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Smarter Food Policies are Needed to Make Significant Progress Towards Eradicating Food Insecurity in America

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Smarter food policies are needed to make significant progress towards eradicating food insecurity in America.

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Part 1: Introduction

Speaking of malnutrition conjures images of starving African children as presented by the media and humanitarian organizations. We think about famine ridden lands, places where emaciated victims who have very little access to food. Malnutrition does not conjure images of obese youth and financially struggling families living amidst excessive consumption in America. Although an alarming paradox, malnutrition can and does exist in what some would call the wealthiest and most powerful nation on Earth, but yet it does exist.

Merriam-Webster defines hunger as “a craving or urgent need for food or a specific nutrient.” (Webster, 2017) While the terms are sometimes used in conjunction with each other, hunger and food insecurity are not the same concept. Both terms fall under the category of malnutrition. Hunger exists when there is not enough food to eat on a daily basis. Food insecurity, however, is defined by the USDA as “a household-level economic and social condition of limited or uncertain access to adequate food.” (USDA, 2016) Food insecurity can exist with or without hunger. According to the USDA, low food security refers to households which have a reduced quality or variety of dietary choices, but do not experience hunger. Very low food security refers to households which are frequently unable to purchase adequate food supplies and experience bouts of hunger. Many who experience very low food security do not know where their next meal will come from because there simply is not enough money to buy food.

A related but distinct concept which contributes to these conditions is the “food desert,” first coined in the UK. Food desert (as defined by the USDA) refers to areas, whether urban or rural, which have limited access to foods which meet their daily nutritional requirements such as
fresh fruits and vegetables. Specifically, a census tract is considered to be a food desert when the following two conditions exist:

1) Low-income community - poverty rate of 20 percent or higher, or a median family income at or below 80 percent of the statewide median family income

2) Low-access community - urban census tracts with more than 33 percent living more than one mile from a supermarket or large grocery store or rural census tracts (geographical region containing 1,000 to 8,000 people) that are more than 10 miles from a supermarket or large grocery store. (USDA, 2017)

Food deserts have gained notoriety in America. Efforts have been made to alleviate food deserts, particularly in the urban setting. One such program type, healthy food financing initiatives, gives financial resources to groups hoping to improve food availability and quality in food deserts. These efforts have resulted in varying degrees of success. Other programs such as community interventions including school gardens, community gardens, and food pantries and farmers markets have also resulted in variable successes and failures. Despite these efforts hunger, food insecurity, and food deserts have inexplicably been allowed to persist in America. Attempts have also been made to alleviate food deserts through policy interventions throughout modern history. Public health efforts and policy interventions will be explored in Part 2 of this paper.

What is perhaps even more confusing is that obesity is prevalent in populations experiencing hunger and food insecurity, which is understandably counterintuitive. A national public health campaign has brought awareness to the obesity epidemic. Most Americans now
understand that obesity\(^1\) – using the most basic definition – can develop when a person consumes too many unhealthy foods and has inadequate physical activity. Following logically, an individual who has an insufficient diet, would not become obese. Typically misunderstood, however, is the concept that there are many factors which contribute to obesity. Many factors are prevalent in communities where rates of food insecurity are high. Stress is one of the factors which has been identified as a risk factor for obesity. (Mahan et al., 2012) Food deserts develop in areas experiencing economic hardship. Residents in these areas are in a low socioeconomic status brought about by low-wage jobs and unemployment, both of which contribute to poverty and food insecurity. These suboptimal conditions can amplify stress in individuals, contributing to obesity. The link between stress, low socioeconomic status, and obesity will be examined in Part 3 of this manuscript.

Part 4 examines one specific region of America (Los Angeles, CA) experiencing food desert conditions and high obesity rates. Los Angeles leaders have implemented specific policy interventions to address the complex obesity epidemic, eliminate food deserts, and alleviate food insecurity.

Part 5 evaluates and proposes nationwide policy adjustments which would address food insecurity, and eliminate food deserts, while also targeting the obesity epidemic. The author concludes that by providing low socioeconomic status food insecure people the opportunity to utilize smaller grocery stores with measures put in place that make food affordable, which also incorporate in-house educational programs, policy makers can make strides in eliminating food deserts and ensuring food security for all Americans. Recommendations presented incorporate a

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\(^1\) Obesity is a condition resulting from accumulation and storage of fat to excessive amounts. Body Mass Index (BMI) is used to determine if a person is obese, and a BMI above 30 is considered so. (Mahan, Escott-Stump, & Raymond, 2012)
systems approach rather than implanting programs without regard to efforts and policies currently in place.

**Part 2: Food Insecurity & Food Policy in the United States**

**Pre- and Post-WWII Actions**

The “roaring 20’s” created a consumer-driven economic culture that led to dramatically increased wealth for some, and the illusion of wealth for others. This prosperous came to an abrupt halt when the stock market crashed in 1929, ushering in the greatest economic depression the country had ever experienced. Seemingly overnight unemployment sky-rocketed and bread-lines formed as Americans no longer had the means to feed themselves or their families. Programs created by the government to combat hunger during the Great Depression included the Federal Emergency Relief Administration (FERA) and Federal Surplus Relief Corporation (FSRC), programs which were modified in future years to create the Commodity Supplemental Food Program and the Temporary Emergency Food Assistance Program. The Food Stamp Program, created in 1939 by President Roosevelt, reached peak utilization in 1942. This recovery era realized the first marrying of agricultural policy with food assistance policy, a practice which remains today. (Aspray, Royer, & Ocepek, 2014)

While World World II largely brought the end of food assistance programs in America, the effects of hunger and malnutrition\(^2\) remained. The effects of poor nutrition were seen in many of the young men drafted for the war. Nearly half of the draftees did not meet military enrollment criteria due to poor health. The lasting effects of sporadic periods of hunger, especially during the course of childhood, was catapulted into governmental awareness. Food insecurity in

\(^2\) Malnutrition is an umbrella term used to refer to when an individual’s nutrient intake is not adequate to sustain growth and/or maintenance. Undernutrition (not enough nutrients) and overnutrition (too many calories) are forms of malnutrition. (UNICEF, 2012)
America had indirectly developed into an issue of national security. This reasoning led to the implementation of the National School Lunch Program in 1946, which remains today as one of the largest food assistance programs in the U.S. (Aspray et al., 2014)

In the robust economy after WWII, food insecurity faded from the spotlight as a pressing issue. Having become a world power, and one of the wealthiest nations on the planet, the United States populous enjoyed the prosperity from the increased opportunities of the midcentury era. All of this changed in 1967, when Senator Robert F. Kennedy toured Mississippi with the Senate’s Poverty Subcommittee. The subcommittee was there to check on the progress of the Economic Opportunity Act of 1964. Four of the nine committee members went on the trip, and two – Kennedy and Chairman Joe Clark – stayed to investigate the outrageous claims that people were literally starving in some areas of the state. Seeing it with his own eyes, Kennedy was alarmed and outraged by the state of hunger in the region. After trying and failing to make a simple human connection with a little boy sitting on the floor, listless and bloated from malnutrition, Kennedy was visibly shaken. (Tye, 2016) Shortly after Kennedy’s visit to Mississippi, a report was commissioned to examine the extent of hunger in the Mississippi and the U.S. “A Report by the Citizens’ Board of Inquiry into Hunger and Malnutrition in the United States,” opened with the following statement:

“In issuing this report, we find ourselves somewhat startled by our own findings, for we too had been lulled into the comforting belief that at least the extremes of privation had been eliminated in the process of becoming the world’s wealthiest nation.” (Citizens’ Board of Inquiry into Hunger and Malnutrition in the United States, 1968)
The report detailed the extent of hunger and malnutrition in the rural south, and also in “every part of the United States.” The Board found high prevalence of anemia\(^3\), stunting\(^4\) in children, severe protein deficiencies (Kwashiorkor\(^5\) and Marasmus\(^6\)), as well as high incidences of parasitic diseases for which malnutrition makes the host more susceptible. The report also detailed the programs of the day which tried (but failed) to improve the problems. Programs included the Commodity Distribution Program for Needy Families, the Food Stamp Program, and the School Lunch Program. (Citizens' Board of Inquiry into Hunger and Malnutrition in the United States, 1968) At the time, the Food Stamp Program required a monthly fee of $2 for each person, and some of the families Kennedy visited with in Mississippi could not even afford that small fee. (Tye, 2016)

The programs set forth due of the findings of the senate subcommittee have also seen improvement in the decades since the issuance of the Board’s report. In some ways today’s programs do not even resemble those of the era passed. However, the Board pointed out some of the assumptions taken when considering recipients of food assistance that still ring true today:

1) Each family member requires the same dollar expenditure on food.

2) As a family’s income increases, the percent of income spent on food increases.

Both of these assumptions were flawed then, and remain flawed some 50 years later. First, caloric needs (and thus food needs) change with age and conditions. Typically, the head of the

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\(^3\) Anemia is a condition characterized by low hemoglobin and/or red blood cell counts which in turn reduces the ability of cells in the body to supply oxygen to tissues and organs. Anemia is caused by an inadequate supply of certain nutrients, including iron, folate, and Vitamin B12 to name a few. (UNICEF, 2012)

\(^4\) Stunting is defined as height-for-age measurements which are well below the median. (UNICEF, 2012)

\(^5\) Rarely seen in developed countries, Kwashiorkor is acute malnutrition characterized by edema (swelling). It results from protein-energy deficiency. (UNICEF, 2012)

\(^6\) Marasmus is another condition resulting from protein-energy deficiency when it is coupled with acute malnutrition across the board. While Kwashiorkor is distinctly recognizable by its characteristic swelling, Marasmus exhibits itself through wasting. Fat and muscle are both lost in significant amounts. (UNICEF, 2012)
household was the member of the family who would be given the largest portion when meals
were served, because he was the breadwinner for the family and needed to remain healthy. This
correlates to different food expenditures for each person in the family, and effectively
disqualifies the first assumption. Second, for low-income families, fixed expenses such as rent
and utilities take over a larger portion of the income even as income increases. Food expenditure
does not increase simply because income increases. Instead, it is more likely that overdue bills
are given priority over food expenditure. Therefore, the second assumption should also be
disqualified. To be sure, assumptions like these make some policy makers hesitant to create
programs designed to address food insecurity, leaving the problem unsolved and unchecked.
Despite the alarm of the government to their investigation, hunger and food insecurity have yet
to be eradicated from America.

Food Insecurity & Food Deserts

The term food desert was first coined just over 20 years ago in the United Kingdom to
indicate an area with a marked lack of access to healthy foods. (Cummins & Macintyre, 2002)
Definitions of the term vary around the world, but all include the concept that the regional
population does not have access to an adequate supply of nutritious foods. The USDA has further
categorized food insecurity, largely experienced by individuals and families in food deserts
(ERS, 2016):

**Food Secure:** This term refers to 87.3% of American households which are fortunate
enough to maintain access to healthy food at all times.

**Food Insecure:** Food insecure households report that there are times during the year
during which there is uncertainty surrounding access to food. This category affects 12.7%
of American households. An estimated that 42.2 million people live in food insecure households in the United States. Food insecurity is further broken down into two degrees of food insecurity: low food security and very low food security. The three categories are depicted by population percentage in Figure 1.

**Low Food Security:** Households with low food security comprise 7.7% of American households. These households rely on food assistance programs and do not experience substantial disruptions of food access throughout the year.

**Very Low Food Security:** 5.0% of American households experience disruption of food access in one or more members throughout the year. While this number is on a downward trend, as shown in Figure 2 below, approximately 10.9 million adults in the U.S. currently experience very low food security.

Food security has increased in recent years while correspondingly, food insecurity has decreased. Figure 2 does show a slight dip in the most recent data, but the prevalence of food insecurity has not returned to the rates documented before the economic recession of 2008.
Instead, America may be experiencing a new norm in the prevalence of food insecurity. A significant portion of the American community still does not have adequate access to food. Many attempts to date attempting to alleviate food deserts and increase food security revolve around placing healthy foods in areas devoid of such staples as fruits and vegetables. Various community efforts along with healthy food financing initiatives have resulted in varied degrees of success.

**Healthy Food Financing Initiatives**

Pennsylvania is the model of the healthy food financing initiative. The Pennsylvania Fresh Food Financing Initiative started in 2004, and was exhausted in 2010. During its run, the Initiative granted over $85 million towards 88 projects, cutting the number of residents without access to healthy foods by half. Other states have followed in Pennsylvania by creating similar initiatives, including California, Colorado, Illinois, Maryland, Michigan, New York, Ohio and Virginia, with several more states in the early stages of developing such a fund.

A federal fund, the Healthy Food Financing Initiative (HFFI), was launched in 2011. The federal initiative is a partnership between the USDA, the United States Department of the Treasury, and the Department of Health and Human Services. HHS’s Community Economic Development (CED) program has granted $44.5 million for HFFI projects, while the Treasury’s Community Development Financial Institutions Fund (CDFI Fund) has awarded $22 million towards HFFI projects.
Figure 3 shows the federal HFFI program as a whole, while Table 1 below shows the six communities which have received the most awards and how much funding in total each has received. Also detailed on Figure 4 are the number of development companies within those communities which have been granted these awards. Both figures indicate that projects are being planned and that money is being distributed. However, a closer look at the details reveals that certain development companies are receiving multiple awards for the same projects, some of

<table>
<thead>
<tr>
<th>Select Cities – CED-HFFI Awards – 2011-2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>Los Angeles</td>
</tr>
<tr>
<td>Cleveland</td>
</tr>
<tr>
<td>Springfield, MA</td>
</tr>
<tr>
<td>Minneapolis</td>
</tr>
<tr>
<td>Philadelphia</td>
</tr>
<tr>
<td>Bronx</td>
</tr>
</tbody>
</table>

Table 1: HFFI awards by community, number of development companies, and dollars. (DHHS, 2017)
which are not discoverable with rudimentary internet searches or worse, a project executed within the United States.

For example, Brightwood Development Corporation - based in Springfield, Massachusetts - has been granted funding on three occasions and on two of those occasions the proposed project was actually located in Puerto Rico, a territory of the United States which is not considered in the food desert data published by the USDA’s Food and Nutrition Service. Information on this project, called the Food Agro Business Center, is limited with an internet search. The information on HFFI’s website regarding Brightwood’s project in Springfield, MA is broad and vague making it difficult to find information. This raises the question: Why is funding which is intended for improving access to nutritious food in America’s food deserts being used in Puerto Rico? Further, how broad are the parameters for project proposals so as to allow this?

Restrictions and Incentives

Restrictive regulations on the nation’s food intake are much more controversial. Several states have attempted to place restrictions on what SNAP participants may purchase, including Arkansas, Wisconsin, Maine and New York. (Wahowiak, 2015) Restrictive parameters usually include rarely purchased items seen as luxuries such as seafood and steak, but also include regularly purchased items such as soda, chips, and other foods which might be deemed “unhealthy.” For example, Wisconsin legislators decided to require that two-thirds of purchases with SNAP funds be for “healthy” foods while also barring the purchase of shellfish altogether. The difficulty in such laws is that there are differing views on what is considered healthy and unhealthy. Most agree that chips, sodas, and similar foods should be labeled as unhealthy. However some healthy foods, such as white potatoes, get branded as unhealthy, when in fact they are an excellent source of nutrition, low in calories, and one of the most inexpensive
vegetables in the typical grocery store. (Wahowiak, 2015) So far, restricting SNAP purchases is not highly regarded, and attempts to restrict in this manner have failed.

A more accepted form of restriction is a tax on sugar sweetened beverages, commonly referred to as the soda tax. This tax would be levied on purchases of sodas, energy drinks, and other beverages containing added sugar. For years, research has supported the idea that consumption of sugar sweetened beverages has both significantly increased and has contributed to the obesity epidemic. (Kavey, 2016) How does it contribute to the obesity epidemic? Simply, excess calories are stored as fat. The average person understands that foods should be counted as calories, but often overlooks the calories contained in beverages. Sugar sweetened beverages contain more calories than beverages such as coffee, tea and water. It follows logical thought that consuming several sugar sweetened beverages per day would increase caloric intake, contribute to excessive caloric intake, and therefore contribute to obesity.

The USDA released a report in November 2016 detailing the typical purchases of SNAP participants based on data gathered from “a leading grocery store chain.” (Garasky, Mbwana, Romualdo, Tenaglio, & Roy, 2016) The researchers found that sugar sweetened drinks were the top purchase by SNAP recipients, which further propagated the idea of placing purchase restrictions on foods with low nutritional qualities. However, what is overlooked in that argument is the fact that sugar sweetened beverages account for a major portion of all households’ purchases, SNAP and non-SNAP households alike. As seen in Table 2, sugar sweetened beverages (a summary category) ranked as #2 and #5 for both household types, respectively. Summary categories were also broken down into commodities. SNAP and non-SNAP household sugar sweetened beverage purchase habits become nearly identical, with soft drinks ranking #1 and #2 respectively.
Also of interest is the fact that the top 10 summary category expenditures were the same for both SNAP and non-Snap households with a different order in ranking. For instance, Vegetables ranked #3 for SNAP households and #2 for non-SNAP households, while Salty Snacks ranked #10 for both. This calls into question the common conception that SNAP recipients only buy more junk food than non-SNAP households. Table 3 displays the top five commodities for both SNAP and non-SNAP households. Soft Drinks and Fluid Milk Products are the top two expenditures for both groups, but in a different order. Further inspection of the data in the manuscript reveals that within the Vegetables Subcommodities, potatoes and frozen vegetables ranked #1 and #2 respectively for both groups, while avocados and bagged salad mixes were also in the top five for both. (Garasky et al., 2016) In reality, the extensive data gathered by the authors shows that while there are some differences in food expenditures

<table>
<thead>
<tr>
<th>Summary Category</th>
<th>SNAP Household Expenditures</th>
<th>Non-SNAP Household Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rank</td>
<td>$ in Millions</td>
</tr>
<tr>
<td>Meat, Poultry, Seafood</td>
<td>1</td>
<td>$1,262.9</td>
</tr>
<tr>
<td>Sweetened Beverages</td>
<td>2</td>
<td>$608.7</td>
</tr>
<tr>
<td>Vegetables</td>
<td>3</td>
<td>$473.4</td>
</tr>
<tr>
<td>Frozen Prepared Foods</td>
<td>4</td>
<td>$455.2</td>
</tr>
<tr>
<td>Prepared Deserts</td>
<td>5</td>
<td>$453.8</td>
</tr>
<tr>
<td>High Fat Dairy / Cheese</td>
<td>6</td>
<td>$427.8</td>
</tr>
<tr>
<td>Bread, Crackers</td>
<td>7</td>
<td>$354.9</td>
</tr>
<tr>
<td>Fruits</td>
<td>8</td>
<td>$308.2</td>
</tr>
<tr>
<td>Milk</td>
<td>9</td>
<td>$232.7</td>
</tr>
<tr>
<td>Salty Snacks</td>
<td>10</td>
<td>$225.6</td>
</tr>
<tr>
<td><strong>Total Summary Categories</strong></td>
<td></td>
<td><strong>$4,803.2</strong></td>
</tr>
</tbody>
</table>

Table 2: Top 10 of 100 Summary Categories representing SNAP and Non-SNAP household expenditures. Percentages reconfigured for this table. Data taken from Exhibit 3 in “Foods Typically Purchased by SNAP Households.” (Garasky et al., 2016) https://www.fns.usda.gov/sites/default/files/docs/INAFood這樣的Purchase.pdf
between SNAP and Non-SNAP households, those differences are relatively minor and do not warrant restricting what types of foods can be purchased with SNAP funds.

However, the data concerning sugar sweetened beverages makes it understandable that the soda tax has been gaining popularity over the last several years. The soda tax targets all households, rather than one subset. Five communities have passed soda taxes including Berkeley, San Francisco, Oakland and Albany in California along with Boulder, Seattle, Philadelphia, and Cook County, Illinois. (Lee, 2016) Taxes range from one cent per ounce in Cook County, IL as well as all of California, to two cents per ounce in Boulder and Seattle. Philadelphia is leveraging a 1.5 cent per ounce tax on purchases of sugar sweetened beverages. To put this into perspective, a 20-ounce bottle of soda costing $1.29 would cost $1.69 with the two cent tax. This isn’t much of a deterrent for someone who purchases a 20-ounce bottle of soda here and there. Those who routinely purchase cartons of soda containing 12-12 ounce cans, however, will experience a routine mark-up of $2.88 per carton. This could translate into an effective disincentive. Researchers in Berkeley discovered a significant drop in sugar sweetened beverage consumption along with a significant increase in water intake following the imposition
of the region’s soda tax. (Falbe et al., 2016) In March 2015, Berkeley, California became the first city in the United States to implement a soda tax. Interviews were conducted both pre- and post-tax implementation (990 and 1689 individuals respectively). San Francisco and Oakland were used as comparison cities for the study. Data revealed that sugar sweetened beverage consumption decreased over 20% in low-income neighborhoods in Berkeley, compared to an increase of 4% in comparison cities. Water intake increased in both Berkeley and comparison cities by 63% and 19% respectively. The results of the study in Berkeley illustrate the intended outcome of the policy.

What happens when restriction is coupled with incentive? A clinical trial conducted in the Minneapolis-St. Paul metropolitan area demonstrated this concept recently. (Harnack et al., 2016) Participants, all of whom were not receiving SNAP benefits, were placed into one of four groups: 1) restricted purchasing power; 2) incentivized purchasing power; 3) restricted and incentivized purchasing power; and 4) neither restrictive nor incentivized purchasing power. Participants received a debit card for the 12-week duration of the trial. The card was reloaded every 4 weeks, mimicking the EBT system used for SNAP benefits. Researchers noted positive changes in the incentive plus restriction group including increased intakes of solid fruit and reduced intakes of sugar sweetened beverages. While there were limitations to the study – participants being non-SNAP households first and foremost - it does allude to the possibility of positive outcomes when restriction is paired with incentives, which may be an easier pill to swallow than restrictions alone.
Part 3: Obesity, Stress, and Food Insecurity

Obesity and Food Insecurity

The purpose for these measures, restrictions, incentives, as well as healthy food financing initiatives around the country is not only to combat food insecurity, but also to combat the rising obesity rates of the last several decades. Obesity and other nutrition related diseases are prevalent in populations experiencing food desert conditions coupled with a high incidence of food insecurity. This seems counterintuitive to most: How can it be that people who are hungry are actually overweight or obese? However, when the situation is broken down into its component parts, one can easily make sense of an otherwise confusing scenario.

Physiologically, the human body utilizes much of what is consumed as food for energy. We receive energy in the form of calories which come from the foods we eat. Nutrients from food can be categorized as macronutrients - carbohydrates, protein and fat – which provide energy, and micronutrients – vitamins, minerals, and water – which do not provide energy. Macronutrients and micronutrients are all needed in various amounts to maintain health and homeostasis. Consuming too much energy, no matter which macronutrient, creates an excess which is stored as fat. During a period of below normal consumption, this stored fat is used as energy. (Mahan et al., 2012) The human body is excellent at adapting to periods of starvation, with several mechanisms in place to keep organs functioning when food supplies run low. However, if a person is continuously consuming carbohydrates, this “starvation adaptation” will not happen, because carbohydrate consumption promotes insulin production. Insulin (among other functions) prevents stored fat from being utilized. Typically, protein is more expensive to purchase than simple carbohydrates (think chips, sodas, processed foods), and the continuous
intake of carbohydrates contributes to obesity. This simplified physiological explanation is only part of the equation, though.

Food insecurity by definition, as stated earlier, does not mean that a person is always hungry. The two words are not interchangeable. Similarly, food desert conditions do not automatically indicate that people are hungry. While hunger does affect populations in food deserts in some numbers, a food desert alludes to the quality of foods available to the population more so than the quantity of food available. For instance, a mother residing in a food desert may buy a good portion (if not all) of the groceries for her family at a corner store rather than a full-scale grocery store. Corner stores do not carry the same food options as a grocery store, and the vast majority of options are heavily processed with high amounts of fat, sugar, and/or sodium. Fruits and vegetables – fresh, canned or frozen – are not typically found in corner stores. Also, fast food stores are more readily available in food deserts, and frequent consumption of fast foods can lead to overweight and obesity. (Spence, Cutumisu, Edwards, Raine, & Smoyer-Tomic, 2009)

When a person’s diet exists solely on these types of foods, often times they end up eating more calories than they expend, which is the classic equation for weight gain. Moreover, a continuously elevated intake of sugar and sodium can also contribute to Type 2 Diabetes and Hypertension, while a continuously elevated intake of fat can also contribute to other forms of cardiovascular disease. Combine the typical diet of the average person residing in a food desert with today’s sedentary lifestyles, and therein lies a recipe for higher rates of obesity and other nutrition related diseases.
Stress and Obesity – Linked in Research

Another contributing factor to obesity rates in food deserts, and one that is often overlooked, is the relationship between stress and obesity. Research as far back as the 1930’s has shown that stress and obesity are linked. Koski and Naukkarinen (2017) state: “Accumulation of fat in visceral adipose tissue around the waist is regarded as a sign of maladaptation to chronic environmental stress exposure.” Furthermore, recent research alludes to the possibility that stress can dictate food intake (Webber, Casey, Mayes, Katsumata, & Mellin, 2016), and that adding a stress management program to a behavioral weight loss program can enhance weight loss. Webber et. al. (2016) conducted a randomized controlled trial testing this hypothesis, and found that the combination resulted in “greater weight loss and lower cortisol levels than the control group.”

Part 4: Looking at Los Angeles

LA County and the USDA Food Desert Map

LA County is home to an estimated 10.2 million people. (LACPHD, 2017) For the purposes of this paper, Service Planning Areas (SPAs) 4-7 will be scrutinized regarding food desert conditions, obesity and fruit and vegetable consumption. These SPA’s contain the heaviest concentration of food desert conditions according to the USDA Food Access

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7 A map of the Los Angeles County Service Planning Areas is included in Appendix A.
Research Atlas, as shown in Figure 5 below. The yellow oval in Figure 5 surrounds SPAs 4-7, home to 4.2 million people, approximately 41% of the county. (LACPHD, 2017) Comparing Food Access at half a mile (urban) and 10 miles (rural) for 2015 with 2010 reveals that despite federal attempts to alleviate food deserts, conditions have not improved significantly in Los Angeles County. According to the most recent Los Angeles County Health Survey food insecurity has been rising in LA County for several years. Overall food insecurity has risen 40% since 2002 while very low food security has risen 66%. The Great Recession in 2008 is partly to blame, but despite economic recovery, neither the nation nor Los Angeles County have experienced a decline in food insecurity to what they were before the economic crisis. (LACDPH, 2015) These findings are consistent with the USDA food access maps.


The Los Angeles County Department of Public Health (LACDPH) keeps detailed statistics. Datasets have been compiled with information including health conditions, health behaviors, demographics, and more. There are four data sets on the LACDPH which can be queried, and the results

Figure 7: Fruit & Vegetable consumption and obesity prevalence in Los Angeles County. Data compiled from 2005, 2007, 2011 and 2015 datasets, available in Appendix B.

See Appendix B.
reveal a picture that does not jive with the rhetoric surrounding the efforts to alleviate food deserts and obesity. Figure 7 shows that despite multiple efforts to change eating behaviors, fruit and vegetable consumption in SPAs 4-7 has actually gone down, and the prevalence of obesity has increased\(^9\). In fact, the 2011 Health Survey showed that there was a 10% increase in the prevalence of obesity in LA County since the first LACHS in 1997, and that the difference in obesity prevalence was more than 10% when comparing the food secure (25%) with households experiencing very low food security (35.4%). (LACDPH, 2015)

**Policies, Programs and Their Successes**

The Los Angeles Food Policy Council has created both the Healthy Neighborhood Market Network (HNMN) and the Good Food Purchasing Policy (GFPP) in efforts to improve food access and nutrition quality for inhabitants of LA County. The HNMN trains smaller markets and corner stores regarding healthy food retail. From 2012-2014, more than 200 retailers in underserved communities completed the trainings. (LAFPC healthy neighborhood market network.2017) The GFPP’s focus is to promote “local, sustainable, fair and humanely produced foods, while improving access to healthy, high quality food for all communities.” (LAFPC, GFPP, 2017) The Los Angeles Unified School District signed on to this policy, and has since made significant strides towards improving the nutritional quality of food served to students.

Los Angeles County is also host to many farmers markets and food pantries. In addition to these efforts to bring fresh produce and basic food supplies into food insecure communities, CalFresh, California’s version of SNAP, also provides incentives through the Market Fresh program, where SNAP participants receive a dollar for dollar match ($10 limit) when utilizing their EBT card at certain farmers’ markets. In 2015, $78,339 was spent in matching. *(CalFresh* \(^9\) Notes and source tables for each query represented in Figure 7 can be found in Appendix C.)
SMARTER FOOD POLICIES

market match - 2015 impacts report. 2014) A newer program matches $50 spent at Sam’s Corner Market (MacArthur Park) with a $50 voucher to be used on fruits and vegetables. (Browne, 2017) Sam’s Corner Market used to be called Sam’s Corner Liquor Store, but the new owner decided to rebrand and offer healthier options. The voucher program, sponsored by the LA Food Policy Council and funded by the USDA, requires participants to attend two workshops. Of the 20 participant goal, eight have enrolled, and three have used the vouchers. They are having a tough time getting people signed up, but small victories are victories nonetheless.

Part 5: Recommendations

So, what is the point of all of this information? Taking into consideration the food environment of a food desert, physiological causes of obesity and nutrition related diseases, and add to that the stress of being food insecure, the stress of poverty, the stress of not being able to afford the higher food prices for healthier food, it becomes clear that mitigating food deserts while also reversing the rising rates of obesity in the United States is a complex undertaking.

Several aspects must be considered. Current policies largely establish a linear approach to food deserts and food insecurity. The dilemma with this approach, as shown in Figure 8, is the assumption that people will automatically choose those healthy foods from new grocery stores in

Figure 8: The ineffectual linear approach to mitigating food deserts and eliminating food insecurity.
their neighborhood. Mitigating food deserts and food insecurity by simply placing healthy food sources in areas most affected is a noble goal. It seems logical that if healthy food is placed in an area where there was previously no access to healthier options and limited access to food in general, people will automatically choose healthier options over being hungry. This has not been the case. Unfortunately, the many initiatives that have been started to increase access to healthy food are not fixing the problem of food insecurity and people still consider themselves food insecure.

**Recommendation 1: Promote Food Security within a Systems Approach**

In reality, food deserts and food insecurity are complex problems. Several interconnected facets need attention at nearly the same time. Figure 9 depicts the more thorough systems approach to alleviating food deserts and eradicating food insecurity. This mirrors the idea that there are both macrolevel and microlevel factors for every household working in concert with and sometimes against each other. (Boone-Heinonen et al., 2011) Macrolevel factors include general food environments, food pricing, and government regulation. These factors all contribute to the condition of food deserts, and in turn affect microlevel factors such as a household’s financial situation, time constraints, and shopping habits. Boone-Heinonen et al. conducted a longitudinal study utilizing 15 years’ worth of data from the CARDIA study and found that “neighborhood supermarket and grocery store availability were generally unrelated to diet quality and adherence to fruit and vegetable guidelines,” effectively disqualifying the notion that merely placing healthy foods in a neighborhood will affect food choices.
Implementing a systems approach does not necessarily mean that policy makers should place equal focus on all aspects of the problem. On the contrary, it is possible to focus primarily on promoting food security while also maintaining a systems approach at solving the interrelated problems of food security, food deserts and obesity. Each of these is connected, intersecting at several points along the continuum, and policy makers should take these connections into consideration when figuring out how to best alleviate one or all three.

**Recommendation 2: Support Small-Scale Grocery Stores by Fixing the HFFI**

The Healthy Foods Financing Initiative should be modified to grant money towards small-scale groceries which implement in-house education. By establishing several smaller fresh-foods focused grocery stores among the many abandoned store fronts prevalent in inner-city neighborhoods, residents of food deserts have a better chance of overcoming food insecurity. However, this will not happen unless stores also offer an educational component. When these same stores offer classes in basic nutrition and dietary guidelines, as well as fundamental cooking techniques and food safety, residents of these food deserts will be much better equipped to choose healthier options. These types of initiatives may also foster a deeper sense of
community, and give rise to other community based programs such as community gardens and farmers markets.

Further, there has been some research which suggests that placing big supermarkets with an overabundance of choices can be overwhelming and defeat the purpose of promoting healthier eating when much of the store is filled with processed and less-than-optimal choices. (Chen, Jaenicke, & Volpe, 2016) Unhealthier options tend to be cheaper, and food insecure people will likely choose “more food” over “healthy food,” and this defeats the dual-fold purpose (eliminating food deserts and increasing consumption of healthy foods) that most food desert mitigation initiatives proclaim. Utilizing the HFFI in this manner is more effective than doling out large sums of money to development companies who may or may not implement plans with expediency. Either way, there should be substantial checks and accountability built into the existing HFFI, so that grantees are liable for the projects they propose. As discussed earlier, some companies are receiving multiple awards for projects which have yet to be implemented.

**Recommendation 3: Make Healthy Food Cheaper for SNAP Recipients**

It is safe to say that a large part of the food insecure population, as well as a large portion of those living in food deserts, are SNAP recipients. As discussed earlier, the idea of incentives geared towards increasing fruit and vegetable purchases by these households has gained popularity in recent years. It is no secret that food prices are rising, and the increase since 1980 is dramatic, as shown in Appendix D. (Schanzenbach, 2013) A pilot program was operated in a lower income community in Massachusetts from November 2011 – December 2012. Healthy Incentives Pilot (HIP) Program was established with a dual purpose: to make fruits and vegetables “cheaper” to SNAP recipients; and to test the theory that SNAP recipients would purchase more fruits and vegetables if there were an incentive attached. The program gave $0.30
back to participants for every $1.00 they spent on fruits and vegetables (which could be canned, frozen or fresh). Data analyzed at the end of the program indicated an increase of 26% in the consumption of fruits and vegetables by SNAP participants. HIP had proven the theory while also making fruits and vegetables more accessible to SNAP participants. SNAP participants would purchase fruits and vegetables. In the years since, several states have implemented similar incentive programs – particularly in farmers markets - including California, Michigan New York and Texas to name a few.

Implementation of such an incentive program should be considered nationwide, so as to target all food insecure households in the United States. Estimated nationwide implementation costs are high at roughly $89 million. (Food and Nutrition Service, USDA, 2014) However, it is impossible to give an accurate cost for program maintenance, because there is no way to determine how many would use the program or to what extent. Estimates have ranged from $824 million (Schanzenbach, 2013) to $4.5 billion. (Food and Nutrition Service, USDA, 2014) The latest Farm Bill does provide for funding to help states promote incentive programs, and this is a great start. (Charles, 2014) However, if this money were to be used on a nationwide implementation instead, it could go a long way towards eradicating food insecurity in America. Implementation costs are the largest costs, and once those initial hurdles have been overcome, the program costs drop considerably.

It is also important to take into consideration other costs that could drop when people start eating healthier. Ideally, obesity rates would decrease which contributes to a decrease in spending on obesity and obesity related diseases. Further, lost productivity (due to sicknesses and limitations related to obesity and obesity related diseases) could vanish, insurance rates could drop, health costs could stabilize, etc. These factors can also extrapolate to a decrease in
incentive program costs as people who are currently utilizing SNAP get healthier, back to work, and no longer need the funds to supplement their household food budget. Policy makers must begin looking at the long-term, big picture scenario for programs like SNAP, because that is where the true benefits will be seen.

**Part 6: Conclusion**

Present efforts are not fixing the problems of food insecurity, food deserts, and obesity. However, trying to fix this problem simply by placing grocery stores with fruits and vegetables into food deserts is not taking into consideration the multi-faceted complexity of these problems. We should start looking at food deserts as if they were a system of interconnecting circles rather than a problem which could be solved in one vertical line. By implementing smarter policies which consider the many facets of the problem, the United States may finally begin to make progress on eradicating food deserts, mitigating food insecurity, and reversing the obesity epidemic.

There are several factors at play as to why an individual or family does not choose healthy food. Some of these factors are multifaceted in and of themselves, and unfortunately not every problem can be solved. However, smaller grocery stores which offer a variety of educational programs designed to teach food insecure households and individuals the basics regarding food and nutrition can substantially improve the chances of them choosing the healthier foods already being placed in their communities. Healthy Food Financing Initiatives are wonderful opportunities, yes, but only if the projects are actually being implemented. Stronger accountability measures must be prioritized as the HFFI moves forward. Law makers should reconfigure the Healthy Food Financing Initiative to restrict development corporations from receiving multiple grants until originally proposed programs are implemented. Lastly, making
healthy food cheaper is crucial. Implementing a nationwide incentive program is feasible, and policy makers should consider this move with the next Farm Bill. Further, incentives which give those utilizing SNAP more buying power for fruits and vegetables could enhance what is already known – that SNAP participants buy vegetables along the same rate as non-SNAP participants. With some modifications to current programs already in place, policy makers can make significant strides towards increasing food security across the nation. A food secure America equates to a healthier America with lower obesity rates, which is an investment work making.
References


USDA, E. (2016). Definitions of food security. Retrieved from


USDA, E. (2017). Food access research atlas - documentation. Retrieved from


Appendix A

Los Angeles County – New Health District and Service Planning Area Boundaries

LEGEND

2002 Health Districts
2002 Service Planning Areas
- SPA 1 - Antelope Valley
- SPA 2 - San Fernando
- SPA 3 - San Gabriel
- SPA 4 - Metro
- SPA 5 - West
- SPA 6 - South
- SPA 7 - East
- SPA 8 - South Bay

Source: US Census Bureau, Redistricting Census 2000 TIGER/Line Files
Prepared by Los Angeles County DHS, Public Health, Office of Health Assessment and Epidemiology, September 2002
Appendix B

Food Access at half a mile (urban) and 10 miles (rural) for 2015 & 2010

2015 is shown in green. 2010 is shown in red mesh. (USDA, 2017)
Appendix C
Figure 7 BMI & F/V Consumption Data Source Tables

Percent of Adults (18 - 64 Years Old) in Selected SPAs who are Obese or Overweight

<table>
<thead>
<tr>
<th>Weight</th>
<th>Percent</th>
<th>Confidence Interval</th>
<th>Estimated Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obese</td>
<td>23.0%</td>
<td>21.2% - 24.8%</td>
<td>619,000</td>
</tr>
<tr>
<td>Overweight</td>
<td>35.4%</td>
<td>33.4% - 37.4%</td>
<td>954,000</td>
</tr>
</tbody>
</table>

**2005 Query**

<table>
<thead>
<tr>
<th>Weight</th>
<th>Percent</th>
<th>Confidence Interval</th>
<th>Estimated Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obese</td>
<td>24.8%</td>
<td>22.4% - 27.2%</td>
<td>575,000</td>
</tr>
<tr>
<td>Overweight</td>
<td>35.5%</td>
<td>32.9% - 38.2%</td>
<td>823,000</td>
</tr>
</tbody>
</table>

*This estimate is statistically unstable (relative standard error greater than or equal to 23%) and therefore may not be appropriate to use for planning or policy purposes.

**2007 Query**

<table>
<thead>
<tr>
<th>Weight Status</th>
<th>Percent</th>
<th>Confidence Interval</th>
<th>Estimated Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obese</td>
<td>24.8%</td>
<td>22.5% - 27.1%</td>
<td>600,000</td>
</tr>
<tr>
<td>Overweight</td>
<td>36.1%</td>
<td>33.5% - 38.8%</td>
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</table>

**2011 Query**

<table>
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<tr>
<th>BMI Status</th>
<th>Percent</th>
<th>Confidence Interval</th>
<th>Estimated Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obese</td>
<td>25.3%</td>
<td>22.8% - 27.8%</td>
<td>645,000</td>
</tr>
<tr>
<td>Overweight</td>
<td>34.0%</td>
<td>31.3% - 36.7%</td>
<td>887,000</td>
</tr>
</tbody>
</table>

**2015 Query**
Percent of Adults (18 - 64 Years Old) Reported Having Eaten 5 or More Servings of Fruits/Vegetables (in the Past Day)

<table>
<thead>
<tr>
<th>Percent</th>
<th>Confidence Interval</th>
<th>Estimated Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.4%</td>
<td>12.9% - 15.9%</td>
<td>368,000</td>
</tr>
</tbody>
</table>

2005 Query

<table>
<thead>
<tr>
<th>Percent</th>
<th>Confidence Interval</th>
<th>Estimated Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.4%</td>
<td>13.6% - 17.3%</td>
<td>399,000</td>
</tr>
</tbody>
</table>

2007 Query

<table>
<thead>
<tr>
<th>Percent</th>
<th>Confidence Interval</th>
<th>Estimated Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.9%</td>
<td>13.1% - 16.7%</td>
<td>372,000</td>
</tr>
</tbody>
</table>

2011 Query

<table>
<thead>
<tr>
<th>Percent</th>
<th>Confidence Interval</th>
<th>Estimated Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2%</td>
<td>12.3% - 16.1%</td>
<td>377,000</td>
</tr>
</tbody>
</table>

2015 Query
Estimates are based on self-reported data by a random sample of Los Angeles County adults, representative of the adult population in Los Angeles County. The 95% confidence intervals (CI) represent the variability in the estimate due to sampling; the actual prevalence in the population, 95 out of 100 times sampled, would fall within the range provided. In 2005, 8,648 LA County adults participated in the survey. In 2007, 7,200 LA County adults participated in the survey. In 2011 and 2015, 8,036 and 8,008 LA County adults participated in the survey respectively.

Documentation for the queries are provided below:


Weight status is based on Body Mass Index (BMI) calculated from self-reported weight and height. According to NHLBI clinical guidelines, a BMI less than 18.5 is underweight, a BMI of at least 18.5 and less than 25 is normal weight, a BMI of at least 25 and less than 30 is overweight, and a BMI of at least 30 is obese. [REFERENCE: National Heart, Lung, and Blood Institute (NHLBI) http://www.nhlbi.nih.gov/guidelines/obesity/ob_exsum.pdf].

Constraints for the Query are as follows:

a. Data were only used for individuals ages 18-64 year(s) old.

b. Only residents of the following service planning area(s) [SPA(s)] were selected: 4, 5, 6 and 7.

All reports created on 04/18/2017.
Appendix D

Price Levels by Food Category, 1980-2012 (Schanzenbach, 2013)

Source: Bureau of Labor Statistics (BLS) 2013c, 2013d.

Note: The dotted gray line represents the Consumer Price Index for All Urban Consumers (CPI-U).