Supermarket Redlining and Food Deserts: Potential Policies and Alternative Food Market Solutions with Applications to the Hartford Food System

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Abstract: Food deserts are neighborhoods that are typically socioeconomically disadvantaged and have high levels of low-income populations who face barriers to accessing healthy, nutritious food. These barriers, which include but are not limited to, the increased distance these food insecure populations are located from large food retailers that supply fresh produce. Many of these inequalities stem from institutionalized racism which allowed for practices such as supermarket redlining and, in part, led to the creation of food deserts in places like Hartford, Connecticut. In using the historical context that shaped the Hartford food system and comparing the identified alternative food market solutions used to remediate food deserts to which of these strategies are being applied to in Hartford, this paper seeks to analyze some of the potential policies that have been proposed to address food insecurity in the Hartford food desert and the negative public health impacts they have had on its residents.
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Food insecurity is a human rights issue that affects millions of people in the United States of America. The issue of food insecurity ranges in definition and scope but it generally refers to a lack of access to nutritionally adequate food. Limited access to nutritious food and hunger is a problem primarily experienced by the lower-income population that affects the overall health of the public because of the associated negative impacts on the human physical and psychological health amongst children and adults in these communities. Food insecurity is an intersectional issue that stems from and is an impact of environmental injustice and racism by way of food deserts which are, in part, created as a result of supermarket redlining as well as the commodification of food due to the capitalist structure of the food system. Supermarket redlining refers to when major chain supermarkets, as a result of obstacles associated with urban areas, will either avoid opening stores in inner cities and low-income neighborhoods or will relocate existing stores to bordering suburban neighborhoods. This is an especially prevalent issue in areas with particularly high levels of economic inequality. According to the Economic Policy Institute, Connecticut ranks third out of all 50 of the states in income inequality, based on the fact that the average annual income of the top 1% is 37.2 times more than the average income of the bottom 99%.

Access to healthy and, more specifically, locally grown food has been limited resulting in food deserts in Connecticut cities such as its capital city, Hartford, as a result of “supermarket redlining” which is the impact of environmental injustice and racism on the Hartford food systems. Although this is an extremely complex issue with varying negative impacts on public health that does not have a “silver bullet” solution this paper will explore various methods to remediating food deserts to help combat the effects of supermarket redlining as applied to the Hartford food system. Some of these potential solutions include policies to encourage the
introduction of new supermarkets, incentives to incorporate healthy options in small convenience stores such as *bodegas*, incorporation of urban agriculture to promote sustainable food systems, and breaking down the barriers to accessibility within farmers markets, or other alternative food Program (SNAP), the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), and Electronic Benefits Transfer cards (EBT) which is a method of distributing SNAP funds for purchasing food. In using the historical contextualization of how the Hartford food system has been shaped, learning about what is being done to address the issue helps determine and analyze the potential policy solutions that might have the greatest success through the process of adoption, implementation, and level of impact.

Although no one potential solution can solve the issue of access to food in the Hartford food system, paired with food educational programs promoted by non-profit organizations that promote community-driven food justice efforts, many of these solutions have the potential to have a positive impact on the effort to build a more sustainable and equitable food system and increase access to affordable, healthy food in Hartford, Connecticut.
Chapter 1: Understanding Food Deserts: Why do they exist?

To fully identify and analyze potential solutions to remediating food deserts, it is necessary to understand what they are and what factors lead to their existence. The term food desert is used to describe “socioeconomically disadvantaged neighborhoods with limited or inadequate physical or economic access to healthy and affordable food” (Zhang and Debarchana, 3). In short, food deserts are areas in which populations disproportionately experience food insecurity. Although the negative impacts of food insecurity are felt more directly by some populations, particularly among vulnerable populations living in these food deserts, they are not just felt at the individual or familial basis. For this reason, food insecurity’s negative health outcomes have importance to the health care professionals and policymakers whose goals should be and generally are to improve the health and well-being of the public.

It was found that food insecurity is associated with increased risks of physical health problems, particularly concerning development in children. Problems such as anemia, inability to intake nutrients, cognitive problems, increased incidence of asthma, decreased oral health, and poorer general health occurs more frequently in children that come from marginally food-insecure households and food insecure households than in children from fully food-secure households. Furthermore, food insecurity has been associated with psychological health effects such as aggression and anxiety, behavioral problems, depression, and suicide ideation. In adults, some of the negative health impacts experienced by food insecure populations include diabetes, hypertension, hyperlipidemia, and poor sleep outcomes. One interesting statistic is that “mothers who are food insecure are over twice as likely to report mental health problems and are over three times as likely to report oral health problems compared to their food-secure peers”
(Gunerson and Ziliak, 1834). As demonstrated, food insecurity is a public health issue with varying negative health impacts that should be explored more to find potential solutions.

Food deserts are typically linked to chronic conditions, however, it is unknown for sure if these issues are associated as a result of a lack of a large food retailer because “even when these retailers are present, the prevalence of obesity is significantly higher if convenience stores also are present” illustrating that although there may be larger food retailers that are physically close, access or even dietary choice may be complicating the issue (Pike, Trapl, Clark, Roue, Bell, Seghal et al., 1). It is important to explore different potential sources for the link to issues in public health to determine which solutions work best towards ameliorating them when addressing the issue of food insecurity and environmental justice. In a study completed for the Center for Disease Control, two neighborhoods of similar racial and economic status from metropolitan areas in Ohio were studied. These neighborhoods were targeted for the study because more than 40% of their populations were found to be below the federal poverty levels as well at 70% of the population identifying as a racial/ethnic minority. The researchers evaluated every potential food retailer in which residents within these communities could be accessing food, such as larger supermarkets, convenience stores, bodegas, dollar stores, pharmacies, gas stations, etc., and found that in all of these stores, “the most common healthy options available among all stores were canned vegetables, 100% juice, and diet soda” (Pike et al., 2). Furthermore, it was found that of the stores within these communities that had advertisements on their exterior, there were significantly more advertisements for tobacco/alcohol and sugary beverages than there were for health-related behaviors. While in general there is less access to food in urban food deserts, there are also factors such as significantly more unhealthy food options that are offered in smaller food retailers that “combine to shape dietary decision-making”
(Pike et al., 2). There is a strong case made in this study that calls for an educational component about nutrition to encourage healthier food choices in addition to incorporating healthier options in existing food retailers rather than just the issue of a lack of physical access to healthy, nutritious food.

1.1 Food Deserts

Although it may seem as if identifying areas that can be classified as food deserts is a simple task due to the definition provided, food deserts are more complex than meets the eye. While they may have come to be historical, due to inequalities in wealth, located in many inner-cities as a result of systematically racist practices such as supermarket redlining, barriers to food access on such a large scale extend beyond just the physical distance between a population and a supermarket. In no way meant to discredit the barrier of not having food markets readily accessible, much the issue of food access has evolved beyond the previous definitions of food deserts. The US Department of Agriculture’s Economic Research Service defines food deserts based on thresholds of low-income and low-access. However, the low access threshold is defined by the USDA as “at least 500 persons and/or at least 33 percent of the population lives more than 1 mile from a supermarket or large grocery store” (“Mapping Food Deserts in the United States”). Although the physical distance between a population and a supermarket is a major barrier that influences an individual or a family's ability to access healthy food, there are more characteristics and influential factors of food deserts that the USDA identifies to more accurately define food deserts in the United States.

One major distinction within the term food desert is the different types and settings of the neighborhoods being evaluated that must be considered; there are food deserts that exist in rural areas and others that exist in urban areas. Urban food deserts make up a majority of the identified
food deserts which has been demonstrated based on the estimated number of people that experience food insecurity, “an estimated 13.5 million people in the United States have low access to a supermarket or large grocery store, with 82 percent living in urban areas” (“Mapping Food Deserts in the United States”). Researcher Nathaniel Mead attributes the disproportionate lack of access for lower-income residents of urban areas to the changing North American urban landscape over the past few decades. These changes include the suburbanization of supermarkets, which will be discussed more in-depth later on in this chapter, and the privatization of mobility due to automobiles becoming the primary mode of transportation. These factors combined contribute to the emergence of food deserts within inner-city populations and as a result suggests that urban development goals should be focused on improving policies for transportation while incentivizing supermarkets to move into inner-city areas with “zoning allowances, tax holidays, or tax rebates” (Mead, 2008). Despite these changes and introductions of supermarkets, the factor of food decisions based on nutritional health may persist, particularly within these lower-income populations that suffer the most in urban environments from food insecurity.

A further distinction was researched by Paula Dutko, Michael Ver Ploeg, and Tracey Farrigan in the study Characteristics and Influential Factors of Food Deserts. This distinction was between more densely populated urban tracts, such as New York City, and less dense urban tracts. The study was conducted by using data from the 1990 and 2000 Census as well as an average of the 2005-2009 American Community Survey to describe changes in the characteristics of the food desert tracts over time, relative to changes in all other tracts. In the multivariate analysis of very dense and less dense urban areas, the study found that “the characteristics that predict food desert status in less dense urban tracts are notably different than
those that predict food desert status in dense urban areas “(Dutko et al., 32). Due to more socioeconomic variation within the less dense urban food deserts which range from more suburban to more urban areas within the city, it is difficult to make more definitive connections between the demographic characteristics regarding economics and the existence of food deserts. Overall, however, the study found between all of the types and distinctions of food deserts that the primary perpetrator in the evaluation of food deserts is poverty with a key factor in low-density urban areas being a greater concentration of minorities. Though the definition of food deserts in this study were the same thresholds of low-income and low-access as set by the USDA, the researchers recommend further thought into how food deserts can be defined more accurately.

In a study conducted by the National Bureau of Economic Research titled Food Deserts and the Causes of Nutritional Inequality, which seeks to understand and explain why the wealthy eat more healthfully than the poor in the United States, it was found that food deserts, as defined as areas with no availability of or too highly-priced healthy foods, do not have much of an impact on the nutritional inequality that exists in the United States. When considering these results it is important to acknowledge the limitations of the definition of food deserts that was being used in the context of what was being tested. One of the main conclusions drawn from the study was that opening a supermarket within a food desert would not have much of an impact on the food choices made by the lower-income populations that live in those food deserts. Because food insecurity and the ability to access healthy foods is not solely dependent on the physical distance barriers or travel inconveniences, “equalizing supply would close the gap in healthy eating between low- and high-income households by less than 10 percent” as found by the study (Allcott et al., 34). Rather than suggesting governmental policies that incentivize supermarkets
moving into food deserts, the study offers another option to ameliorating food deserts. They suggest implementing a healthy food subsidy within SNAP that serves the bottom quartile of income distribution by subsidizing foods increasingly on a scale of healthfulness, foods that are determined to be “below average” on the Health Index receive no subsidies. They found that by modifying the SNAP program they could potentially “eliminate this measure of nutritional inequality at a cost of only about 15 percent of the SNAP budget” (Allcott et al., 33). This study highlights the benefits of finding solutions to remediating food deserts to improve access to healthy food and general public health other than introducing supermarkets into food deserts. It also demonstrates how complex the issue of food access is. Although the creation of many food deserts, which resulted in the initial gap in nutritional quality, may stem from a lack of supermarkets due to supermarket redlining, the solution and policies must look beyond and to alternative solutions for the greatest positive impact.

1.2 Environmental and Food Justice

Differences in the availability of food retailers that have affordable and healthy options are both an environmental and social justice issue which falls into the subcategory of environmental justice known as food justice. Food justice is generally defined as “access to healthy, affordable, culturally appropriate food in the contexts of institutional racism, racial formation, and racialized geographies” and is an issue which lies at the intersection of environmental justice, sustainable food systems, and food insecurity (Alkon and Norgaard, 281). By approaching food deserts and food scarcity from a position of environmental justice we can see the issues through a lens of inequality and institutional racism. In a study completed in 2009, a strong correlation was found between food insecurity and high instances of diet-related ideas as a result of institutionalized racism. The study shows how members of two groups of minorities,
West Oakland residents and Karuk tribal members, have experienced similar shared experiences in their journey from being a self-sufficient community able to provide their community’s needs through access to land and water into a community that suffers from the consequences of living in a food desert. Both West Oakland residents and Karuk tribal members face a lack of food access which has been linked to the elevated rates of diet-related illnesses such as diabetes rather than as the result of poor individual food choices (Alkon and Norgaard, 300). Various reasons can lead to a population losing the ability to produce and consume food within their communities, including supermarket redlining. This makes many instances of food deserts both an issue of environmental and food justice.

1.3 Supermarket Redlining

The concept of supermarket redlining is derived from the original practice of redlining. Historically, redlining was a practice that occurred in cities that shaped the metropolitan boundaries for school districts and housing based on economic and racially steered guidelines that have had lasting civil rights impacts on those communities by creating disparities between neighborhoods within the same cities (Dougherty, 19). The negative impacts of redlining extend beyond racially segregated housing. It has manifested as a form of environmental racism in a number of ways. One example is in the form of parks since many urban minority communities in comparison to white, affluent neighborhoods now have fewer and smaller parks of poorer quality which serves as a barrier to exercise that can have a negative impact on public health. Redlining in the context of retail operations such as supermarkets was another form of institutionalized racism that can be defined as redlining where chain supermarkets close down, relocate to suburban areas, or new stores do not open in urban areas not only due to discriminatory reasons but also as a result of “perceived urban obstacles” and “logistical obstacles” which is the
definition that is utilized by Mengyao Zhang and Ghosh Debarchana in their case study of spatial supermarket redlining and neighborhood vulnerability in Hartford, Connecticut (Zhang and Debarchana, 2). Unfortunately, as a result of both the discriminatory and nondiscriminatory reasons why a supermarket may be deterred from opening in urban neighborhoods, supermarkets, in general, tend to be focused on catering to the needs of the suburban populations that make up the majority of their customer base. Despite efforts made to open locations in inner-cities, the number of chains that close urban locations of supermarkets still outweighs the number of chains that open urban locations, worsening the issue and further distancing residents living in food deserts from potential food sources.

Figure 1: Conceptual Framework of Supermarket Redlining Index (SuRI) and Supermarket Redlining Impact Model (SuRIM)

In the Zhang and Debarchana study, a Supermarket Redlining Index (SuRI) was modeled using five indicators (sales volume, employee count, accepts food coupons from federally assisted programs, size, and population density of the services area) and also a model to understand its [supermarket redlining] effect using the Supermarket Redlining Impact Model (SuRIM) using indicators to track socioeconomic and food access vulnerabilities. It was found
that socioeconomically vulnerable residents, those who would be most vulnerable to food insecurity, lived in the same parts of the inner-city neighborhoods of Hartford where there was a disproportionate risk of supermarket redlining as calculated by the SuRi and SuRIM models. As shown in Figure 2, particularly within the inner-city neighborhoods of Hartford, there is a large proportion of the population that is vulnerable to becoming food insecure and as a result, are in danger of facing the negative health impacts associated with food insecurity. As depicted, “the service areas (block groups) of the supermarkets with higher risk of redlining (high SuRI values) were also the areas with higher impact of place-food-vulnerability (high SuRIM values)” and similarly the supermarkets with lower risks of redlining (low SuRI values) were located in areas with a lower impact of place-food-vulnerability (low SuRIM values) particularly in the surrounding suburban neighborhoods of West Hartford and Newington (Zhang and Debarchana, 12).
Figure 2: Spatial distribution of Supermarket Redlining Impact Model (SuRIM)

It is important to understand the harmful impacts that supermarket redlining has on both an individual and public health scale. Supermarket redlining is both an indicator and a cause of food insecurity within certain regions which often results in food deserts. As shown in the 2016 study by Zhang and Debarchana, the areas in which supermarkets are most being redlined out of the inner city areas in Hartford also happen to be the areas in which the population is most vulnerable to issues of food scarcity and food insecurity. When there are no supermarkets within a reasonable walking distance from urban neighborhoods, patrons are forced to either shop in smaller markets which often do not carry fresh produce and unprocessed foods or to travel further to the supermarkets in surrounding suburbs, which is typically not a feasible option due to lack of reliable transportation.
Supermarket redlining is a process that isolates lower-class urban residents geographically, separating them from grocery stores and diminishing their ability to access healthy, nutritious food which has harmful lasting impacts on the health of entire communities while creating food deserts in lower-income urban areas. According to Elizabeth Eisenhaur, lack of supermarkets due to redlining can result in chronically diminished physical health, “Geographic isolation, low social status and limited economic opportunities are the (interacting) pathways through which this process occurs. Poverty makes people geographically isolated, and geographic isolation increases the risk of acute disease and chronic ill-health” (Eisenhaur, 131).

Despite these connections that have been made between chronic illnesses and food insecurity, our society tends to blame those in poverty for these “avoidable” ailments such as obesity, diabetes, and heart disease and attribute the causes as behavioral over addressing the root cause. Rather than investing in food access and security as a means of preventative medicine, our government subsidizes crops that require processing and our healthcare system focuses on treating the symptoms of these chronic illnesses.

1.4 Food-Insecurity Obesity Paradox

One particular health effect that is discussed in terms of food insecurity and that has been historically linked to food deserts is obesity. The two ideas seem, at a base level, to be conflicting, however, it is important to consider that the definition of food insecurity that was outlined earlier specifies access to nutritious food. This phenomenon is referred to as the food-insecurity obesity paradox. Through further research into this paradox, it has been found that food insecurity and the addition of accessibility of high caloric foods have varying effects depending on if the food insecure population comes from a low or high socioeconomic status. Although primarily driven by higher amounts of high calorie, palatable food, the development of
obesity in low food secure populations has to do with chronic high energy intake, low resting metabolic rate, and low activity energy expenditure. The potential effect that the food environment can have on public health is shown in the figure below. This figure also illustrates that the factors on individual and public health outcomes extend beyond the limitations of food purchased in more conventional food markets such as supermarkets.

Figure 3: Causal web: role of the food environment on diet-related problems.


Obesity is often considered a disease of lifestyle choices, which is thought of to be easily preventable by eating healthy and exercising more. This does not take into account constraints that are felt by the urban poor who experience limited choices in terms of access to healthy, nutritious food, and recreational activities. As previously discussed, the practice of redlining limits the number and quality of parks available in urban minority communities as well as the
number and availability of food retailing operations such as supermarkets. This relates to food deserts because the populations experiencing the negative impact of obesity are also those that align with the populations in which food insecurity is most prevalent and where supermarket redlining is experienced most, in lower-income and lower social status populations.

Families constrained by lower budgets for food shopping are likely to try to stretch their food dollars as far as possible by purchasing foods with the highest caloric value for the cheapest prices. Unfortunately in our food system, due to governmental subsidies on crops such as corn that is used in processed foods in the form of high fructose corn syrup, the cheapest options available in most grocery stores are unhealthy foods with low nutritional value but high caloric values. With less money, you can purchase more higher-calorie foods as opposed to foods with higher nutritional value such as fresh produce that is not processed and more expensive yet have fewer calories. With less money to spend while trying to avoid hunger the best short term solution would be to reach for processed foods such as chips or instant noodles, however, in the long term a diet composed of these foods can lead to obesity along with many other negative health effects.

Aside from financial barriers, there are many other reasons why one might not have the ability to choose fresh fruits and vegetables rather than processed foods. Many individuals that work lower-wage jobs are forced to work more than one job to make ends meet, a result of the many people in the U.S. who live paycheck to paycheck on the “fringe,” or the verge of becoming food insecure. Time is an incredibly valuable resource that is often scarce which leaves less time available for grocery shopping, food preparation, and cooking especially when grocery stores are miles away in a surrounding suburb. Furthermore, access to a working kitchen
is an obstacle that is often overlooked. Fast food restaurants become more appealing when they are the quickest and often the cheapest option available.
Chapter 2: What is being done to remediate food deserts?

In researching the public health effects of food deserts, The U.S. National Research Council defined a food desert as “a geographic area, particularly lower-income neighborhoods and communities, where access to affordable, quality, and nutritious foods is limited” (National Research Council, 8). With this definition in mind, a workshop tasked with ameliorating food desert conditions convened to evaluate different interventions to mitigate the effects of food deserts and change the food environment in these areas. Driven by the benefits of changing the food environment such as “increase access to healthy foods, complement individual behavioral change programs, reach large numbers of people, and provide long-term sustainability if efforts are institutionalized,” the research interventions found as potential solutions to lessen the negative impacts of and eliminate food deserts were determining sites for new supermarkets, implementing policies to encourage supermarket entry, improving food offerings in small stores such as bodegas, making farmers markets more inclusive to low-income communities, accessing public funding (SNAP/EBT, WIC, SSI) through utilizing both policy intervention and community outreach (National Research Council, 46). Additional examples of community food security strategies are “Offering community garden plots and gardening assistance so residents can grow their own food” and expanding transportation to public food assistance agency offices (Rabinowitz and Martin, 16). Across the United States, many of these intervention strategies have been implemented in efforts to improve food access within food deserts by creating a more sustainable food system within these communities, however, as seen in these food-insecure cities, the fight for a more just food system cannot be won with only the introduction of only one or two alternative food market systems or by a singular urban community garden. What has been illuminated by looking at other food deserts in the United States is that the food justice
movement requires a grassroots, hands-on approach that extends on beyond local food systems and into a regional scale.

2.1 Introducing New Supermarkets in Food Deserts

Arguably one of the most intuitive and straightforward solutions is simply introducing new supermarkets in the places that have been deemed food deserts. While this initially sounds like a simple solution, the logistics behind the introduction of a new supermarket in a food desert are complicated for several reasons. One study completed at the University of Southampton in the United Kingdom by researcher Neil Wrigley noted that many colleagues thought that it may be more beneficial to address public health problems by developing alternative food network solutions rather than supermarkets (National Research Council, 48). However, Wrigley disagreed with this conclusion. Wrigley’s conclusion is further supported by the study on the introduction of full-service supermarkets in food deserts by Richardson et al. in 2018. The researchers looked at the impact that the opening of a new supermarket would have in terms of economic status and health on low-income residents of food deserts in neighborhoods in Pittsburgh. It is important at this point to emphasize that this study focused on economic status and health rather than dietary changes and access to healthier food, nonetheless the study “provides evidence that supermarkets may improve aspects of residents’ lives beyond diet for low income African-Americans” (Richardson et al., 775). Due to the previously discussed Food Insecurity Obesity Paradox, there is a chance that introducing a supermarket into an area considered a food desert may not increase because low food security is not only associated with obesity because of the high calorie, palatable food consumed by low food secure populations, it is also possible that the correlation is caused by the limited knowledge, time, and resources that low food-secure populations experience to engage in healthful eating and exercise (Dhurandhar, 1). As a result of this
hypothesis proposed by Dhurandhar, it is possible to conclude that simply encouraging full-service supermarkets to open shop in food deserts will not have the desired effect of promoting and helping solve some of the more pressing public health issues such as obesity. As previously discussed, one of the key aspects of the definitions of food access is the affordability of healthy options as opposed to just the presence of them. The opening of a Whole Foods, for example, or any other more expensive supermarket with readily available produce would not break the economic barriers that stand in the way of lower-income populations from accessing healthy food options. There is a need for community outreach which may be more easily implemented by looking towards alternative food retailing such as community-supported agriculture, farm stands, pick your own operations, and farmers’ markets.

2.2 Promote Healthy Eating in Small Stores

One alternative method of improving access to food in food deserts is working with small stores to promote healthy eating. This potential solution is enticing because the complexity of introducing new full-service supermarkets is eliminated. Many small stores, often referred to as tiendas or bodegas particularly within Latino communities, already exist and have an established role as a source of food products for individuals and families particularly in immigrant-receiving communities such as Hartford. It was found in a study by Guadalupe Ayala that “households shop at these types of stores an average of eight times per month, and they represent 33 percent of a family’s total food basket and 84 percent of a family’s total produce purchases, with much of the rest purchased at supercenters” proving that promoting healthy eating options within already established small stores is a potential method to improve the issue to food insecurity as a result of food deserts perpetuated by supermarket redlining (National Research Council, 66). Corner stores and other ethnic grocers are often the main source of food items for families in
food deserts and are typically abundant in number within urban centers despite the absence of larger supermarkets.

The ways in which introducing more fruits and vegetables into smaller stores could determine the success of the idea. For example, some owners of small stores, or tiendas, may be reluctant to participate in the program if it were being run through the government. Additionally, it might be complicated by the fact that many of the smaller stores do not have the technology to electronically track sales which would make it harder to keep track of the progress and success of the program but also would make it more difficult for the owners to know what is being sold. In general, more research may be needed to determine the best way to implement such an idea.

Another potential barrier that has been faced in accessing fruits and vegetables from bodegas, or convenience stores, is that unlike their supermarket counterparts, bodegas face limitations such as available food storage and refrigeration due to their smaller size and as a result, they need to purchase in smaller quantities. This has an effect on the pricing of products since buying in bulk from distributors typically results in lower prices. Owners of convenience stores may not find it financially feasible or rewarding enough to offer to produce since they are not able to make as much of a profit off of the products and the potential for food spoilage and lost revenue is higher.

One potential method of implementing this would be to connect bodega owners with regional or local farms that offer community supported agriculture or space within the stores to establish a make-shift farm stand operation which would allow for the benefits of locally grown produce that purchasing from the farmers market might provide in a more accessible manner. One of the greatest barriers that are faced in the context of connecting farm stand operations and potential customers is lack of outreach and visibility. Connecting a farm stand to a convenience
store could solve problems or barriers faced by both parties as well as making produce more accessible, physically, economically, and socially for low-income inner-city populations.

2.3 Farmers’ Markets in Low-Income Communities

As mentioned, farmers’ markets are extremely valuable local food system retail operations which offer many benefits. They encourage healthy food options while supporting local sustainable food systems and keep monies spent on produce local and within the community while simultaneously connecting the population to the people that grow their food. Unfortunately, farmers’ markets are often inaccessible to lower-income communities which as shown before have typically correlated geographically with food deserts. In a study completed researching *Disparities in the Availability of Farmers Markets in the United States* it was found that “a median household income higher than the national average increased the odds of having FM (Farmers Market) available and a percentage of residents living below the poverty threshold greater than the national average was negatively associated per capita FMs” (Singleton, Sen, and Affuso, 6). While there is a margin for error within the research, this serves as proof of a link between the socioeconomic status of a community and the availability of farmers’ markets. Although more research is needed to determine why this relationship exists, it is also important to determine how to incorporate more farmers markets into these communities which are associated with food deserts because of the benefits they have been found to have, “Farmers markets have been proposed by researchers, policymakers, and health agencies as a potential community-level strategy to prevent obesity and reduce disparities in healthy food access” (Singleton et al., 1). One reason that there may not be as strong of a concentration of farmers’ markets within areas of lower economic standing might have to do with many farmers’ markets being unable to accept SNAP/WIC benefits. Programs such as the WIC Farmers’ Market
Nutrition Program (FMNP) made it easier for WIC benefit eligible individuals to participate and allowed markets to reach lower-income neighborhoods with the help of outreach to inform people within the community. Breaking barriers such as these assists in creating better access to locally grown food at farmers’ markets, however, it is still necessary to consider the difference between prices between produce at farmers’ markets and produce sold at supermarkets which also serves as a barrier.

Through the lens of food justice, barriers due to the colorblindness and universalism evident in alternative food movements become more apparent. Color blindness in the context of sociology is the refusal to see race or color as a limitation to a person’s opportunity. This concept originally came to fruition in an attempt to be seen as nonracist, however, the harm caused by color blindness is in its erasing of the privilege that whiteness creates. The second concept of universalism which is defined as “the assumption that values held primarily by whites are normal and widely shared” which is harmful in the way that it refuses “to acknowledge the experience, aesthetics and ideals of others” and in effect marginalizes those who do not conform to white ideals (Alkon and Agyeman, 268). Universalism makes white ideals the default, or normalized, way of thinking and labels all other diverging values as “other.” In a study of farmers’ markets and CSAs in California, in response to why European Americans appeared to be the dominant ethnic groups many managers cited barriers such as education, concern for food quality/health and time among ethnic minorities. In addition, one manager showed concern in catering to or reaching low income people because employing such strategies “may discourage the high end consumers that we cater to.” What many of these responses indicate is that “managers portray their own values and aesthetics to be so obviously universal that those who do not share them are marked as other” (Alkon and Agyeman, 271). As this continues within alternative food
movements and market systems, white universalized ideals will continue to define the alternative food system and exclude racial minorities. These findings suggest that the alternative food market system leaves the “bring good food to others” mentality behind and instead open up spaces where we have experienced gaps in our abilities to reach people to allow for others to define these spaces and break down the universal assumptions we have made in terms of what good food is.

2.4 Publically Funded Programs

In 2014, the United States Farm Bill allocated funds to the Double Up Food Bucks Program, a program which gives financial incentive which gives a $10 gift card to those who spend $10 on fruit and vegetables (in Michigan) in conjunction with SNAP, or Supplemental Nutrition Assistance Program eligible beneficiaries. A study completed found that the Double Up Food Bucks program successfully increased vegetable expenditures and fruit and vegetable expenditure shares (Steele-Adjognon and Weatherspoon, 1). This study shows the potential that publicly funded food assistance programs can have on increasing access to nutritious foods. In addition to doubling SNAP benefits, other programs such as WIC, Special Supplemental Nutrition Program for Women, Infants, and Children, exist and work towards decreasing levels of food insecurity. According to the Center on Budget and Policy Priorities, “WIC serves more than 7 million pregnant and postpartum women, infants, and children through their fifth birthday” and the women and children that participate in the program were found to have had significant health benefits when compared to lower-income women and children that did not participate in the program. Such health benefits experienced were healthier diets, including buying and eating more fruits/vegetables/whole grains/low-fat dairy products, greater odds that children are immunized, higher scores on mental development assessments, and greater odds that
women will give birth to babies more likely to survive infancy (“WIC Works”). These benefits, as well as many more, support the notion that publically funded government nutritional assistance programs such as SNAP and WIC increase access to food and more specifically healthy food. There is room for expansion and growth by expanding the places that accept EBT cards for individuals with SNAP benefits, for example, in farmers’ markets and farm stands. Specifically, in Connecticut, many local farms offer Community Supported Agriculture which has the potential to be extremely beneficial in connecting community members in neighborhoods considered food deserts to the food that they are eating and the farmers that are growing their food.

2.5 Community Supported Agriculture

Community Supported Agriculture, or CSA, is a membership program run through farms that allows community members to pledge support for their local growers by sharing the risks and benefits of food production. In a traditional CSA model, members buy a share of the farms produce by paying the price upfront. This upfront money allows farmers to purchase seeds and equipment needed to support themselves throughout the early spring and into the growing season without the burden of factors outside of their control such as natural disasters. As a reward for their members who supported them early on, farmers distribute shares of the farm's crops throughout the harvesting season (“Community Supported Agriculture”). CSA members get the benefit of being able to know exactly where their food comes from and is being grown and being able to cultivate a relationship with the individuals growing their food.

Arguably one of the greatest benefits to the consumer in a CSA is the ability to “become more aware of the environment and its links to the food production. Members gain a stronger understanding between sustainability and the environment,” although the educational aspect of
joining a community-supported agriculture may not have been an intended consequence, in food-
insecure, low-income neighborhoods this could be incredibly beneficial (Cooley and Lass, 228).
Many CSA participating farms offer either as an option or as a requirement that their CSA 
members spend a few hours throughout the growing season working on the farm to further 
cultivate the connection to food. Some of these farms even offer worker share options that make 
the price of buying a CSA share significantly more affordable by letting you work 5 to 10 hours 
a week of labor to purchase a share for half the regular price or a highly discounted rate. In 
addition to the consumer and grower benefits of participating in a CSA, there is also a broader 
benefit. CSA market crops that are distributed to shareholders are likely to include items that 
they are not accustomed to cooking with as well as less variety in what they receive because only 
crops in season in the local area are grown. While this is, on one hand, a disadvantage to CSAs 
as an alternative food market option, on the other hand, it can be an opportunity for members to 
learn about less conventional crops. Often, CSA farmers will include family recipes that reflect 
the contents of each weekly box to break this barrier to consumers.

2.6 Sustainable Food Systems

As a result of technological advancements in food preservation and transportation, much 
of the produce purchased by consumers in first-world food markets are a result of 
“deteriorialized, corporate farming” that pose health and ecological risks due to “chemical-
intensive agriculture, the vast amount of non-renewable energy resources that are consumed by 
transnational shipping, and the deleterious effects on local farm economies that emanate from the 
economic and political infrastructure that supports this system of transnational agricultural 
flows” (Thompson and Coskuner-Balli, 277). The CSA, farmers markets’, and farmstand modes 
of food shopping are all examples of ways of accessing food that have a lessened negative
impact on the environment. By nature, these are more local sources of produce meaning that their carbon footprint as a result of a significant reduction in the amount of transportation necessary from the farm to the consumer.

The methods of farming when purchasing from a CSA, farmers market, or farm stand is typically very different from corporate farming due to differences in the size of the operation. Small farms in comparison to large corporate farms are more likely to grow a greater variety of healthier foods that are less water-intensive making them arguably more environmentally friendly. On the other hand, larger farms are attractive from an economic standpoint because of their ability to produce food more affordably and efficiently. One journalist from the Washington Post, Tamar Haspel, believes one solution to making our food systems more sustainable is to “get the large farms to stop polluting” and to show legislators through consumer choices that subsidies should be given to crops we eat rather than ones such as corn and soy that consumers buy as meat and processed foods rather than replacing the large, polluting farms with the small diversified farms (“Small vs. Large:…”). Regardless of which is the best way to create a more sustainable food system on a larger nation-wide scale, the fact remains that many of the solutions to remediating food deserts and addressing education to address their negative impacts on public health align well with the benefits of local, sustainable food systems that promote a greater value in knowing where your food comes from, particularly within Hartford, Connecticut.

2.7 Urban Agriculture

One aspect of food justice that has not been addressed fully yet is food sovereignty. This is the idea that communities should be able to have control of the food systems within their communities, or the ability to produce and consume their own food as a means of addressing food insecurity, more specifically food sovereignty is the belief that “the commodification of
food is central to undermining freedom and autonomy, independence and culture in the food system” (Heynen, Kurtz, and Trauger, 307). Looking at the role that the concept of food sovereignty has in urban food deserts is interesting and brings urban agriculture into the mix as a means of addressing and remediating issues of food justice within food deserts such as Hartford, Connecticut. Developing regional, if not local, scale food systems within urban markets is also a demand for rights within the food system. Similarly, urban agriculture also seeks to regain a sense of control of food systems within the urban market by way of closing the distance between the sites of food production and consumption. Many critics of the urban agriculture movement argue that the issues lie within a focus on food system reform rather than addressing the broader structural problems that result in supermarket redlining such as systemic poverty and disinvestment/zoning and planning that result in locating supermarkets outside of urban limits (Heynen, Kurtz, and Trauger, 308). However, urban agriculture could be one potential piece of the puzzle towards promoting sustainable food systems while also mitigating the effects of food deserts in areas that have historically experienced supermarket redistricting. Although urban agriculture is not the sole solution, it does offer benefits such as offering a way for urban dwellers to connect with the food they consume throughout their entire life cycle. The researchers conclude that, as experienced by the developing world, “capitalist, patriarchal and racist logics… would bear down on vulnerable people cities in advanced capitalist nations” and highlight a demand for a better link food justice in inner cities with food sovereignty and urban agriculture as a means of addressing the effects of food justice that stems from practices such as supermarket redlining and other structural problems within the urban food system.

2.8 Non-Profits
The impact of alternative food markets and the expansion of sustainable food systems, including urban agriculture and community gardens, can have a widespread impact on improving the impact of food deserts and their associated negative health impacts on a community. Another potential source of relief for neighborhoods in which there is widespread food insecurity resulting from barriers to food access are non-profit organizations that are primarily focused on addressing hunger and poverty or nutritional education. Often non-profits, such as DC Central Kitchen based in the nation’s capital Washington D.C., serve as a conduit through which many of the previously discussed approaches operate. DC Central Kitchen is just one example of a non-profit organization that has had success in addressing barriers to food access within a community. According to Craig Newman, DC Central Kitchen addresses this complex issue from several directions with a holistic, full circle approach. Through their venture Healthy Corners, DCCK provides and delivers fresh produce at a wholesale price to \textit{bodegas} allowing them to affordably market the resources at a below-market price, making the food both affordable and nutritious in already existing, culturally appropriate stores. This is made possible by the organizations relationships with local farms as well as their food recovery capabilities. In addition to Healthy Corners, DC Central Kitchen also serves low-income students as the primary service provider of 15 schools and sourcing the food served from local farms. On top of these programs, DCCK further breaks the cycle of poverty by providing many full scholarship positions to their intensive culinary arts training program which is available to adults with histories of addiction, homelessness, trauma and incarceration (Newman, 2017). DC Central Kitchen is just one example of the many organizations that provide service to improve access to food to address food insecurity and hunger within communities.
Chapter 3: Understanding the Hartford Food System: A Historical Contextualization

Hartford is the capital city in Connecticut and one of the largest cities in the state, behind the cities of Bridgeport, New Haven, and Stamford. Hartford is also one of the more diverse cities within the state, it is comprised of 15 percent white residents and 85 percent nonwhite residents while the state as a whole has only 31 percent of a nonwhite population. Also, according to the Partnership for Strong Communities 2018 Hartford Housing Data Profile, Hartford’s recorded annual median household income of $30,630 in 2015 was 56 percent less than the state’s median household income of $70,331, ranking last out of all 169 of Connecticut’s municipalities. In 1981, the threshold of housing affordability, in terms of the percent of income spent on housing, was increased to 30 percent. This means that households whose housing costs exceed 30 percent of their income are considered housing burdened, the burden of these housing costs only increases as it applies to households with lower annual incomes (Schwartz and Wilson, 2). According the 2011-2015 American Community Survey, in Hartford 57 percent of renters and 43 percent of homeowners spend more than 30 percent of their income on housing, leaving little left for other living costs and necessities such as food. Based on factors such as income, education, age, vehicle ownership, and the presence of children in the household, a ranking to measure the likelihood of a resident being at-risk of food insecurity was created. In which the higher ranking score (out of 169 for the 169 Connecticut municipalities) represents the higher likelihood that a resident in a particular town is food insecure, Hartford was ranked 169 (Rabinowitz and Martin, 11). This means that the capital city in Connecticut was found to be the municipality in which residents are most likely to be food insecure, assuming that resources are not available. These factors all amount to an urban community in which there is great financial burden which make the issue of access to healthy, nutritious food even more
limited and why in addition to a history of supermarket redlining, the city of Hartford has been in grave need of some of the aforementioned strategies to address the issue of food security.

### 3.1 Redlining in Hartford

Throughout the first half of the 20th century many neighborhood and cities throughout the United States endured systematically racist policies that denied services to many ethnic minorities and encouraged banks to evaluate the security of a property value of a loan transactions in a way that encouraged racial segregation. Because of a bank's ability to determine the desirability of a neighborhood, many of the influences in determining these borders while rating neighborhoods within a city such as Hartford was based on race and class as shown in the Home Owners Loan Corporation (HOLC) which was formed in 1933. In a study of how schooling, housing, and civil rights shaped Hartford and its suburbs, one particular appraisal report from the HOLC in 1937 is highlighted to show the influence of socioeconomic and racial composition as a determining factor in the ranking of neighborhoods in terms of desirability for loan investment decisions. In this report, downtown Hartford is deemed least desirable with a rating of Grade D and described as a “slum area now mainly occupied by Negros” and of lower average annual family income suggesting residents to be mainly “laborers or domestics” (Dougherty et al., 43). The color coded map shown in Figure 4 shows the distinct zones of the cities of Hartford and West Hartford. As shown by the map legend, Grade A encompasses a majority of West Hartford and is colored in green while the inner-city parts of Hartford which is mostly red is classified as Grade D. The order of best to worst neighborhoods for mortgage, according to the HOLC, was green, blue, yellow, and finally red. Red neighborhoods were deemed areas associated with the greatest risks and was also the reasoning behind the term “redlining” (Dougherty et al., 40).
There were many lasting negative impacts of the practice of redlining and racial steering on the Hartford metropolitan and surrounding area. In a comparison of the lowest and highest average annual family income in the United States, the city of Hartford was listed 4th on the list of lowest average family income in U.S. cities over 100,000 while the Hartford, West Hartford, East Hartford Metro-Area was listed 13th on the ranking of the highest average family income in U.S. metropolitan statistical areas. These statistics illustrate the depth of the issue of income inequality that exists in Connecticut as a state but especially within the capital city of Hartford where “an income gap of over $56,000 separates the average family living inside the Hartford
city boundary from those residing in the Hartford metropolitan area” (Dougherty et al., 105). The lasting effects that exist today in the inner-city of Hartford such as lack of supermarkets that present a major barrier to food access are a result of the racially motivated disinvestment within these low-income neighborhoods that deemed the area undesirable. Although the concept of redlining is typically associated with housing, schooling, and civil rights, the effects that redlining, or more specifically supermarket redlining, have had on the city of Hartford have shaped the local food system drastically.
Chapter 4: Application of Strategies to the city of Hartford, CT

4.1 Hartford Food Market

Shortly before Thanksgiving on Monday, November 25th, 2019, a new grocery store called Hartford Food Market opened for business in the center of downtown Hartford, on the corner of Main Street and Central Row. This addition falls into the remediation strategy category of introducing a new supermarket within a food desert. Fortunately, reports state that the new market offers healthy options such as fresh produce and organic foods in addition to a buffet that serves hot and cold foods for breakfast, lunch, and dinner. The owners, originating from New York, reportedly saw an opportunity to open up the market in Hartford because of its lack of grocery options. Although it has been open for less than a month, the owner, Nassar Alkutainy, seems to be optimistic about what the future brings, “We’re so happy because right now it looks like we’re doing good. It looks like it’s going to work for us here” (“New Grocery Store Opens in Downtown Hartford”). The opening of this store in an easily accessible location that has historically been a food desert is just one of the many things that have been done that hold potential for mitigating the effects of supermarket redlining.

4.2 C-Town Market

Another example of a food desert remediation strategy that has been implemented in Hartford is the addition of C-Town to the downtown area (on Wethersfield Avenue). C-Town is a small food market that accepts SNAP food stamps through the owner of the location’s work with SNAP4CT which is a USDA funded educational program that is run through the University of Connecticut Center of Public Health and Health Policy. Through another USDA funded program, owner Jefferey Perez is able to expand access to nutritious food in his market even further. He offers SNAP Up!, an incentive through the Hartford Food System and Wholesome
Wave which gives shoppers five dollars worth of produce credit when they use their SNAP benefits towards buying fruits or vegetables. This program further encourages healthier dietary choices within a physically and financially accessible space for people within the community (Bostiga, Oasis). Although Perez has been recognized within the city for his efforts towards improving food security in Hartford, when studying food deserts, the USDA does not consider smaller markets, such as C-Town, which stand to make a difference as an already established neighborhood market offering and encouraging healthier food choices to fill a gap in Hartford’s dietary options.

4.3 Hartford Food System

Another approach to remediating food deserts is the use of non-profit organizations that engage the community and provide educational resources. Many of these kinds of organizations already exist within the state of Connecticut and the city of Hartford, illustrating the potential impact that more organizations and community-building efforts could have on addressing barriers that exist between food insecure populations and healthy food options. The Hartford Food System is one of these organizations whose goal is primarily to develop long-term solutions to issues with food access to improve nutrition with the Hartford community as well as fight hunger through a “community with a healthy, culturally responsive, just, resilient, and sustainable food system that meets the needs of all community members” (Hartford Food System, 2020). One of the Hartford Food System programs is the North End Farmers’ Market which has been running since 2008 and began as a result of community-driven efforts. North End Farmers’ Market is one of the many farmers’ markets within Connecticut that accepts SNAP benefits but takes this one step further by offering even more incentives to help low-income families make the most of their benefits to purchase even more fruits and vegetables. The North
End Farmers Market expands the breadth of the SNAP program by participating in the Connecticut Fresh Match Program, run by End Hunger Connecticut! in partnership with Wholesome Wave and UConn Extension, which allows markets to match the SNAP benefits of customers with credits to be spent on produce and seedlings (“Farmers' Markets”).

Inspired to address food insecurity within their city, the Hartford Food System also began the Hartford Mobile Market. This creative solution to the issue of a lack of access to healthy food seeks to bring affordable and high-quality produce to lower-income neighborhoods. The site of the market is a bus that features produce from local farmers including locally sourced fruits and vegetables. This approach is similar to a farmers market, however, to make the market as accessible as possible the Hartford Food System has changed the structure of the farmers market by bringing it to the populations that may face the most barriers, such as lack of transportation, time, money, childcare, etc. When it began operation in 2014, the first two weekly stops were at a Hispanic Health Council/WIC and at Community Health Services. Although stop locations have expanded as the program has grown, SNAP food stamps and EBT cards are still accepted at each of the stops that are made by the Hartford Mobile Market.

4.4 Farm to School Program

On October 7th of 2019, during CT Grown for CT Kids Week, NBC Connecticut featured a story highlighting the efforts made by Lonnie Burt, Senior Food Services and Child Nutrition Director, at Milner Middle School in Hartford, CT. A combined effort of many initiatives such as Put Local on Your Tray, CT Grown for CT Kid’s Week, FoodCorps CT programming, and the CT School Garden Resource Center, the Farm to School program that makes efforts like this possible works by “exposing students to local food through the cafeteria and hands-on learning activities such as gardening, farm visits, and culinary classes” to help
improve the health of both the children and the communities ("National Farm to School Network"). During this activity, students were invited to try swiss chard that had been grown just miles away from their school and vote on how much they liked it in a taste test administered by FoodCorps service members. While some students expressed their enjoyment, others showed less enthusiasm. Regardless, Burt ensured that new foods, such as swiss chard which often takes a few tries to get used to, are tested for a year before being cycled out of the menu rotation when students express disinterest in it. Efforts such as these to give the students of the Hartford Public School District access to healthy, locally grown food which have the most nutrients in them are extremely important and beneficial, especially because according to Burt, “When you look at what the least consumed nutrients in our country are, it’s the fruits and vegetable category” ("Hartford Brings Local Food From Farm to Schools"). In school districts within food deserts, this is expected to be more true than others. By providing education and engagement with students and parents, farm to school programs and other initiatives have the potential to break potential barriers to accessing food within these communities.

4.5 FoodCorps

FoodCorps is a non-profit, AmeriCorps program that aims to connect kids to healthy food in school particularly within limited-resources schools, including the Hartford Public School District. Taking a community-based approach, FoodCorps service members are placed at service sites which are typically low-income public schools. These lower-income schools, such as in Hartford, are often composed of students that come from populations that are most vulnerable to food insecurity and areas that are designated as food deserts. In an evaluation of the school food environments of sites that FoodCorps service members had a presence in during the 2015-2016 school year, it was found that over 75% of the school in which FoodCorps service members had
a presence showed an improvement in their school food environments. Furthermore, this study determined that “Students in schools with more hands-on learning activities are eating triple the amount of fruits and vegetables than students who receive less of that hands-on learning” (Koch et al., 5). One aspect of the hands-on learning section is personal attitudes and beliefs in regards to eating fruits and vegetables at school lunch, including any barriers that may stand in the way of a student consuming any of these healthier food options. One of these identified barriers might be not liking something because the students had never been exposed to it before. FoodCorps service members encourage students to try new food through taste testings to help decrease the fear of trying new foods and ensure the inclusion of diverse foods to promote cultural appreciation. Furthermore, the program emphasizes providing resources for students to bring home what they have learned in school by sharing recipes for students to prepare at home with their families.

4.6 City of Hartford Advisory Commission on Food Policy

It is necessary to also acknowledge the efforts in food policy that exist already in Hartford through the City of Hartford Advisory Commission on Food Policy which was established on recommendation from the Mayor’s Task Force on Hunger with the purpose of improving access to available, nutritious, and reasonably priced foods for the residents of Hartford. Some of the policy goals that have been expressed by the City of Hartford Advisory Commission of Food Policy include supporting of the construction of the Hartford Regional Market, supporting the use of WIC benefits at the Hartford Farmers Markets, incentivizing food waste reduction for businesses and institutions while encouraging composting, and establishing and maintaining Hartford school gardens, according to their 2019 annual report (HACFP Annual Report 2019, 13). Through collaboration with Hartford residents as well as community-based
and statewide organizations, the Hartford Advisory Commission on Food Policy seeks to improve food access through the strategies developed to promote food policy during the upcoming 2020 Connecticut Legislative Session. In addition to policy recommendations, the commission works alongside various stakeholders to spread public awareness while advising city officials on ways to improve the food system in Hartford.
Chapter 5: Analysis of Potential Policies

Drawing from the food policy recommendations put forward by the City of Hartford Advisory Commission on Food Policy, in this next section I will be analyzing the potential effectiveness and impact of these policies. In order to determine the potential success of a particular policy, first, it is necessary to understand the adoption, implementation, and impact of each policy, as suggested by the Model for Policy Analysis; \( P(\text{Success}) = P(\text{Adoption}) \times P(\text{Implementation}) \times P(\text{Impact}) \). The policy adoption will be discussed by determining the relevant decision-making bodies that will need to adopt each policy, whether they are governmental, non-governmental, or require public-private partnerships. Secondly, in discussing the implementation of each policy, I will be determining how and who the policy will be carried out by. In other words, this will determine if the solutions would happen if the policy was adopted. Finally, I will determine what the policy goals are and what key factors will indicate whether or not it has resulted in a success or a failure. Essentially these will be the indicators of the level of success the potential policies might have on the issues associated with food deserts and food insecurity in the urban, low-income areas of the city of Hartford. The three potential policies that I will be analyzing prioritizing healthy food retail, increasing fruit and vegetable consumption using nutrition programs, and promoting growing nutritious food on more city-owned and public land.

5.1 Prioritizing Healthy Food Retail in the City’s Development

The policy goal of prioritizing healthy food retail is meant to address the issue of food insecurity as a result of a lack of supermarket food retailer options within the city of Hartford due to the suburbanization of supermarkets. This goal directly addresses the issue of food deserts by either introducing new supermarkets into the city or by incentivizing the purchase of healthy
food options in smaller, existing corner stores referred to as *bodegas*. By prioritizing healthy food retail in the city, the commission asserts that food dollars otherwise spent in suburban supermarkets would remain within the city making the outcomes beneficial economically and health-wise. Stating that the residents of the lower-income inner-city neighborhood North Hartford Promise Zone which is also the part of Hartford furthest from larger food retailers, on average, have a life expectancy of 16 years younger than the residents of the neighboring area of West Hartford indicates the importance of an improvement in the food environment due to the high levels of diet-related disease that contribute to the lower life expectancy (HACFP Annual Report 2019, 9). I will be analyzing the proposed 2019 policy recommendation of supporting the development of new food retail for Hartford’s North end neighborhoods by using the policy analysis model to evaluate the proposed policy at each stage; adoption, implementation, and impact.

### 5.1.1 Adoption of New Food Retail Supporting Policies

I will begin by addressing the key factors in terms of the adoption in supporting the development of new food retail for Hartford’s North end neighborhoods, beginning by identifying the key actors that will need to be involved in the process of the adoption of this policy. To incentivize supermarkets opening in the inner-city of North Hartford, state legislation would need to be passed such as tax benefits towards new store constructions. One example in which that has been done is in the State of Kansas where Senator Jerry Moran has reintroduced the Healthy Food Access for All Americans (HFAA) to “benefit low-income rural and urban communities that have limited or no access to nutritious food by providing incentives to food service providers such as grocers, retailers, and nonprofits who expand access to nutritious foods in underserved communities” (“Sen. Moran Reintroduces Bill”). This legislation allows...
companies that construct new grocery stores, those with at least 35 percent of its selection
dedicated to fresh, healthy foods, to receive a one time 15 percent tax credit. A similar approach
could be taken in Connecticut that would benefit the city of Hartford. The commission has
already identified locations that could be utilized as space for the new construction including the
vacant lot behind the Keney Clock Tower with central location near public bus lines. On a more
local scale, another way to incentivize the construction of large food retail operations would be
to relax development standards because many zoning restrictions in cities act as barriers and
limit the number of potential sites for construction. Some examples of these would be “added
development rights, lowered parking requirements, and permitting larger stores in certain
districts” (Chrisinger, 4). The actors that could accomplish these tasks would be local municipal
officials through administrative decisions. Constraining startup funding could also be minimized
by taking advantage of “fresh food financing” programs such as the federally funded Healthy
Food Financing Initiative (HFFI) which has committed 400 million dollars between the Treasury
Department, Department of Agriculture, and the Department of Health and Human Services
(Chrisinger, 3). As shown, the adoption of policies in support of developing new food retail in
the North Hartford neighborhood would require the action of local municipal leaders, state
legislators, and governmental agencies to successfully incentivize bringing groceries into the city
through reducing the cost of development, relaxing development regulations, and providing tax
incentives to new development. These are all strategies and policies that have been adopted in
other cities and states across the United States to help motivate and allow food retailers to
implement healthy-promoting programs. I feel that the adoption of these policies is something
that is feasible and have the potential to successfully encourage the construction of larger food
retailing options in Hartford neighborhoods such as the North Hartford Promise Zone.
5.1.2 Implementation of New Food Retailing Policies

The successful adoption of policies that support the goal of prioritizing healthy food retail in the city’s development through the construction of a supermarket in North Hartford is just one piece of the puzzle in determining the success of this potential policy. The implementation requires us to consider the new sets of actors that play a role in accomplishing these goals and how they will be doing so. The overall implementation of the policy would include the carrying out of the construction of a supermarket, or large food retailer, that supplies a sufficient amount of fresh, healthy food options. Ideally, for the greatest impact, these food sources would be offered at a more affordable price since location is far from the only barrier to food access. Once policies have been adopted and passed that have created incentives to bring companies in, the burden of seeing this task through shifts. The actors involved in the implementation process may be the federal government agencies that plan to provide financial support to the companies opening food retail operations, the companies themselves and finding food retailers that would be interested in constructing a new location in an urban area, and local activists to assist in the community support that the project may require to be successfully carried out due to the inconvenience that construction may pose within the neighborhood.

The implementation of new food retailing policies may require cooperation and action from public-private partnerships. An example of the implementation of FFFI programs is the Pennsylvania Fresh Food Financing Initiative which involved the State of Pennsylvania, the Greater Philadelphia Urban Affairs Coalition, and The Reinvestment Fund (TRF) to appropriate funds for grants and loans to stores in Philadelphia. Through public-private partnerships in Philadelphia, as of 2009, “$41.8 million in grants and loans have funded 58 stores and 1.4 million square feet of retail space (Ver Ploeg et al., 105). These figures show the potential for
success in the implementation of similar policies that could be adopted and implemented in Hartford. There are evidence and precedence showing that the implementation of the policies that have been analyzed for adoption is possible.

5.1.3 Impact of New Food Retailing Policies

One of the greatest determinants of the success of a potential policy is the impact that this policy could have in addressing the reasons for its proposal in addition to the adoption and implementation of it. As previously discussed, research has shown that although it is possible to see up to 10 percent success in closing the gap of nutritional inequality between low- and high-income populations, there is limited success in simply bringing these supermarkets into a food desert without the healthy options being more affordable. This indicates that although these policies could result in successful adoption and implementation, the construction of a large food retailer within North Hartford may not have the desired impact of improving levels of food security in urban areas designated food deserts by increasing the consumption of healthy fruits and vegetables. The introduction of supermarkets or grocery stores can bring many other benefits to communities such as bringing in jobs, keeping food dollars within the city, and providing a source of healthy produce to residents in a more convenient location. While residents may choose to shop at a newly constructed supermarket in a food desert, the makeup of their shopping cart may not change; they may buy the same kinds of groceries that they did before just at the new location. According to the USDA report to congress, “increasing access through supply-side factors alone (e.g., enticing new stores) will not change food purchasing and dietary habits” (Ver Ploeg et al., 112). This suggests there may be a need for public health campaigns promoting healthy eating and expansion of publicly funded programs to incentivize healthy eating in low-income populations within the food retailer to be conducted and made available
alongside the opening of larger food markets within food deserts. This would require the action of local governments, educational non-profit organizations, and federal agencies such as the USDA that provides nutrition programs such as SNAP and WIC. To measure the impact of this policy, a study can be conducted by surveying and analyzing the grocery purchases of households within the North Hartford neighborhoods over the years before the construction of a new food retailer through years after the introduction of the grocery store or supermarket to determine if there is an increase in healthier food options being accessed. The demand for healthy food retail should be considered and prioritized in the development of the city, however, more success in decreasing the nutritional inequalities might come from approaches including promoting healthy options within corner stores similar to what was accomplished in C-Town Market.

5.2 Increasing Fruit and Vegetable Consumption Using Nutrition Programs

Publicly funded nutrition programs are an essential method used to remediate food deserts and increase access to healthy food to economically disadvantaged, or lower-income, food-insecure populations. As established, this tool is of great importance and has the potential for a widespread positive impact in the food insecure Hartford area. SNAP is a program that has been greatly utilized and is continuously expanded to ensure that SNAP eligible populations can their benefits to access healthy nutritious food and even double their benefits at participating farmers’ markets. The Special Supplemental Nutrition Program for Women, Infants, and Children, more commonly known as WIC, serves millions of pregnant and postpartum women, infants, and children across the United States. The City of Hartford Advisory Commission on Food Policy suggests expanding WIC benefits, as has been done for SNAP, to further increase fruit and vegetable consumption in Hartford residents.
To determine the success in the adoption of the proposed potential policies that seek to increase fruit and vegetable consumption using nutrition programs, it is necessary to determine the key actors and what will be needed to get this policy adopted in Hartford. These identifications will help in aiding the assessment of these policies' overall potential success and failures in addressing the issues associated with food deserts and how these policies fare in remediating them. The WIC Farmers Market Nutrition Program is a federally funded program that provides those eligible for WIC benefits to access benefits at farmers’ markets or from authorized farmers through the use of electronic benefits and coupons. According to the annual report of the City of Hartford Advisory Commission on Food Policy, “While over 90% of Senior FMNP checkbooks are used at the farmers markets, less than half of the WIC FMNP checkbooks are exchanged for fresh produce” (HACFP Annual Report 2019, 10). These staggering figures show that there is a significant lack in the use of WIC FMNP checkbooks at the Hartford farmers markets and a potential area in which policy can be implemented to use federal nutrition programs such as WIC to increase the number of fruits and vegetables consumed by Hartford residents, particularly those that are food insecure and lower-income. Possible solutions to increase the use of WIC benefits can be determined by looking at ways in which SNAP benefits were expanded. This includes programs to double WIC FMNP coupons. The key actors with the capability of adopting such policies would be the combined efforts of local activists, farmers market managers, nonprofit and charitable organizations and, state and federal governments.

Many programs emulate the “Double Up Food Bucks” pilot program that was initiated by Fair Food Network in Michigan to double the food stamp dollar spent on fruits and vegetables which has brought 13.5 million pounds of healthy food to Michigan families since 2009. The
program boasts a win-win-win solution with “more healthy food for families, better business for farmers, and a boost for local economies” (“Double Up Food Bucks”). The Fair Food Network offers a program toolkit to help set up similar programs in communities across the United States to ease the adoption of such a policy once resource partners are brought in. Potential players in the adoption of such a program would require an organization or agency with staffing capacity to coordinate the program, an agreement between farmers market managers to offer the services, and potential funding from the local municipality and charitable organizations. This program does not require legislative adoption but rather administrative decisions from officials. As shown by the levels of success in Michigan with the pilot program as well as the success seen in the 27 participating states throughout the United States, the Double Up Food Buck program has had great success in expanding the benefits of federally funded nutrition programs such as SNAP and is a model that could be replicated in Hartford to expand WIC benefits in farmers markets and through the Hartford Mobile Market.

5.2.2 Implementation of Expanded Nutrition Program Policies

The implementation of a double bucks program in Hartford farmers markets and the Hartford Mobile Market for the WIC Farmers Market Nutrition Program benefits would require programming efforts from nonprofit organizations and farmers market managers. Currently, WIC FMNP benefits are not distributed through Electronic Benefits Transfer. Instead, recipients of the program benefits receive $15 check booklets, which are distributed from local WIC agencies, that contain five $3 checks which are used to purchase fruits, vegetables, and cut herbs from approved farmers market and farm stand locations (“WIC and Senior FMNP”). An adaptation that could be used to distribute doubled bucks could be through coupons, tokens, or vouchers that are given to recipients of WIC FMHP benefits from each farmers’ market information tents
upon being presented the FMNP checks that they intend to use to purchase from vendors. Whichever variety of vouchers chosen would be provided whichever organization is tasked with housing the program, such as Hartford Food System or the Commission on Food Policy. Vendors would be able to redeem the tokens for their dollar value using the funds that are provided by local/state/federal agencies or grant-giving organizations. Although the implementation and the tracking of the policies impact could benefit from electronic readers such as EBT as is used by the Fair Food Networks Double Up Food Bucks program, there is currently no infrastructure in place to allow for the redemption of electronic WIC benefits at farmers markets in the state of Connecticut. This development would be helpful in further expanding nutrition program benefits.

### 5.2.3 Impact of Expanded Nutrition Program Policies

The use of nutrition programs such as WIC is an ideal method of increasing access to healthy food affordably because it would allow Hartford to leverage existing alternative food markets that also support local farmers, keeping food money more local as well. To gauge the impact of this policy recommendation, the distribution of matched WIC FMNP dollars could be matched to see how many more food dollars worth of fruit, vegetables, and herbs were accessed as a result of the program. The use of that infrastructure of alternative food markets such as farmers’ markets and the Hartford Mobile Market that is already in place within the city of Hartford takes advantage of the lack of need for transportation and breaks the barrier to accessing fresh foods from these market systems that lower-income populations face economically. In a similar format, the City of Boston which is responsible for the coordination of Double Up Food Buck in five Boston locations measured almost 65,000 transactions with an average of $3.37 per transaction in the two years of the program’s lifespan alone ("Boston Double Food Buck"). Similar metrics could be used to measure the success of this potential
policy in Hartford to show the impact that it has had on increasing the consumption of fruits and vegetables by utilizing nutrition programs already in place such as WIC and the WIC Farmers Market Nutrition Program. The adoption and implementation of a WIC double bucks program in farmers markets in Hartford should be considered because of the potential success that this kind of program could have in remediating the negative impacts of food deserts by improving public health through better access to healthier, more affordable, food options and the similar success that has been found in similar existing programs.

5.3 Promoting Growing Nutritious Food

Food sovereignty, or the ability to produce and consume their own food as a means of addressing food insecurity, is an important aspect in addressing food deserts because of the potential that it has in allowing people to take control of their food system by growing local food. Urban agriculture and community gardens are prime examples of how this can be carried over into remediating urban food deserts such as Hartford. By promoting growing local food on more city-owned and public land, issues associated with food insecurity in food deserts such as negative health impacts can be remediated. One policy recommendation from the City of Hartford Advisory Commission on Food Policy has been to establish and maintain Hartford school gardens (HACFP Annual Report 2019, 13).

5.3.1 Adoption of Public School Garden Policies

Developing an approach to establish and maintain school gardens in Hartford Public Schools is a proposed policy that could have lasting positive impacts on the Hartford community and the future generation through promoting growing nutritious food. In urban areas such as the inner-city parts of Hartford, kids and adults may suffer from a lack of connection between their food and where it comes from, even more so than how the conventional food system separates
consumers from food production. Alternative food retailing operations are an option that helps connect consumers to locally grown food, however, due to barriers and other restraints, many lower-income residents within food deserts still struggle to access local food. This is a problem that can be addressed through the public policy goal of promoting growing nutritious food on more city-owned and public land, including schools. To adopt these policies to develop an approach for creating school gardens, it is important to understand the actors and how they will work to get these policies adopted in Hartford. The key players in the adoption of these policies will be the City of Hartford Advisory Commission on Food Policy members, members of the Hartford School Garden Council, and administrators from Hartford Public Schools who must come together to the grant-funded School Garden Coordinator, a position that will be becoming full-time. The responsibilities of this position include engaging with parents, maintaining the garden, coordinating volunteers, and collaborating with community members. The adopting of these policies require the administrative decision-making of official rather than legislative action. I believe that it is feasible that the same groups that came together to discuss the School Garden Coordinator position originally in previous years would be able to move to create a more permanent position to have a school garden in each Hartford public school in the future.

5.3.2 Implementation of Public School Garden Policies

While the adoption of the public school garden policies is a relatively straightforward prospect, the implementation of the adopted policies involves more actors to reach the goals proposed in expanding the number of school gardens and the implications that has on increased maintenance in the following years. The implementation of the installation and maintenance of the school gardens would require support to finance a more permanent full-time position. To alleviate some of the strain placed upon the coordinator, other actors involved in the project
would be community member volunteers and the FoodCorps service members that work in the Hartford Board of Education service site. One of the greatest benefits of having a FoodCorps service member at a service site is the improvement in the food environment due, in part, to hands-on experiences. To most extend the impact of the implementation of this policy, FoodCorps service members could utilize the school garden in teaching students how food is grown, connecting them to local food sources, and assisting in the maintenance of the gardens. In addition to the inclusion of parents, volunteers, and community organizations, the implementation of this policy would not be made possible without the support for the full-time position tasked with carrying out the garden-based curriculum and maintenance of the grounds. In being grant-funded, the success of this project and its implementation requires governmental or private sources of funding.

5.3.3 Impact of Public School Garden Policies

The benefits of the kind of hands-on learning that having a garden to grow nutritious food in all of the Hartford public schools that are maintained and utilized as educational resources by a full-time coordinator has the potential to have many positive impacts on the Hartford and school food environments. There are many benefits to continuing a functional school garden including hands-on learning in science and nutrition, fostering connections through locally grown food, introducing students to fruits and vegetables that they may not have yet encountered, engaging the community, and promoting food sovereignty by allowing people to take control of their food system through the growth of their own food. The impact in this venture could be measured in students’ knowledge and interest in the school garden, the number of events centered around the school garden, and students’ willingness to try new foods being grown in the school garden. The adoption and implementation of this policy while relatively
attainable and simple has a wide breadth of benefits that make this policy one that I feel gives a more holistic approach to addressing issues of food choices and nutrition education that can have generational benefits that increase the general health of the population. Overall, the creation and maintenance of a school garden as a means of promoting the growth of nutritious food as a policy has great potential in connecting students, the food system, and healthy, nutritious food options.

5.4 Assessment of Policy Recommendations

Through the research on the adoption, implementation, and impact that I have compiled for the various policies that have been proposed by the City of Hartford Advisory Commission on Food Policy, I have been able to determine which of these policies are likely to be the most successful and should be made a priority for the upcoming years in Hartford and which might not be as successful in terms of remediating the negative impacts of food deserts and decreasing the levels of food insecurity. These determinations are based on the likelihood of adoption of the policy or how likely it is that the policy will be adopted by the necessary agencies, the likelihood that they can be successfully implemented or how likely that the identified actors will be able to carry out these policies, and how much of an impact research shows these policies could have in accomplishing the goal of improving access to food and quality of nutrition to improve the overall public health within the inner-city of Hartford. The three potential policies that I analyzed were prioritizing healthy food retail by building a new supermarket into the North Hartford neighborhood, increasing fruit and vegetable consumption using nutrition programs by implementing a double bucks program from WIC benefits at farmers markets, and promoting growing nutritious food on more city-owned and public land by creating a full-time School
Garden Coordinator position to build and maintain a garden at each of the Hartford public schools.

Of these three potential policies, I believe that the only one that might not be successful in accomplishing the goals set forward is introducing a new supermarket to the underserved North Hartford neighborhood. While the residents of this neighborhood do deserve the option of having conveniently located sources of healthy, nutritious food, research does not fully indicate that the introduction of a larger grocery store into a food desert would successfully improve the nutrition of food insecure populations. This method is also the most complicated option to adopt and implement in addition to the uncertainties found in its potential impact. Research does indicate, however, that this policy might have a positive impact on the community by creating jobs and generating more business within the city that has been diverted to the surrounding suburbs. In addition, although food choices may not be changed, having a more conveniently located grocery store would make food shopping for residents that are forced to travel greater distances to access food an easier task. This policy might also have the most widespread effects because supermarkets tend to have a further reach and a greater customer base than a farmers market or community garden might have. This policy should be considered when determining long-term solutions for the future of the Hartford food system. The building of a larger food retailing operation such as a grocery store in the North Hartford area should be accompanied by greater efforts to encourage healthier food choices such as a healthy food campaign throughout the city and the distribution of other nutrition-oriented educational materials and toolkits to reduce the barriers that food insecure populations face in accessing nutritious foods like fruits and vegetables.
I believe that the other two policies are better options that would be easier to adopt, have a more clear implementation strategy, and have shown evidence through research of having a great impact indicating that they would be successful potential policies in Hartford to remediate the negative impacts of food deserts. To meet the commission’s policy goal of increasing fruit and vegetable consumption by using a nutrition program, the WIC Farmers Market Nutrition Program is a great option to expand WIC benefits as much as possible to have the greatest impact. As shown, this program is under-utilized in Hartford farmers’ markets and has a lot of potential for success if policies such as the suggested double bucks policy were adopted and implemented. This is largely thanks to the Double Up Food Bucks program in Michigan that has shown a great level of success in demonstrating how a similar policy process has been replicated throughout the country and shows how efforts can be made to accomplish the same idea for WIC benefits. This model proves that the number of fruits and vegetables consumed by the food insecure Hartford population can be increased which directly addresses one of the main negative impacts of food deserts. It is possible that this method may not have a far-reaching impact on as much of the population as opening a supermarket in a disenfranchised neighborhood because it only would benefit residents who qualify to receive WIC FMNP benefits. However, I believe that this policy would have the greatest impact on the populations that are identified as food insecure. Although it might not reach as many Hartford residents, it would be directly giving doubled funds to women, infants, and children specifically for locally grown fruits and vegetables.

I also believe that the goal of creating and maintaining food gardens as an educational resource in each of the Hartford public schools by hiring a School Garden Coordinator has the potential to address what the WIC double bucks program might not. This would serve to cover
the gap in food and nutrition education that exists in urban food deserts. Through hands-on learning and community engagement to foster a sense of food sovereignty, gardens on public land can have a positive impact on breaking barriers on access to healthy foods. This could help promote healthier food choices. The adoption and implementation of this policy are also relatively straightforward and uncomplicated in comparison to introducing a new supermarket making it more feasible. As shown by the study of FoodCorps, this kind of education and outreach has shown to be very successful in increasing the consumption of healthier food options. One potential drawback of this recommended policy is that a more clearly defined method of engaging parents and the community would need to be outlined to increase the reach of the impact that the school gardens could have on the Hartford population.

These recommendations are based on what food deserts are and what impacts they have on a community, research on the effectiveness of alternative food market solutions, an understanding of the Hartford food system, and how successfully these policies can be adopted and implemented to have the greatest impact. Based on this research, I have been able to make this educated evaluation of these potential policies. In the short term, the policies I recommend are the School Garden Coordinator and WIC FMNP double bucks policies. In the long term, the city of Hartford could benefit from introducing a larger food retailer that offers fruits and vegetables in addition to healthy food campaigns that would encourage healthy food choices made by consumers.


**Conclusion**

As shown throughout the paper, food deserts are an issue of food justice that has roots in the institutional racism associated with the practice of supermarket redlining. The effects of supermarket redlining have been historically linked to the creation of food deserts within populations of individuals who have been identified as particularly vulnerable towards becoming food insecure, a state in which one lacks access to available, nutritious, and affordable food. This is a phenomenon seen in many inner-cities throughout the country including the city of Hartford, Connecticut. The issue of food insecurity is multifaceted and requires varied approaches to deal with how it lies within the intersections of human rights, environmental racism, environmental injustice, food insecurity, and sustainability.

There are many approaches that seek to remediate the negative health impacts of food deserts within individuals, families, and communities which have escalated to a point where the issue has become a public health crisis. When making comparisons between the potential alternative food market solutions and the current applications of these strategies to the Hartford food system, it becomes apparent where the gaps occur that require other potential policy implementation. In an analysis of three of the potential policies suggested by the City of Hartford Advisory Commission on Food Policy, I have determined, given the context of research in food desert remediation strategies, that the policies that have the greatest potential for adoption, implementation, impact and thus success are expanding the WIC FMNP using a double bucks model and promoting public school garden for hands-on learning by engaging the community. The policy that I found to have the least potential in ameliorating the inequalities in nutrition in the low-income populations in inner-city Hartford due to food deserts was the policy to introduce new large food retailers in the North Hartford neighborhoods.
The research and findings of this paper reveal the potential in utilizing alternative food sources to combat the food injustices that exist as scars on the food system of Hartford. Inequalities that have deep roots in the institutionalized racist practices of redlining, racial steering, and supermarket redlining have led to the contribution of the creation of a food desert that required an interdisciplinary approach to address the many layers in the complexity of the struggles in food access. To address this problem and study what is being done within other communities, it is possible to understand which methods, paired with governmental policy intervention and community outreach, can have a meaningful impact in reducing the level of food insecurity that is experienced as well as encouraging and promoting a healthier local, sustainable food system.
Works Cited


