts in the US. To comprehensively address the social and economic factors that sustain food deserts, we believe effective local and federal food desert policy must combine social assistance programs, subsidization, food education, and private and public partnerships. Further research and analysis is needed to develop these recommendations, project their outcomes, and plan their implementation.

References

- Adams, J. M. (2014, November 12). School lunch programs ordered to spend more. EdSource. Retrieved April 24, 2022, from <https://edsources.org/2014/school-lunch-programs-ordered-to-spend-more/69861#:~:text=The%20U.S.%20Department%20of%20Agriculture%20distributes%20more%20than%200%242%20billion,for%20bulk%20commodities%20used%20by>
- Andreyeva, T., Tripp, A. S., & Schwartz, M. B. (2015). Dietary Quality of Americans by Supplemental Nutrition Assistance Program Participation Status: A Systematic Review. *American journal of preventive medicine*, 49(4), 594–604. <https://doi.org/10.1016/j.amepre.2015.04.035>
- Aussenberg, R. A. (2018). *Errors and fraud in the Supplemental Nutrition Assistance Program (SNAP)*. Congressional Research Service. Retrieved May 3, 2022, from <https://sgp.fas.org/crs/misc/R45147.pdf>
- Bartlett, Susan, Jacob Klerman, Lauren Olsho, et al. Evaluation of the Healthy Incentives Pilot (HIP): Final Report. Prepared by Abt Associates for the U.S. Department of Agriculture, Food and Nutrition Service, September 2014.
- Bedore, M. (2014). The convening power of food as Growth Machine Politics: A study of food policymaking and partnership formation in Baltimore. *Urban Studies*, 51(14), 2979–2995. <https://doi.org/10.1177/0042098013516685>
- Blair Lewis, L., Galloway-Gilliam, L., Flynn, G., Nomachi, J., Chavis Keener, L., & Sloane, D. (2011). Transforming the Urban Food Desert From the Grassroots Up. *Fam Community*

Health.

Bradeen, T. (2021). *Exploring Urban Food Desert Policies in the United States Through the Water-Food-Energy Nexus* (Undergraduate thesis). Retrieved from https://digital.sandiego.edu/cgi/viewcontent.cgi?article=1087&context=honors_theses

Cantor, J., Beckman, R., Collins, R., Ghosh Dastidar, M., Richardson, A., & Dubowitz, T. (2020). SNAP Participants Improved Food Security And Diet After A Full-Service Supermarket Opened In An Urban Food Desert. *Health Affairs*. <https://doi.org/10.1377/hlthaff.2019.01309>

Carroll, J. (2002, June 13). The Government's Food Pyramid Correlates to Obesity, Critics Say. The Wall Street Journal. <https://www.wsj.com/articles/SB1023915818486451160>

Centers for Disease Control and Prevention. (2021, February 15). Nutrition education in US schools. Centers for Disease Control and Prevention. Retrieved March 8, 2022, from https://www.cdc.gov/healthyschools/nutrition/school_nutrition_education.htm

Christiansen, K. (2016). *Reframing "Food Deserts": The History Of Urban Supermarket Access And Its Public Policy Discourse* (dissertation). Retrieved from <https://jscholarship.library.jhu.edu/bitstream/handle/1774.2/40374/CHRISTIANSEN-DISSSERTATION-2016.pdf?sequence=1>

City of Oakland. (2019). *Adopted Policy Budget*.

<https://cao-94612.s3.amazonaws.com/documents/FY-2019-21-Adopted-Budget-Policy-Book-FINAL-WEB-VERSION.pdf>

Cobb, L., Anderson, C., Appel, L., Jones-Smith, J., Bilal, U., Gittelsohn, J., & Franco, M.

(2015). Baltimore City Stores Increased The Availability Of Healthy Food After WIC Policy Change. *Health Affairs*. <http://dx.doi.org/10.1377/hlthaff.2015.0632>

Costa, D. (2021, June 23). Disappointing Supreme Court decision makes it harder for farmworkers to unionize. Economic Policy Institute. Retrieved March 1, 2022, from <https://www.epi.org/blog/disappointing-supreme-court-decision-makes-it-harder-for-farmworkers-to-unionize/>

Dickert-Conlin, Stacy, et al. “The Role of Advertising in the Growth of the SNAP Caseload.” National Poverty Center Working Paper Series, 2012.

<http://npc.umich.edu/publications/u/2012-07%20NPC%20Working%20Paper.pdf>

DoSomething.org. (n.d.). 11 Facts About Food Deserts.

<https://www.dosomething.org/us/facts/11-facts-about-food-deserts#:~:text=About%2023.5%20million%20people%20live,10%20miles%20from%20a%20supermarket>

Dubowitz, T., Ghosh-Dastidar, M., Cohen, D., & Beckman, R. (2015). Diet And Perceptions Change With Supermarket Introduction In A Food Desert, But Not Because Of Supermarket Use. *Health Affairs*. <http://dx.doi.org/10.1377/hlthaff.2015.0667>

Dutko, P., Ver Ploeg, M., & Farrigan, T. (2012). *Characteristics and influential factors of food deserts* (140). Retrieved from Department of Agricultural Economics website: <https://ageconsearch.umn.edu/record/262229>.

Ecology Center | Environment, Community, Justice. (n.d.). *Berkeley Food Policy Council*. <https://ecologycenter.org/berkeley-food-policy-council/>

- E.W. Olsho, L., Klerman, J., Bartlett, S., & Logan, C. (2017). Rebates to Incentivize Healthy Nutrition Choices in the Supplemental Nutrition Assistance Program. *American Journal of Preventive Medicine*. <http://dx.doi.org/10.1016/j.amepre.2016.08.023>
- George, C., & Tomer, A. (2021, August 17). *Beyond 'Food Deserts': America needs a new approach to mapping food insecurity*. Brookings. Retrieved March 7, 2022, from <https://www.brookings.edu/research/beyond-food-deserts-america-needs-a-new-approach-to-mapping-food-insecurity/>
- Ghosh-Dastidar, B., Cohen, D., Hunter, G., Zenk, S., Huang, C., Beckman, R., & Dubowitz, T. (2014). Distance to Store, Food Prices, and Obesity in Urban Food Deserts. *American Journal of Preventive Medicine*.
- Gorman, A., & Rowan, H. (2018, May 1). Why Millions of Californians Eligible for Food Stamps Don't Get Them. Retrieved from <https://www.npr.org/sections/thesalt/2018/05/01/606422692/why-millions-of-californians-eligible-for-food-stamps-dont-get-them>
- Herrmann, K. (2020, June 17). *SNAP benefits can be used by Amazon customers in nearly every U.S. state*. US About Amazon. Retrieved from <https://www.aboutamazon.com/news/retail/nearly-every-snap-household-in-the-u-s-can-pay-with-snap-ebt-on-amazon>
- John, S., Lyerly, R., Wilde, P., Dexter Cohen, E., Lawson, E., & Nunn, A. (2021). The Case for a National SNAP Fruit and Vegetable Incentive Program. *Am J Public Health*.

- Jung, Y., & Newman, A. (2014). An edible moral economy in the Motor City. *Gastronomica*, 14(1), 23–32. <https://doi.org/10.1525/gfc.2014.14.1.23>
- Karpyn, A. E., Riser, D., Tracy, T., Wang, R., & Shen, Y. E. (2019). The changing landscape of food deserts. *UNSCN nutrition*, 44, 46–53.
- Larson, T., Ong, P. M., Mar, D., & Peoples, Jr., J. H. (2020). Inequality and COVID-19 Food Insecurity. *UCLA Center for Neighborhood Knowledge*. Retrieved from <https://knowledge.luskin.ucla.edu/wp-content/uploads/2020/12/Inequality-COVID-19-Food-Insecurity.pdf>
- Leib, B., & Michele, E. (2013). All (Food) Politics is Local: Increasing Food Access through Local Government Action. *Harv. L. & Pol'y Rev.* Retrieved from <https://dash.harvard.edu/handle/1/11189975>
- Leroy, J. L., Ruel, M., Frongillo, E. A., Harris, J., & Ballard, T. J. (2015). Measuring the Food Access Dimension of Food Security: A Critical Review and Mapping of Indicators. *Food and Nutrition Bulletin*, 36(2), 167–195. <https://doi.org/10.1177/0379572115587274>
- Leslie, M. (2021, June 4). Agriculture and Food Access in California. ArcGIS StoryMaps. Retrieved March 1, 2022, from <https://storymaps.arcgis.com/stories/e92d92db0acd43958e850fdd0b53d813>
- Loxson, C. (2018, April 2). *New usagov program aims to help agencies market within the Federal Government*. Digital.gov. Retrieved April 18, 2022, from <https://digital.gov/2018/04/02/marketing-government-through-agency-partnerships/>

Mukherjee, T. (2020, September 28). *Redlining's Legacy: Food Deserts, Insecurity, and Health*.

Morning Sign Out at UCI. Retrieved March 7, 2022, from

<https://sites.uci.edu/morningsignout/2020/09/28/redlinings-legacy-food-deserts-insecurity-and-health/>

National Center for Education Statistics. (n.d.). Nutrition Education in Public Elementary and Secondary Schools.

[https://nces.ed.gov/surveys/frss/publications/96852/#:~:text=Practically%20all%20public%20schools%20\(99,total%20curriculum%20\(70%20percent\)](https://nces.ed.gov/surveys/frss/publications/96852/#:~:text=Practically%20all%20public%20schools%20(99,total%20curriculum%20(70%20percent))

Niebylski, M., Redburn, K., Duhaney, T., & Campbell, N. (2014). Healthy food subsidies and unhealthy food taxation: A systematic review of the evidence. *Nutrition*.

<http://dx.doi.org/10.1016/j.nut.2014.12.010>

National Institute of Food and Agriculture. Community Food Projects (CFP) Competitive Grants Program | National Institute of Food and Agriculture. (n.d.). Retrieved April 24, 2022, from <https://www.nifa.usda.gov/grants/funding-opportunities/community-food-projects-cfp-competitive-grants-program>

Public Health Alliance of Southern California. (n.d.). *Supermarket access*. California Healthy Places Index. Retrieved March 7, 2022, from

<https://healthyplacesindex.org/policy-actions/supermarket-access/>

Rhone, A., Breneman, V., Williams, R., Dicken, C., & Ploeg, M. V. (2017, January).

Low-income and low-supermarket-access census tracts, 2010-2015 - USDA ERS.

ers.usda.gov. Retrieved May 3, 2022, from

<https://www.ers.usda.gov/webdocs/publications/82101/eib-165.pdf?v=3395.3>

- Rivera, R., Maulding, M., & Eicher-Miller, H. (2019). *Effect of Supplemental Nutrition Assistance Program-Education (SNAP-Ed) on food security and dietary outcomes*. Academic.oup.com. Retrieved May 3, 2022, from <https://academic.oup.com/nutritionreviews/article/77/12/903/5488130?login=false>
- Stuber, J., & Schlesinger, M. (2006, March 20). *Sources of stigma for means-tested government programs*. Social Science & Medicine. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S0277953606000414?via%3Dihub>
- The Annie E. Casey Foundation. (2021, February 13). Exploring America's Food Deserts. <https://www.aecf.org/blog/exploring-americas-food-deserts>
- USDA ERS. (2009). "Access to Affordable and Nutritious Food: Measuring and Understanding Food Deserts and Their Consequences."
- USDA ERS Food Access Research Atlas. USDA. (n.d.). Retrieved March 1, 2022, from https://gisportal.ers.usda.gov/portal/apps/experiencebuilder/experience/?id=a53ebd7396cd4ac3a3ed09137676fd40&page=page_4
- USDA ERS. (2011). *Mapping food deserts in the United States*. USDA ERS - Data Feature: Mapping Food Deserts in the U.S. Retrieved March 7, 2022, from <https://www.ers.usda.gov/amber-waves/2011/december/data-feature-mapping-food-deserts-in-the-us/>
- USDA ERS. (2019) *USDA launches Snap Online Purchasing Pilot*. Food and Nutrition Service U.S. Department of Agriculture. Retrieved May 3, 2022, from <https://www.fns.usda.gov/pressrelease/2019/fns-000319>

Ver Ploeg, M., Dutko, P., & Breneman, V. (2014). Measuring food access and food deserts for policy purposes†. *Applied Economic Perspectives and Policy*, 37(2), 205–225.

<https://doi.org/10.1093/aep/ppy035>