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THE ECONOMIC AND HEALTH IMPACTS OF
COMMUNITY GARDENS ON REFUGEE POPULATIONS:

CRIC GARDEN CASE STUDY

By

Joseph Montoya

A professional paper in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

UTAH STATE UNIVERSITY
Logan, Utah

2020

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ABSTRACT

The Economic and Health Impacts of
Community Gardens on Refugee Populations:
CRIC Garden Case Study

by

Joseph Montoya, Master of Science

Utah State University, 2020

Major Professor: Dr. Kynda R. Curtis
Department: Applied Economics

The purpose of this paper is to examine the economic benefits of community gardens and incubator farms, both of which support the populations they serve from an economic viewpoint as well as socially, and as a benefit to public health and nutrition. The findings were gathered from the large body of research concerning the benefits of community gardens as well as program evaluation responses conducted with gardeners at the Cache Refugee and Immigrant Connection (CRIC) garden in Logan, Utah in 2020. They are also informed by experiences had and lessons learned while working as the garden manager. There is a wealth of information being circulated by researchers in the field about how the many ways community gardens help members of a community, especially those who are considered disadvantaged groups such as increased feelings of wellbeing associated with being outside in green spaces and an increase in the amount of nutritious foods consumed by those who participate in community gardens. This wealth of information is most likely only rivaled by the abundance of food produced at the CRIC garden, which is consumed by those who grow it and their families and is also freely given in

gratitude for the opportunities presented to them. It is true that many people come together to gather the resources that are needed to make the garden possible. Without grant money and donations of time and capital the garden would not be possible. But when looked at through the lens of what it gives back, the amount of wealth spread around is hard to fully understand. The purpose of this paper is to look at the benefits to those who are involved with a specific community garden in Logan, Utah. The total value of this garden in terms of saving and contributions to users and the surrounding community has been established. These findings seek to quantify and qualify the full extent of the impacts the garden has on the gardeners and the community as a whole.

(24 pages)

DEDICATION

To the gardeners at the Cache Refugee Garden for all of their hard work, and for Crista.

ACKNOWLEDGMENTS

I would like to thank my wife Becky for moving back to Logan so I could pursue this degree. She has been so supportive throughout the whole process. And to my brother Grant, who was instrumental in helping me accomplish all of the things I wanted to do this summer, and who, on top of that, just really wanted to be included in my acknowledgments.

CONTENTS

ABSTRACT	iii
ACKNOWLEDGMENTS	vi
LIST OF TABLES	viii
LIST OF FIGURES	viii
CHAPTER	
I. EXPLANATION OF TERMS AND LITERATURE REVIEW	1
Introduction	1
Literature Review	1
Socially Disadvantaged Groups	1
Refugee Defined	5
Community Gardens	6
Health Benefits of Community Gardens	7
Economic Benefits of Community Gardens	8
Cache Refugee and Immigrant Connection	9
II. ECONOMIC AND HEALTH BENEFITS ANALYZED	13
Estimated Savings in Terms of Produce	12
Estimated Savings in Terms of Nutrition	16
Estimated Benefit to Mental Wellbeing	17
Estimated Benefit to Property Values	18
Estimated Value of Green Space	18
Total Estimated Value	19
III. DISCUSSION	20
Past Funding	20
JBS	20
IV. CONCLUSIONS	23
REFERENCES	25

LIST OF TABLES

1. Estimated Monthly Cost of Living, Logan, UT.....	12
2. Yearly Value of CRIC Garden (User).....	19
3. Yearly Value of CRIC Garden (Community).....	19
4. Initial Value of CRIC Garden (Community).....	19

LIST OF FIGURES

1. Month Cost of Living Breakdown, Logan, UT, 2019	13
2. Cost of Living in Logan, UT, 2019	13
3. Comparison of the Cost of Food with and without Garden Supplementation	14

CHAPTER I

EXPLANATION OF TERMS AND LITERATURE REVIEW

Introduction

In the United States, many groups of people are considered socially disadvantaged. This can be because of a number of factors such as socioeconomic status, displacement, discrimination, language or culture barriers, and many other factors. Socially disadvantaged groups often live below the poverty line and don't enjoy many of the qualities of life hoped for in the US. An analysis of the factors that contribute to this, including the factors that contribute to the difficulties of refugee communities can be beneficial in determining the economic and other problems of people in the US. Community gardens can be one of an important set of resources that can help socially disadvantaged groups including refugee populations. An analysis of socially disadvantaged populations and community gardens has been beneficial to explore on a macro level and will be expounded upon in this chapter. Additionally, an analysis of a specific community garden, the Cache Refugee and Immigrant Connection's refugee garden will be analyzed to help to give specific examples about the financial benefits to refugees health and community.

Literature Review

Socially Disadvantaged Groups

A number of scenarios can culminate in a person or group being considered disadvantaged. Most disadvantaged populations are considered such because, due to race or ethnicity the members of a group have fewer opportunities than others of similar gender or age because of prejudice or other circumstances (Cornell University, 2020). Black Americans, Hispanic Americans, Native Americans, and refugees are all considered to be socially

disadvantaged groups (Institute for Social Research, 2020). It is also notable that socially disadvantaged groups are more likely to be found in rural areas, and the disadvantages they face can usually be tied to historical circumstances (Institute for Social Research, 2020). Those who belong to socially disadvantaged groups have a life expectancy 10 years shorter than that of individuals not at a disadvantage and are four times more likely to live in poverty (Institute for Social Research, 2020).

Urban minorities often find themselves in impoverished circumstances because of the effects of discriminatory housing policies, historical segregation, or racism (Coates, 2020). Because of the constantly shifting nature of cities, many urban centers that were once booming manufacturing or industrial centers have dried up and left only a few low paying service jobs. During the Great Migration between 1916 and 1970, over 6 million African American people moved from their homes in the south to cities in the elsewhere in the cOUNTRY (Smithsonian American Art Museum, 2014). This migration was largely due to the poor conditions African American people experienced in the south. To escape discriminatory laws, violence against African Americans, and to find new, higher-paying jobs, most southern states saw a drastic shift in African American populations (Smithsonian American Art Museum, 2014). During World War I there was a surge in demand for weapons and war supplies, supplied by large manufacturers in the Northeast, Midwest, and West. Previous to this surge in demand, union laws made it very difficult for African American's to find jobs in manufacturing. These higher-paying jobs were reserved for white Americans and white immigrants. But, seeing an opportunity to increase profits, many steel mills and railroads recruited African Americans to move north. African American workers could enjoy an 81% increase in their hourly wage and

were not subject to blatantly racist Jim Crow laws (Smithsonian American Art Museum, 2014). To many African Americans, things seemed to be moving in a good direction.

At the end of World War II, during an era of economic boom, a massive restructuring of cities came about with the popularizing of the suburban community (Hannah, 2000). Major highway construction became more economical and cities began spreading outward. With the suburbs came a re-concentration of jobs. Manufacturing jobs largely moved out of city centers into commercial centers. Those left in inner cities were usually either high-wage and high-skill jobs (very few) or low-wage and low-skills jobs (the majority) (Hannah, 2000). Most of the latter were in service industry jobs that paid far less than industrial and manufacturing jobs had. This was not a problem for many white citizens who wanted to migrate to suburbs and could do so to go where the jobs were (Hannah, 2000). But in a series of racist housing policies culminating in the Federal Housing Assistance Program which rated communities based on their so-called demand and insured loans for higher rated areas, but not lower ones (Coates, 2020). This became known as “redlining” and created a legal way for investors to shut minority groups out of certain areas by making it impossible for them to get a mortgage loan (Coates, 2020).

Other methods were used as well, and inner-city neighborhoods became increasingly segregated. With the exodus of the middle class to the suburbs, the majority of property tax revenues left as well, creating a perfect storm for a plethora of social and economic problems (Hannah, 2000). This is the state that many inner-city urban centers are found today. Minority populations become trapped in a system that makes it very difficult or impossible to leave, despite any level of effort exerted. The job market can be scarce, and those jobs that are available pay little. Housing is expensive enough to be prohibitive, and many people live paycheck to paycheck. Schools need services and provide little incentive for students to attend and few

prospects after graduation. The system is perpetuated and groups become disadvantaged because of a cycle that is very difficult to break.

Today, urban minority populations are more likely to have higher levels of obesity, diabetes, heart disease, cancer, strokes, and other diet-related diseases compared to non-minority populations (Alaimo, et. al., 2008). This is often contributed to the existence of food deserts, or areas where a grocery store, supermarket, or other business that sells nutritious food is either not geographically close enough to be accessible for a population, or is too costly for it to be realistic for that population to shop at. The USDA has identified over 6,500 food deserts in the US (United States Department of Agriculture, 2020). These food deserts are areas in which the general population cannot access healthy or affordable foods (Mullally, 2012). Instead, people in these areas have a diet that consists mostly of food from corner stores, liquor stores, or fast food. Because of this, people living in food deserts are likely to consume high volumes of sweetened beverages and high-fat foods and very few fruits and vegetables. In fact, in a survey of African Americans living in inner-city East Baltimore, researchers found that the food that contributed the most to people's energy was soda, with the second-highest being chicken dishes and the third-highest being cakes and pastries (Cao, 2015).

Additionally, members of socially disadvantaged groups are more likely to experience anxiety and depression. At least some of this can be ascribed to a disconnection with nature, with many urban dwellers expressing that it is very difficult to find nature where they live (Williams, 2017). In a study performed by the University of Illinois, it was found that in Chicago public housing developments, those with greenery in the form of trees and other plants had 48% fewer crimes related to property and 56% fewer violent crimes when compared with similar areas without greenery (Worrall, 2017).

Refugee Defined

Refugee populations are considered socially disadvantaged. Over the last ten years, an average of 600,000 refugees has been welcomed into the United States (Migration Policy Institute, 2020). These are people who have fled immediate physical danger to themselves and their families, or the threat of such danger, or other persecution (United Nations High Commissioner for Refugees, 2020). It is estimated that at least 79.5 million people in the world have had to leave their homes and that 80% of refugees left their homes at least partially due to food insecurity or malnutrition (UNHCR, 2020). Many refugees that fled their countries were persecuted by their government. In some countries, political and ethnic differences create a situation in which certain groups become targets of violence or persecution. In some situations, refugees are victims of wars or violence that have little to do with them (Phan, Damien, 2013). Many refugees end up in refugee camps. Often refugee camps are over-crowded. People living in them are subject to restrictions imposed by the governments where they are settled. It can be difficult to find work. Some estimates say that the chance of getting resettled outside of a refugee camp are one out of one-hundred (Multnomah County, 2017). For those that do get help resettling, they often have to work long hours or multiple jobs to pay back the debt incurred in the relocation process (Multnomah County, 2017). Most don't speak the language where they are resettled, and many have to adapt to a new way of life. Some have never had indoor plumbing or seen paved streets. Simple tasks like riding a bus to the grocery store and buying groceries can prove to be very difficult (Multnomah County, 2017). Accessing nutritious foods, finding transportation, and other important tasks can be much harder than they would be for others because of the cultural and linguistic barriers they may face. Not having a driver's license in many communities can make ordinary tasks like commuting to work, accessing resources, or

participating in a community much harder (Cache Refugee and Immigrant Connection, 2019). These same barriers make it difficult for refugees to maintain their status as refugees or to progress in their citizenship, at a cost both to them and their employers.

Community Gardens

The US has a great heritage of community gardening. One of the most notable early community garden projects was started in 1893 by Detroit Mayor Hazen Pingree (Carpenter, 2010). When a recession left many industrial laborers in Detroit unemployed, 430 acres of vacant lots were turned into potato patches and other community gardens. The idea was wildly successful and Pingree and his gardens enjoyed national recognition (Detroit News, 2017). Politicians in San Francisco and Boston followed his example and created similarly successful urban gardens that helped to feed thousands of people. (Carpenter, 2010). Since then, interest in community gardens has waxed and waned, but a resurgence of interest has often been seen in times of crisis and recession. During World Wars I and II, Victory gardens, some of which were private and others that were community-based became symbols of patriotism (Detroit News, 2017). These gardens produced food for Americans in need and allowed for an increase in self-reliance during a time when people benefitted from the nutrition supplementation as well as the morale boost (Caves, 2005). After the war, many small organizations started encouraging community gardens including many churches. In 1978, the American Community Gardening Association was established. Today, universities, cities, NGO's, and many other organizations participate (American Community Garden Association, 2020). In 2009, the Obamas planted a vegetable garden at the White House with over 55 different varieties of fruits, vegetables, and flowering plants (Black, 2009). The produce grown there was used in meals at the White House and donated to local food banks and soup kitchens (NBC4 Washington, 2009).

There are over 29,000 garden plots in city parks in the largest 100 US cities alone (The Trust for Public Land, 2017). Although having a garden plot in a city seems like a very small thing, the benefits to communities are so numerous they are difficult to measure. According to the Trust for Public Land “These healthy, shared spaces offer simple solutions to a host of complex problems facing our cities. They’re a source of low-cost, healthy food in neighborhoods where grocery stores are too few and far between. Studies show that time spent weeding and watering not only keeps plants happy, but pays dividends for our mental and physical health, too.”

Health Benefits of Community Gardens

For those who participate in community gardens, most of the reasons people have for not eating fresh fruits and vegetables disappear. For example, in a study in Flint, Michigan, people who worked at a community garden ate fruit 1.4 more times per day compared with people in a similar demographic who did not work at a community garden, and were 3.5 times more likely to eat fruits and vegetables the recommended five times a day (Alaimo, 2008). When participating in a community garden, any difficulties related to the cost of foods, as well as the challenges of access to businesses that sell healthy foods, and any cultural or linguistic barriers to obtaining food go away. Community gardening makes it possible to access nutritious foods cheaply and easily (Disdall, 2006). Additionally, the hands-on experience gardens provide to those who participate in them can help solidify what they might hear about nutrition in their daily lives. In a study of fourth-grade students who took a nutrition education class compared to students who took the same class but also worked in a garden, those who worked in the garden had significantly higher scores when tested on their knowledge about nutrition than those who did

not participate in the garden. They were also much more likely to show preferences for foods like broccoli, carrots, peas, and zucchini (Morris, and Zidenberg-Cherr, 2002).

The Utah Department of Health estimates that there are 25,000-50,000 refugees, speaking more than 40 languages, living in Utah. In fact, approximately 1,100 refugees move to Utah each year. As many refugees suffer from PTSD and depression upon arrival in the U.S., CRIC and similar refugee serving agencies seek to help them find stability and thrive in a safe and healthy environment after resettlement in the U.S. Part of that stability rests on economic opportunity and food security. Knowing that a significant proportion of refugees and immigrants come to the U.S. with backgrounds in agriculture, incubator farms provides a way for them to re-connect with the land, grow culturally appropriate vegetables, and leverage their farming skills to earn income. Research shows that helping new arrivals find employment commensurate with their skills and experience, can have positive effects on other indicators of integration, such as personal well-being and social cohesion.

Economic Benefits of Community Gardens

There is ample documentation that the presence of a community garden increases property values of homes around the garden. A study done in Milwaukee found an increase in value in properties within 250 feet of a community garden of an average of \$6,192.50 and that because of this increase in value, \$9,000 a year was added to city tax revenue (Bremer, 2013). In New York, it is estimated that over a ten-year period, city tax revenue due to community gardens alone was \$563 million (Been, and Voicu, 2006). From a cost viewpoint, community gardens are easier to establish and maintain than parkland area. They typically require less space and attract volunteer maintenance workers (gardeners who want to pick weeds to benefit their plants). It is estimated that 80% of the costs of upkeep of green spaces goes to labor but with community

gardens, little paid upkeep is required, and when it is, community gardens provide opportunities for employment of a variety of people like students and recent migrants (Community Food Security Coalition, 2003).

The economic benefits of establishing a community are also important. Community gardens are maintained by the community and often have residents of a community present. They are often cleaner and have more community activity and less crime and litter than a park or vacant lot (Schmelzkopf, 1995). Additionally, those who participate in community gardening save money they would otherwise spend on food elsewhere. It is estimated that those who had a plot at a community garden in Milwaukee saved between \$75 and \$380 a season on food and that \$8.9 million worth of food was grown in Milwaukee between 1978 and 1989 by community gardeners (Hlubik, 1994). The economic benefits can also extend to preventative care. In a study in 2006, researchers noted “A ten percent increase in nearby greenspace was found to decrease a person’s health complaints in an amount equivalent to a five year reduction in that person’s age” (Sherer, 2006 pg. 15).

Cache Refugee and Immigrant Connection

The Cache Refugee and Immigrant Connection gained 501c3 status in 2015 after existing as a grassroots organization of people willing to help since 2008. From 2008 to 2011, a rising number of Burmese refugees relocated to Cache Valley Utah. Originally resettled in Salt Lake City, these people were recruited by JBS, a large-scale feedlot and meat packaging plant, and moved to Cache Valley for the work and small-town feel. During this time, the Utah Department of Workforce Services assigned a temporary caseworker to Northern Utah to help refugees with services like driver’s training classes and permanent residency application help. Funding for this position ended in 2013 and community members stepped in, forming a coalition to aid refugees

in Cache Valley. These volunteers donated money, taught classes, transported materials, and provided other resources. Help was offered to refugee populations possible—sometimes in a community church, other times at the library. New community members received help with daily tasks that were more difficult for them due to language and cultural barriers. In 2014 the coalition incorporated and in 2015 became a non-profit. All the while, people from Somalia, Sudan, Ethiopia, Eritrea, and Burma continued to move to Cache Valley.

Since then CRIC has seen steady growth, starting with the opening of the refugee garden in 2016, the hiring of their first part-time staff who helped developed driver's licenses study groups and citizenship courses. In 2018, CRIC began renting its own dedicated office space, hired a second part-time staff, and expanded its community programs. In 2020, with the help of Utah State University's Huntsman School of Business, CRIC began offering financial literacy classes. They have also helped immensely during the COVID-19 pandemic helping refugees with needed services. (Lucero, 2020). In 2019, it is estimated that CRIC served over 270 refugee families from at least 34 countries, that a total of 1,356 hours of work were donated by volunteers. Because of volunteer help, 26 refugees were able to submit citizenship applications, and 35 applied for or renewed green cards. The majority of these refugees work for JBS in Hyrum and represent a massive part of their workforce.

In 2016 I became involved with the garden, serving on its board and helping to find plant starts and organize volunteers. The land on which the garden resides was leased to CRIC by the owner at no cost. The land has since changed owners, but the lease is still honored and the current owners participate in the garden daily and are an important part of the community. Towards the end of 2019, I moved back to Logan with my family after teaching in Salt Lake City for a year. I became reacquainted with the garden on evening walks through it. Crista Sorenson

was managing the garden with funding from grant money from Utah State University. In partnership with USU, the garden had been expanded and had received assistance through USDANRCS to install a rudimentary irrigation system.

During the Spring of 2020, I was presented the opportunity to work with Crista to help develop a gardener presence at the Cache Valley Gardener's Market. As I was preparing for this position I received news that Crista had passed away and was offered the position as the garden manager. This situation posed a very unique opportunity and with it a very unique set of challenges. The gardeners from previous years were organized as quickly as possible and an orientation day where plots were claimed in an organized manner ensued. This summer, 20 plots roughly 12' x 20' were issued each to a different family. The plots so far have been home to over 25 different varieties of vegetables and herbs, some of which are difficult to find in the US. The gardeners were responsible for planting their crops and digging irrigation trenches from their plots' main water port. Some of these trenches have become intricate networks of waterways laid to distribute water according to a number of different plants' needs. The gardeners have also been responsible for removing weeds in their plots. Many built structures out of found materials to trellis vining plants. They grew their squash and melons over these structures to maximize space and for easy harvest. It is estimated that each plot will on average produce 50-100 lbs. of food for each family throughout the summer. One gardener commented "We have a garden here. We're happy when we see our friends together. We meet our friends together and feel happy. We are happy when we see our friends on the weekend together and we have fresh and organic vegetables and we don't have to buy our vegetables in the store. When our vegetables come, we can share with our friends. If a friend has a different kind of vegetable than me, we share. We

can understand each other and love each other. CRIC helps the garden like this. I would like to thank CRIC so much for offering the garden like this.”

CHAPTER II

ECONOMIC AND HEALTH BENEFITS ANALYZED

In this section, an in-depth analysis of the actual monetary worth of the CRIC Refugee Garden will be estimated based on a number of factors.

Estimated Savings in Terms of Produce

In 2018 Cache Valley, located near Utah's northern border shared with Idaho, had a population of 126,400. Logan, Utah, Cache Valley's largest city had a population of 51,619 and made up 41% of Cache Valley's population (United States Census Bureau, 2019). The majority of refugees living in Cache Valley live in Logan or one of its closest neighboring cities. The median household income in Logan was \$68,374 in 2019 (United States Census Bureau), or \$5697.82 per month. The average rent according to the same census was \$988. For many people living below the poverty line, and especially for refugees and other socially disadvantaged groups, household income and expenses can pose a real threat to everyday well-being. The challenge of seeking new higher-paying sources of revenue can be daunting or impossible. Saving money for the future is not an option. Many households have multiple family members working outside of the home by necessity. Families and communities have to band together to help with childcare and to accomplish daily tasks like cooking and cleaning.

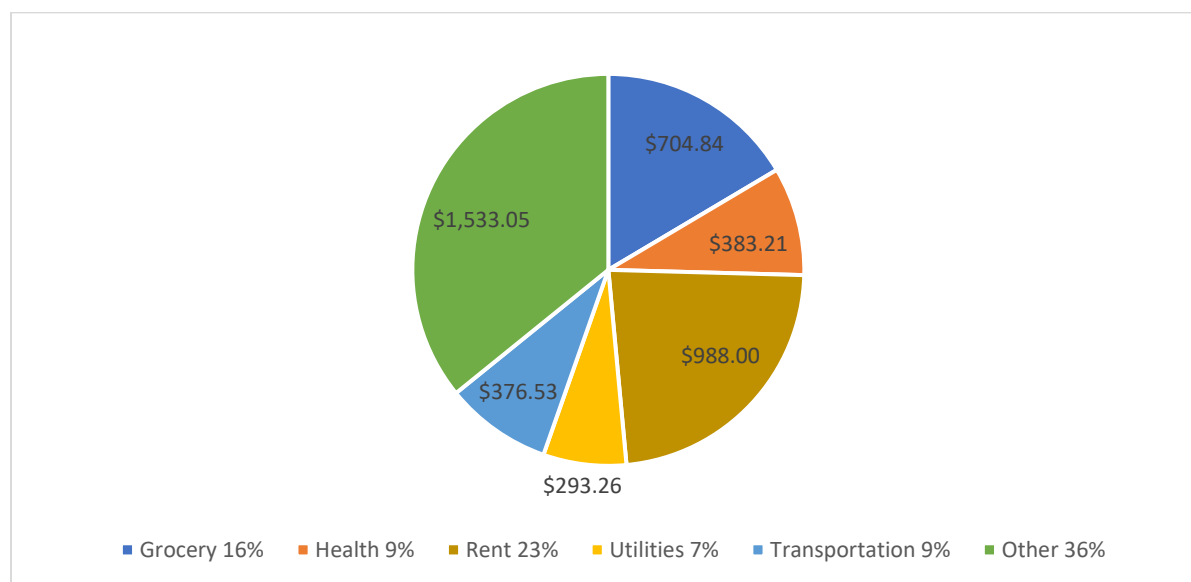
Table 1: Estimated Monthly Cost of Living, Logan, UT

Groceries	\$704.84
Healthcare	\$282.21
Median Rent	\$988.00
Utilities	\$292.26
Transportation	\$376.53
Other (Misc. purchases)	\$1,533.05
Total	\$4,176.89

(Statista, 2020), (United States Census Bureau, 2019).

Although these numbers will vary from family to family it is useful to assess the costs a refugee family in Logan should be able to anticipate. Rent is the highest cost in Logan, followed by groceries, an important consideration when looking at community gardens and sustainability.

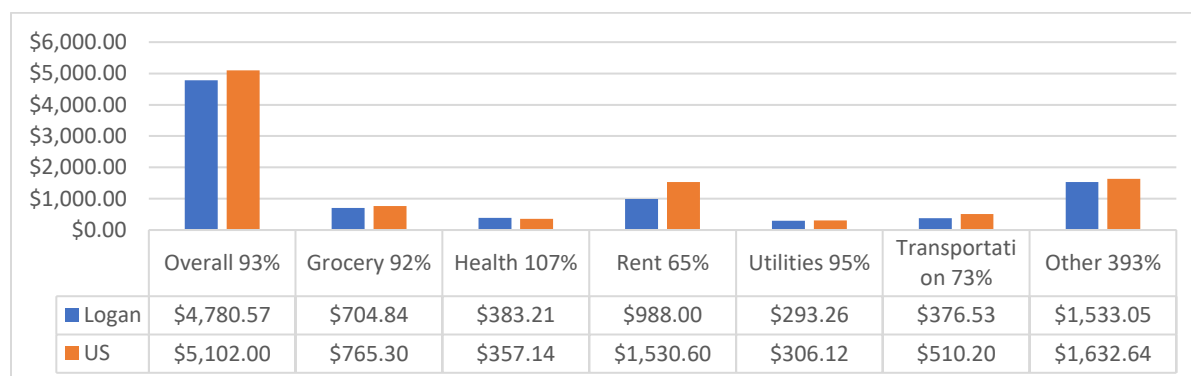
Figure 1: Month Cost of Living Breakdown, Logan, UT, 2019



(Statista, 2020),(United States Census Bureau, 2019).

The cost of living in Logan, UT is less than the national average, but is very comparable. This is helpful in comparing the value of a community garden in Logan with those in other parts of the country.

Figure 2: Cost of Living in Logan, UT, 2019



(Statista, 2020),(United States Census Bureau, 2019).

For those who have a plot at the community garden in situations like those mentioned above, reducing food expenditures by growing healthy produce can have a sizeable impact. Estimates vary, but, likely, people growing food on a plot similar to one at the CRIC garden should be able to save between \$70 and \$380 per season (Hlubik, et. al., 1994). Although that is not a huge number and isn't likely to drastically change a person's socioeconomic status, it can provide a massive benefit, especially when viewed for what it enables gardeners to do. Growing produce leads to feelings of fulfillment, self-reliance, and stability as well as cutting down the grocery bill. If the average value between \$70 and \$380 per season (or year) is applied to the 20 families with plots at the CRIC garden, a conglomerate value of \$4,550 of produce can be assumed.

Figure 3: Comparison of the Cost of Food with and without Garden Supplementation

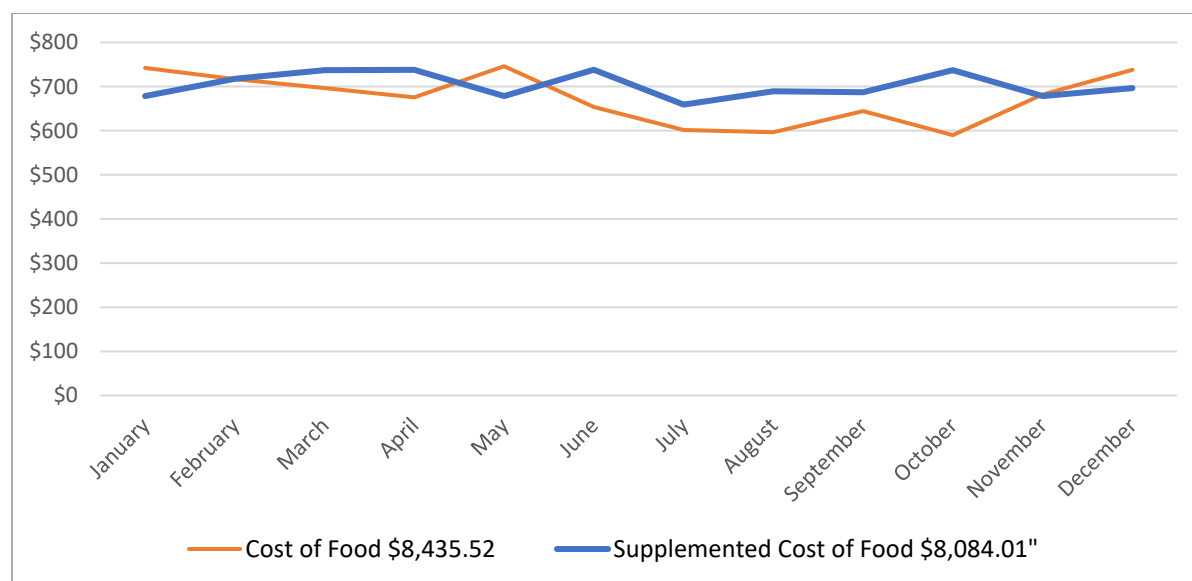


Figure 3 shows the small but important dip in the cost of food contributed by growing food in a community garden. Figure 3 shows simulated monthly grocery costs across one year based on average amounts in Logan, UT. Two simulated totals for the year are listed as

\$8,435.52 without produce supplementation, and \$8,084.01 with produce supplementation, or a difference of \$351.51. Although this amount is small, it is significant to people living at or below the poverty line who could divert these funds towards other necessities.

When asked about how much they thought they saved on produce per year, refugees working at the CRIC community garden estimated an average of \$450 per season with some guessing as much as \$600. They also estimated that each plot fed on average ten individuals.

As one of the CRIC gardeners said best “We save money because we don't need to spend it in the store. When we grow the vegetables here, we can go anytime to the garden and can get fresh food with our families. When we go to the store, after three or four days, the vegetables are not fresh. If we go buy foods in the stores, like cucumbers or cabbage, it's around two or three dollars per pound. Because I have so many children, we have to buy so much. When we grow here in the farm, we can go any time to pick up. We don't have to spend too much.”

Estimated Savings in Terms of Nutrition

The US spends more than any country per person on healthcare (Brink, 2017) and less on food per capita than 14 other major countries (Knoema, 2019). Although there is not a definite connection, it has been speculated that the correlation is significant. It is hard to estimate exactly how much money an individual or family may save on healthcare in a given year, or even during the span of a lifetime based on dietary changes. To estimate the value of a community garden on nutrition, a preventative approach has been taken. Instead of assuming how much a person could save on medical bills, which would be difficult to model and simulate, data concerning best health practices that have been shown to optimize the health of an individual will be used. Scholars at the Harvard T.H. Chan School of Public Health used meta-analysis to determine that eating a healthy diet, or one that is rich in fruits, vegetables, and nuts, added about \$1.50 more in

costs per person per day for the buyer (Dwyer, 2013). For the sake of this paper, we will assume that eating a diet like this one should in many cases help people to avoid some major diseases. In reality, many other factors come into play like activity level, lifestyle, and other factors like smoking. If we assume that those participating at the CRIC garden consume the suggested amounts of fruits, vegetables, and nuts, but at no additional costs, we can justify \$1.50 per person involved per day of savings, at least for the months of May through October. If we apply this value to the five months from May through September and establish that of the 20 families that have plots, an average of 3 family members participate or benefit from the plot, or eat the recommended amounts of fruits and vegetables at the established value of \$1.50 per person per day without actually incurring this cost, this value is equal to \$13,500.

Estimated Benefit to Mental Wellbeing

As discussed earlier, the benefits of community gardens to their surrounding communities are plentiful. In this analysis, three specific attributes will be looked at: mental wellbeing, property values, and costs of green spaces.

In 2013, \$187.8 billion was spent on health-care treatment for mental health and substance abuse disorders (Winerman, 2017). That equals an average of \$594.12 per person in the US that year. Although participating in a garden cannot guarantee that a person will not need other medical interventions for anxiety, depression, or substance abuse, there is plentiful data that shows that participating in a garden can help people to combat these mental illnesses (Williams, 2017). If we apply the above-mentioned individual cost per person of \$594.12 of medical healthcare costs of mental illness to the number to the number of families with an average of three members participating in the garden, or 60 individuals, a value of \$49,906.08 is calculated. It is not probable that these expenses would be incurred in full if it were not for the

existence of the garden, and it is very difficult to purport that the garden is as efficient in treating anxiety and depression as clinical interventions, but as a preventative measure, it can be asserted that it's worth is justified as such, especially when the costs incurred from crime or other community-based ills are factored in.

Estimated Benefit to Property Values

Property values in Logan have been on a steady incline over the past five years. Rising property values can be attributed to a number of things, but neighborhood to neighborhood changes are often influenced by gentrification. The presence of a new park or restaurant can have positive implications for homeowners. Many people agree that the CRIC garden is a positive addition to the neighborhood. If we assume that the value of the 28 homes on the block surrounding the community garden was to increase \$2.40 per square foot per year because of the presence of the garden (Bremer, 2013) and that the average house on the block is 1,200 square feet, the garden would offer a cost-benefit of \$2,880 per year.

Estimated Value of Green Space

As mentioned, city parks pose a cost to the cities that maintain them. Parks need to be maintained on a regular schedule and must meet certain requirements. Parks are rarely maintained solely by the members of the communities that surround them. In many cities in the US, the costs of maintaining city parks are determined by population. An average cost per person is about \$64 (Briggs, 2013). If this number is applied to the number of homes on the block (28) with an average household size of 3, the added benefit would be worth \$5,376 per year.

Total Estimated Value

Given the sums set forth and the values represented in the table, it can be stated that the CRIC garden has a worth of at least \$139,713.20 benefit in the first year. A price breakdown of benefits to the users of the garden and to the surrounding community is given, broken down into subsections depending on if the value is accrued yearly or one time.

Table 2: Yearly Value of CRIC Garden (User)

	Value per	Sum
Average food savings per season	\$227.50 x 20 households	\$4,550.00
Average savings in healthcare	\$225.00 x 60 individuals	\$13,500.00
Average savings mental wellbeing	\$594.12 x 60 individuals	\$35,647.20
	Total	\$53,697

Table 3: Yearly Value of CRIC Garden (Community)

	Value per	Sum
Lowered costs for green space	\$64.00 x 84 residents on block	\$5,376.00
	Total	\$5,376.00

Table 4: Initial Value of CRIC Garden (Community)

	Value per	Sum
Estimated property value increase	\$2,880.00 x 28 properties on block	\$80,640.00
	Total	\$80,640.00

CHAPTER III

DISCUSSION

Past Funding

The purpose of this section is to explain the the value of the CRIC garden in terms of the willingness of outside entities to fund it. In the past, CRIC and the CRIC garden have operated on very small budgets. During 2015 the first year of existing as a 501c3, CRIC's budget was \$2,179 (Lucero, 2020). That has since increased to 50,000% in 2019, mostly made possible by partnerships with Logan City and Utah State University and because of donations from community members. Donors often see the garden for what it is and what it could be. This summer, as the manager of the garden, a meeting was held with a sales rep from a private company who expressed interest in approaching his company about procuring \$50,000 in grant money meant to expand garden operations and infrastructure and give back to the community if a ten-year lease on the land could be secured. The opportunity is still being developed.

JBS

JBS S.A. is a meat processing company that has factories throughout North and South America. By sales, it is the largest meat processing company in the world (JBS, 2020). JBS started in Brazil by a rancher named Jose Batista Sobrinho in 1953. The company grew quickly through the sales of cattle and eventually established its own slaughterhouses. Through the 1980's JBS purchased other meatpacking companies in Brazil, and in 2007 purchased Swift & Company, and US-based beef and pork processor (Blankfeld, 2011). The JBS plant in Logan, Utah belonged to the Swift company at the time of acquisition. The Hyrum plant currently employs more than 1,000 people and receives more than \$800 million in livestock payments per year (JBS, 2020).

The coronavirus pandemic has had a large impact on JBS employees. In one plant in Brooks, Alberta, 600 workers received confirmations of positive tests, or 7% of the total population of the city (Rieger, 2020). The Hyrum, Utah plant also had a large number of cases, although it isn't clear how many (Webb, 2020). Many of the refugees in Cache Valley work at JBS in Hyrum. Enough of them were impacted by the virus that relief efforts were organized by CRIC, and using donated money, grocery orders were put together and delivered to those who had the virus throughout the month of June.

The work that refugees do at JBS can be difficult. They often spend most of the day killing animals or butchering carcasses. It is difficult, strenuous, and mentally and emotionally taxing. It requires little skill and doesn't require very much of an understanding of English. The average pay for a production worker at JBS in Hyrum is \$15.35 per hour (Indeed, 2020).

There is an established line of recruitment aimed at refugees arriving in Salt Lake City, Utah and JBS in Hyrum. Many immigrants are able to leave refugee camps because of the promise of a job at JBS in Hyrum (Lucero, 2020). Once a refugee is employed at JBS, they still must comply with US immigration policy and apply for a green card within one year of immigrating, and then are eligible to begin the process of applying for citizenship. If they do not receive a green card they must leave the US after one year. A great value to JBS, many refugees in Logan receive the help they need applying for a green card and long-term residency from volunteers at CRIC. Many can commute to and from work because of the connections made at CRIC or by taking driver's training courses taught by volunteers and receiving their driver's licenses.

During the summer of 2020, the general manager of the Hyrum JBS sought out connections at CRIC concerning possible grant funding for the CRIC garden. In response, a

proposal was put together by Jess Lucero, the president of the CRIC board of trustees. The amount of money JBS is looking at putting into the garden to purchase the land and pay for the garden is a good justification of the value of the garden.

CHAPTER IV

CONCLUSIONS

Based on a number of cost-saving factors and a tremendous amount of research, it is clear that community gardens can present incredible opportunities for socially disadvantaged groups. The actual value of a community garden is too multifaceted and organic to pinpoint; that is, each person participating in the garden has their unique challenges and is affected by the garden in a very unique way—nevertheless a monetary value has been attempted to be established. This value is far below what some investors may be willing to put into the garden and is therefore further justified as a net benefit to society. As the garden grows and new opportunities to help gardeners grow their entrepreneurial skills emerge, further analysis of the value of the garden should be undertaken. It would also be beneficial for the sake of research, future education, and policymaking to look at community gardens through the lens of a public health professional, especially those that specialize in nutrition and mental health and wellbeing.

Other research concerning the effects of a community garden on populations like high school students or expectant mothers could be very beneficial. A look at trauma, which is very common among refugee populations and treatment methods like farm therapy could also aid in building public discourse about community gardens. Finally, those who read this paper or others like it will be benefitted in ways they may not expect by seeking out a community garden to volunteer at or to grow their own crops in. As was stated by a woman working in a community garden in West Philadelphia, “[You] don’t get to see things grow going to McDonald’s”. The effects of community gardening are far-reaching and ever-increasing.

In summary, the CRIC garden is a good case study used to determine the value of community gardens as places of refuge for socially disadvantaged groups. The CRIC garden has

added economic and health benefits for those involved and those affected by its proximity.

Community gardens can be effective tools in supplementing the diets of those involved with nutritious foods for little or no monetary cost to the gardener. The benefits of community gardens include lower grocery costs, and higher consumption of healthy foods, and contribute to the mental wellbeing of those involved and the value of the land used. Community gardens link us to our agrarian roots and help people to connect to deeper roots that encourage our survival in healthy and uplifting ways. They can be a vehicle for change and added goodness in a community and in the lives of those involved.

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