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The Role of Local Food in Increasing Access to Healthy Food in Indianapolis, Indiana

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THE ROLE OF LOCAL FOOD IN INCREASING ACCESS TO HEALTHY FOODS IN INDIANAPOLIS, INDIANA

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PIM 70

A Capstone Paper submitted in partial fulfillment of the requirements for a Master of Sustainable
Development at SIT Graduate Institute in Brattleboro, Vermont, USA.

November 2012

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Table of Contents

Abstract	1
A. Introduction	2
My Interest in Food Access	2
Health & Food	3
The Health Risks of the Food System in America.....	5
Local Food as an Alternative	7
Access Disparity	8
Local Context.....	9
Research Questions.....	12
B. Literature Review	12
Food Access	12
Famine, Poverty, and Food	16
Local Food Nutrition.....	18
C. Methodology	20
Research Limitations.....	23
D. Findings	23
Basic Economic Model	24
Main Clients	24
Opportunities for Increasing Growth of Local Foods	24
Barriers to Growth of Local Food	26
The Role of Local Foods in Increasing Access to Healthy Foods	28
E. Discussion	30
F. Conclusions	35
Recommendations	36
G. References	38
H. Appendices	41
Appendix A: Interview Questions	41

ABSTRACT

In the United States today, incidents of obesity are on the rise, currently more than one-third, or 35.7% of U.S. adults are considered obese, up from 30.5% in 2000. These startling numbers are causing news institutions and politicians to refer to it as the “obesity epidemic”.

Obesity is linked to multiple health problems including Type 2 diabetes, coronary heart disease, hypertension, and breast cancer (Aronne, L.J., 2002). There are numerous causes of obesity, including genetics, yet high rates of obesity have also been positively linked with a diet high in processed foods and low in fruits and vegetables (Drewnowski, A. & Specter, S.E. 2004). A diet lacking in fresh fruits and vegetables and high in processed foods can lead to obesity which can have numerous impacts on health. There is another layer, however, where the obesity epidemic follows a socioeconomic gradient. At the intersection of poverty, obesity, and health-related problems, many people have looked toward local, and in particular, urban agriculture as a way to increase access to healthy foods and grow the local economy.

Using Amartya Sen’s theory of poverty and starvation as a conceptual framework, this study uses qualitative analysis to explore the question: What role can locally grown food play in increasing access to healthy food in Indianapolis, Indiana? This study concludes that the supply of locally grown food in Indianapolis is too low to push producers towards expanding their markets, making it unlikely that there will be a market-based solution towards making healthy food more accessible for low-income families in the near future.

A. Introduction

My Interest in Food Access

My whole life I've been involved in food in one way or another. As a child my parents had owned the only vegetarian restaurant in the state of Indiana. They ran their restaurant with a philosophy that is certainly fashionable now but at the time was something of a lark for our conservative city. First, they believed in using the highest quality, locally grown foods in season whenever possible. They also believed strongly in supporting the farmer who sold them the food. This meant spending more on vegetables than they could afford and setting up a market at the restaurant on weekends where the farmers could sell directly to customers. Secondly, my parents saw community and food as being in a symbiotic relationship: that community is created around food and that food should be created around community.

When I left for college, I became engrossed in the politics of food, learning about the environmental and health impacts of the industrial food complex in the United States and the world. I adopted a vegan diet and volunteered at an organic farm.

After college, I did not or could not escape food. From working in restaurants on the side and serving on the steering committee of the local farmers' markets to harvesting food from an urban farm for a CSA, food became a motif in my life. Yet increasingly, I was disturbed by the demographics involved or accessing local food. In my experience, it was middle to upper class white people accessing the local food. Working in the urban farm, people from the surrounding neighborhoods were constantly stopping and asking what was happening, how they could get the food, yet when they were told the cost of the CSA, they laughed and walked away. The food was physically accessible but completely economically inaccessible. I brought this to my farmer friend who owned the farm, but he felt his hands were tied. If he didn't charge the prices he did,

he couldn't afford to be a farmer.

I left the farm and Indiana without resolving these feelings of injustice. Knowing, as I do, the importance of local, organic food for the health of both the environment and humans, it seemed unspeakably wrong that it is only made available for those who can afford to pay a premium.

When the time came for me to choose a practicum that would fulfill my interests, goals, and academic requirements, I was drawn back to food, wanting to answer the questions “How can healthful, local, organic food be distributed in a way that is both economically viable for farmers and economically accessible for consumers?” This led me to an internship with the Wishard Health Services (WHS), the public healthcare system in my hometown of Indianapolis, Indiana.

Health & Food

As Indianapolis' public hospital, Wishard Health Services is uniquely placed for working to improve access to healthy, wholesome food for all residents. It is a safety net health system, defined by the U.S. Department of Health and Human Services' Health Resources and Services Division as “providers that by mandate or mission organize and deliver a significant level of health care and other health-related services to the uninsured, Medicaid, and other vulnerable patients.” (U.S. Department of Health and Human Services, 2012) Safety net health systems must also “by legal mandate or explicitly adopted mission, maintain an “open door,” offering services to patients regardless of their ability to pay; and a substantial share of their patient mix is uninsured, covered by Medicaid, or are otherwise vulnerable patients” (U.S. Department of Health and Human Services, 2012). Thus, because they are frequently not receiving payment

from their patients, but covering patients' health care costs from their own funding, they have an incentive to concentrate on prevention efforts.

According to Dr. Lisa Harris, CEO and Medical Director of WHS, this includes working to improve access to healthy food in Indianapolis (Harris, 2012). In the United States today, incidents of obesity are on the rise (Mokdad AH, 2003); currently more than one-third, or 35.7% of U.S. adults are considered obese, up from 30.5% in 2000 (Centers for Disease Control and Prevention, 2012). These startling numbers are causing news institutions and politicians to refer to it as the "obesity epidemic".

Obesity is linked to multiple health problems including Type 2 diabetes, coronary heart disease, hypertension, and breast cancer (Aronne, L.J., 2002). There are numerous causes of obesity, including genetics, yet high rates of obesity have also been positively linked with a diet high in processed foods and low in fruits and vegetables (Drewnowski, A. & Specter, S.E. 2004). Processed foods consist of refined grains, added sugars, added fats, and increasingly, corn. Sugars and fats are extremely calorically dense and excessive consumption of these can lead to obesity. In summary, a diet lacking in fresh fruits and vegetables and high in processed foods can lead to obesity which can have numerous impacts on health. There is another layer, however. Adam Drewnowski, of the Center for Public Health Nutrition at the School of Public Health and Community Medicine, University of Washington, Seattle, Washington, puts it succinctly by saying:

"Obesity and type 2 diabetes follow a socioeconomic gradient. Highest rates are observed among groups with the lowest levels of education and income and in the most deprived areas. Inequitable access to healthy foods is one mechanism by which socioeconomic factors influence the diet and health of a population. As incomes drop, energy-dense foods that are nutrient poor become the best way to provide daily calories at an affordable cost. By contrast, nutrient-rich foods and high-quality diets not only cost more but are consumed by more affluent groups." (Drewnowski, p.S36)

These intersections of poverty, obesity, and health-related problems create the requirement that a public safety net hospital such as Wishard Health Services establish prevention programs to mitigate the risks. WHS has realized the necessity to improve access to healthful food and had begun working on supporting the local food and farm movement as a step towards increasing access. In 2008, WHS set up a farmers' market in the hospital courtyard. There they invited local farmers to sell fruits and vegetables to staff and patients of the hospital.

In 2011, WHS began supporting the Slow Food Garden at White River State Park in downtown Indianapolis. The intention of the garden is to “capture the attention of passers-by, to invite them to observe and thus think about where food comes from and how it is grown, and to offer additional information about the Slow Food Movement and Indianapolis' own local food movement” (Henderson, 2012).

In the same year, they began a pilot program through their HealthyMe (formerly Take Charge Lite) program. The HealthyMe program is a wellness program that helps WHS patients with diet-related health issues make healthier lifestyle choices. In an effort to provide a holistic look at wellness and to help people with healthier lifestyles, the HealthyMe program partnered with Big City Farms, a local urban farm, to pilot a 21-week Community Supported Agriculture (CSA) project at one of their Community Health Centers. This program provided participants with a weekly variety of fresh, locally grown, seasonal vegetables, along with recipes and tips from the dietitians for selecting, storing, and preparing them.

Health Risks of the Food System in America

All of these programs are focused on supporting the growing and consumption of not only healthy but, especially, local food. This is in an effort to acknowledge and offset the

fundamental flaws that result in the inequities of the current food system, as well as an effort to boost local economic growth. In the United States' industrialized food system, food is seen as just another commodity in the economic system, to be produced and sold for profit. This has resulted in a system that focuses on producing great quantities of foods at the expense of quality. In this instance, quality is not in reference to merely the actual taste of the food (although that is a factor as well) but to the safety of the food. The push towards efficiency—efficiency defined as maximum output per unit of effort or input-- in food production has led to the industrialization of food. In an effort to mitigate the risks inherent in the growing of food, corporations have developed a myriad of pesticides, herbicides, and genetic modifications to add to plants to supposedly make them less susceptible to drought, pests, frost, weeds, and other natural occurrences. There are numerous studies that question the impact that the application of chemicals and genetic alterations to food can have on human health.

The various types of pesticides and the risks associated with the particular chemicals are too numerous to enumerate here, but there has been extensive research done that shows associations between the pesticides used heavily in industrial agriculture and elevated cancer risks for workers and consumers, as well as links to endocrine disruption and reproductive dysfunction (Horrigan, Lawrence, & Walker, 2002).

Genetically Modified Organisms (GMO) are seeds engineered with built-in immunity to herbicides, viruses, insects, and disease. Theoretically, GMOs reduce production costs of food due to reduced chemical and mechanical needs in planting, maintenance and harvest while potentially increasing crop yields. In the United States, in 2000, more than half of processed foods contained genetically engineered soy, corn, canola, cotton, or potato products, and those rates have likely increased since then (Uzogara, 2000). There are many concerns regarding

potential health risks associated with the consumption of GMOs. The most widely discussed risk is that of allergic reactions. When modifying seeds, scientists incorporate protein from other foods which consumers may be allergic to and be unaware of the existence of the protein in the modified food, potentially leading to catastrophic reactions (Dresbach et al., 2001).

There is also concern regarding gene transfer. Genes can be transferred from the GM foods to the cells of the body or to bacteria in the gastrointestinal tract that could cause harm to the human body. If GMOs use antibiotic resistant genes and they are transferred to the human body, there could be a significant increase in risk to individual and public health. In addition, there is a possibility of GMO plants that are not approved for human consumption cross-pollinating with plants that are intended for human consumption, thereby contaminating the food source (World Health Organization, 2011).

One of the greatest concerns regarding these issues is that the Food & Drug Administration (FDA) does not require clinical trials of the genetically modified plants, consequently leaving consumers vulnerable to health risks (Dresbach et al., 2001). By supporting the growth of farms that produce using organic practices, WHS is seeking to avoid some of these health concerns associated with the industrialization of food production.

Local Food as an Alternative

The desire to support local economic growth through supporting local foods is a common argument made by proponents of small, local farms. Keeping food production and consumption local prevents leakages from the economy; or, as Michael Shuman, community-based economic-development researcher, advocate and author of *Going Local: Creating Self-Reliant Communities in the Global Age* explains in a community assessment of Cleveland, OH “every

loaf of bread unnecessarily imported means the leakage of bread dollars outside the local economy and the loss of local bread business that could contribute to regional prosperity”(Shuman, Masi, & Schaller, 2010, p. 3). It goes beyond a simple loaf of bread, however, through what is called the multiplier effect. Numerous studies have shown that for every one dollar that is spent at a local business, it returns to the same economy four times over, quadrupling the impact on the economy (Cunningham & Houston, 2002). With this in mind, keeping food production and consumption within a locale has the potential to strengthen the economy tremendously, which could lead to job creation and increased investment (Cunningham & Houston, 2002). The links between poverty, food access and health made above by Adam Drewnowski (2001) poses the argument that to truly get to the roots of the problem with health and food access, you must address poverty in the long-term, not simply the issue of food access, although that is necessary in the meantime. Thus, an investment in developing the local food system by WHS is also an investment in community food security and health in the future.

Access Disparity

Locally-sourced food provides many sources for consumers to choose high quality food while helping the local economy and increasing social capital. Yet this is not a choice that all Americans are able to make; some are facing the choice not of buying local/organic versus conventional foods, but of buying processed food versus fresh produce. The latter choice is one based on budget rather than preferences, and is basically an issue of struggling to meet basic needs within a given budget constraint. As Sarah Glazer (2007), puts it in her article on the Slow Food movement, “A dollar buys more calories in the processed foods aisles than in the produce section.” (p. 82). This set of choices goes beyond what is traditionally thought of as a food gap, which is the gap “between the food needed by low-income individuals and the food

that is provided by existing systems” (The Second Harvest Food Bank, 2006). This disparity in choices is described in *Closing the Food Gap: Resetting the Table in the Land of Plenty*, Michael Winne (2008) as

“a certain relativistic quality that has wormed its way into our food system over the past ten years. Just as lower-income groups make some small gains in closing the food gap by, say, having access to new food stores in city neighborhoods or benefiting from a marginal improvement in the Food Stamp Program, higher income groups leap ahead with an increase in their purchase of organic and locally produced food. In other words, as trends in consumption associated with lifestyle and health expand one class's universe of choice and perceived health benefits, a lower, less privileged class barely catches up to where the other class was in the last decade. “ (p. xvii)

The disparity in food access is visible throughout the United States. As more and more farmers' markets, Community Supported Agriculture (CSA) shares, community gardens, and backyard gardens spring up, many have begun to see a disparity in access for different classes.

Local Context

It was in this national context that I returned to my home town of Indianapolis, Indiana to see how healthy food access for all could be leveraged by such a large health care institution like WHS. Indianapolis is the largest city and capital of Indiana, and sits in the middle of the industrial agricultural system, Indiana being the 10th largest farm state in the nation and the fifth-largest producer of corn and hogs (Meter, 2012). In his 2012 report “Hoosier Farmer?” Ken Meter describes Indiana’s agricultural history by saying:

“Indiana has a history of turning its attention to distant commodity markets, rather than feeding itself. This is a legacy of the pioneer days, when farmers came to the Midwest in debt to outside lenders, and had to plant cash crops in order to pay off loans. Shipping food commodities to distant urban markets offered the best choice for many farmers” (p. 5)

And so the state lives with that legacy today. More than 50% of the land in Indiana is devoted to agriculture (Meter, 2012) and the state is home to some of the leaders in agricultural research and promotion such as Purdue University, Dow AgroSciences, and the Future Farmers of America. Between 1980 and 2009, Indiana farmers sold \$7.8 billion of food commodities per year on average (Bureau of Economic Analysis, 2012). Food commodities are crops that are not intended to be bought and consumed directly by consumers, but intended to be traded on an exchange market. These crops are most often used as inputs in the production of other goods and services such as feeding cattle or pigs, processed for use in packaged foods, or in fuels such as ethanol. Despite the heavy emphasis on farming as an integral part of Indiana's past and present, the legacy of growing for commodity markets is not benefitting Hoosier farmers. According to Ken Meter's report, Indiana farms had a net income of just \$3,000 per farm between 1980 and 2009, 44% of farms and ranches reported a net loss in 2007 and they earned \$1.1 billion less in commodity food sales in 2009 than in 1969 – despite doubling productivity (Meter, 2012). Indiana farmers are continuing the history of growing for commodity markets that are less profitable per acre than they were and unstable. In a paper titled "Farming for Profit and Quality of Life", written by Dr. John Ikerd of University of Columbia and presented at the National Small Farm Today Conference and Trade Show, he puts the problem in sharp relief saying,

"The future of conventional farming in the U.S. is in peril. Until a decade or so ago, few questioned the ability of American farmers to compete with farmers anywhere in the world, even if it did mean ever-lower prices and ever-tighter profit margins. We were the global leaders in agriculture. We had the most highly educated and efficient farmers in the world using the latest production technologies to cultivate the best agricultural land in the world. In recent years, however, the U.S. share of global agricultural exports has plummeted, destroying farm profitability, and shaking confidence in the American farmer's ability to compete."

Small farms geared towards selling to local markets have a more predictable revenue stream (Low, S.A & Vogel, S., 2011) and are more efficient at producing fruits and vegetables than larger farms (Norberg-Hodge & Gorelick, 2002). This shows that they could be an appealing option for farmers in Indiana. Yet commodity sales are still overwhelmingly seen as the future for farms and food production in Indiana. Farmers are planning to double their current yields by finding more hybrid corn modifications, planting even closer together, and fertilizing more precisely (Meter, 2012). All of this planned growth is dependent on technological advances in agrosience and is not, as the current net food sales show, guaranteed to increase profits for farmers themselves unless they find new markets for their goods.

Indianapolis, in the middle of one of the country's largest farm states is a city of 6.5 million people where 30% of adults are obese (County Health Rankings, 2011), 36 % of residents have low food access (Elliot, McDougall et al, 2011), meaning "access by individuals to adequate resources for acquiring appropriate foods for a nutritious diet (FAO, 2006), unemployment continues to rise (STATSIndiana, 2011), and environmental sustainability ranks low compared to peer cities (Business Courier, 2011). The Indiana State Department of Health reports that 29 percent of adolescents and 65 percent of adults in Indiana are overweight and/or obese. The American Fitness Index ranks Indianapolis 45th among the country's 50 largest metropolitan areas. In addition to higher obesity rates, Indianapolis has a lower percent of the population in excellent or very good health, and higher rates of other lifestyle and diet-related illness than the national average. Despite devoting a huge portion of our state's land to agriculture, the capital city is in poor health overall and has poor access to food.

Taking all of this into account, it was obvious that low-income Americans and Hoosiers (the nickname for a person from Indiana) are suffering enormous health consequences from the lack of access to healthy food, and while it seemed that a plausible portion of the solution to that problem is to invest in developing local food infrastructure and supply, it also seemed that there remains a huge financial hurdle to accessing the local, healthy food.

Primary Research Question

Thus, throughout my work with WHS, I was faced again with the question that I ultimately sought to answer through this research: “What role can locally grown food play in increasing access to healthy food in Indianapolis, Indiana?”

Sub-Questions

1. What’s happening in the local food economy in Indianapolis at present?
2. How strong is the local food economy at present?
3. What would be the impact of expanding the local food movement?
4. What strategic priorities would most benefit the local food movement?

B. Literature Review

The confluence of poverty, food access, and health is not an entirely new idea, yet it is currently in the direct spotlight due to soaring health care costs, high rates of diabetes, and an increasing concern about factory farming. This public concern has translated into a growing body of academic work studying various components of the food system.

Food Access

Much of the recent literature and media coverage of food access in America has been centered on the idea of “food deserts” and low income Americans' inability to access food. The

2008 Farm Bill defined a food desert as an “area in the United States with limited access to affordable and nutritious food, particularly such an area composed of predominately lower income neighborhoods and communities” (Food, Conservation, and Energy Act of 2008, Title VI, Sec 7527). Limited access is further defined as more than 1-mile from a supermarket or large grocery store, and a lower income community is considered as any census tract where the poverty rate is at least 20 percent. The concept of food deserts as a major health concern finds some traction in research of Nicole Larson, Mary Story and Melissa Nelson, “Neighborhood environments: Disparities in access to healthy foods in the U.S.” which examined the relationship between access to stores and dietary intake. Findings from the study suggest that those who have better access (closer proximity) to supermarkets and limited access to convenience stores have, on the whole, lower levels of obesity and healthier diets. This study did not use variations in prices of food between stores as a variable in determining people’s dietary choices, instead focusing only on physical proximity. The study “Body mass index in elementary school children, metropolitan area food prices and food outlet density” (Sturm & Datar, 2005), did examine the correlation between food prices and body mass index(BMI) in children and discovered that lower fruit and vegetable prices predicted lower gain in BMI between kindergarten and third grade while lower meat prices predicted the opposite.

In 2005 study by Adam Drewnowski titled “Food Choices and Diet Costs: An Economic Analysis”, he hypothesizes that “the observed links between food supply trends and rising obesity rates are mediated by the economics of food choice. The current structure of food prices is such that sweet and high-fat foods provide dietary energy at the lowest cost... Fresh vegetables and fruit are not only more expensive (on a per calorie basis) than are fats and sweets, they are also less likely to be available in low-income neighborhoods.” (p.901). The academic

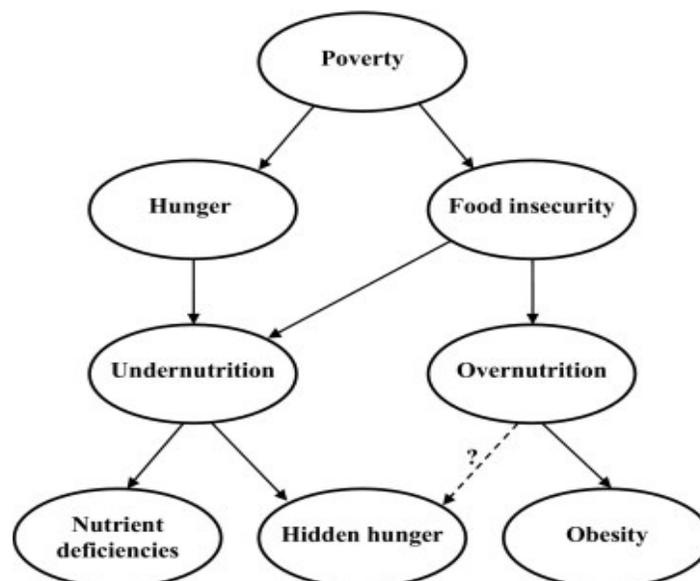
community appears divided on the subject of the affordability of a healthy diet. Some research, such as the 2000 study “Costs of a healthy diet: analysis from the UK Women’s Cohort study” by Cade et.al, show that healthier diets are associated with higher costs while others, such as the 2002 study “A cost-analysis of adopting a healthful diet in a family-based obesity treatment program” by Raynor et.al believe that financial barriers are mostly perceived. While the literature is not conclusive on whether the financial barrier to eating healthily is real or perceived, the effect is the same: the low-income community considers cost a barrier to eating healthily and therefore price is a challenge to increasing access to healthy foods.

It is challenging to assess the comparative affordability of locally grown vegetables with the affordability of imported vegetables because it is such a localized comparison; taking into account the cost of living and the time of year among other things. The literature is around food access does not include research comparing financial and physical accessibility of locally grown versus imported produce, it ignores such nuances. The literature as well as the interviews included in this study regard locally grown food to be less financially accessible even than imported fresh vegetables, which are in turn, considered less financially accessible than processed foods.

These studies, as well as others like them give merit to the argument that limited access to healthy food, both physically and financially contribute to an increased risk of obesity and weight-related health issues.

The research and discussion around food access and obesity is built on a broader discussion of food insecurity, defined by the USDA as “limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways” (Cohen, p.8). Traditionally, food insecurity has been equated with

hunger, the emphasis placed squarely on access to food. This however, has been transformed recently in light of the growing connections between limited food access and obesity. This leads to the ability to draw parallels between the current “obesity epidemic” and more traditional famines. Low income Americans are not experiencing hunger, meaning “the uneasy or painful sensation caused by lack of food” (Cohen, p. 8) or the extreme extent of hunger being starvation to the same extent as historical famines such as those in Ethiopia in 1973 or 1984, though there is certainly hunger in America. But rather, low-income Americans are instead experiencing extreme malnutrition that is expressing itself through obesity. In the article “Poverty, Obesity, and Malnutrition: An International Perspective Recognizing the Paradox”, the authors assert that “by the year 2015 non-communicable diseases associated with overnutrition will surpass undernutrition as the leading causes of death in low-income communities” (Tanumihardjo et al, p. 3). Many low-income Americans are accessing food that is calorically dense and nutritionally poor, thus leaving them malnourished and overweight. The connection is demonstrated through the diagram below provided by the American Dietetic Association:



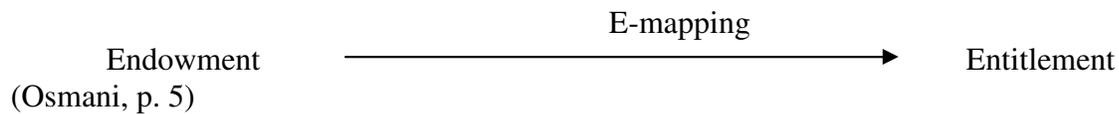
Source: Journal of the American Dietetic Association 2007; 107:1966-1972 (DOI:10.1016/j.jada.2007.08.007)

Famines, Poverty, and Food

Food insecurity in America is not due to an inability to grow enough food. Global food production has grown rapidly in the last 30 years, outstripping population growth and resulting in enough food to provide each person with more than 2,700 Calories per day (Food and Agriculture Organization of the United Nations, 2012). In fact, between 1969 and 2009 farmers in America have doubled their crop yields through plant hybridization, genetic modification, the application of fertilizer and other technological advances in agrosociences (Meter, 2012).

But as Amartya Sen describes it in his influential book *Poverty and Famines: an Essay on Entitlement and Deprivation* (1997) “Starvation is the characteristic of some people not *having* enough food to eat. It is not the characteristic of there *being* enough food to eat.” (p. 1) He goes on to explain that famines are not necessarily caused by a lack of food, but due to a failure in entitlement relations that exist in private ownership markets. Sen defines his entitlement approach to famines as one that “concentrates on the ability of people to command food through the legal means available in the society”. The entitlement approach is based on three essential categories: the endowment set, the entitlement set and entitlement mapping (E-mapping). The endowment set includes all resources legally owned by a person including both tangible resources such as land and equipment as well as intangibles like labor and knowledge. The entitlement set includes all goods and services that a person can possibly obtain by using their endowment set. The entitlement mapping is the relationship between the endowment and entitlement sets, described as “the rate at which the resources of the endowment set can be converted into goods and services” (Osmani, p. 2). In “The Entitlement Approach to Famine: An

Assessment”, S.R. Osmani explains the relationship between the endowment set, E-mapping, and the entitlement set with the following diagram:



When applied, starvation is a result of what Sen calls entitlement failure, when a person’s entitlement set does not contain enough food to sustain them and they are unable to allocate resources in such a way to obtain food.

In 1998 Amartya Sen was awarded the Nobel Prize in Economics, mainly due to his work on starvation and famine. Charles Gore, of the Least Developed Countries Division of United Nations Conference on Trade and Development (UNCTAD) said of Sen’s work:

“His economic analysis has sought to displace the view that the total supply of foodstuffs is the central determination of starvation and to focus attention on the relationship of people with food and with the other goods and services which they need to be adequately nourished”

While Sen’s work used the Bengal Famine of 1943 and the Ethiopian Famine of 1972-4 as case studies for his theory of entitlement failure, the same concept can be applied to the issue of poverty, obesity, and food access in the United States today. Low-income Americans are unable to use their endowment set to access the nutritionally dense food that keeps their bodies well nourished and healthy. Instead, their endowment set is only sufficient to allow them access to calorically-dense, nutritionally void foods that satiate the appetite but do not fulfill the nutritional requirements necessary to keep them healthy. This results in a type nutritional starvation and on a larger scale, famine. While low-income Americans are not dying from lack of calories, which is the traditional way of framing a famine, they are dying slowly from an excess of empty calories lacking the necessary nutrients. The food that low-income Americans can access with their given endowment set, combined with the government assistance like the Supplemental

Nutritional Assistance Program (SNAP) or Women, Infants, and Children (WIC) programs does not give them enough purchasing power to access healthful, nutritionally-dense food, not even considering the physical barriers to accessing the food that often face America's poor. Thus, the American food system, like the Bengali system in 1943, is experiencing a case of entitlement failure, it simply has a different look. The physical and financial access to healthy food that contributes to health problems is compounded by the issue that Mark Winne (2008) describes as:

“If you don't have enough money to regularly purchase sufficient quantities of food, you will be more inclined to eat high-calorie, filling food to relieve sensations of hunger. Additionally, irregular purchasing power, often a problem in low-income households, leads to binge eating or other irregularities in food consumption, which can contribute to obesity as well.” (p. 124)

Local Food Nutrition

Urban and peri-urban local food production is often argued to be more nutritionally dense and is often cited as a solution to “food deserts”. The nutritional quality of foods is determined by a number of factors including variety, production method, and ripeness.

Crop varieties chosen for use in conventional farming are not chosen based on nutritional density. In his 2007 study “Still no free lunch: nutrient levels in U.S. food supply eroded by high yields”, Brian Halweil explains that over time, farmers and crop breeders have chosen crop varieties based on what produces the highest yield and ability to be shipped, not for their nutritional content. Over time, the crops selected have dominated the market and varietal choices have become limited.

Production methods in conventional farming and nutritional quality are discussed in a 2004 study by Davis, Epp, and Rhiordan, “Changes in USDA food composition data for 43 garden crops, 1950 to 1999”. This study concluded that there has been a significant decline in

nutritional quality of vegetables in the time of the study which they attributed to the methods used to increase crop yields such as planting crops closely, soil tilling, and planting the same crop year after year in the same field.

Many fruits and vegetables are able to ripen after they have been harvested which gives them a longer post-harvest life. Thus, when they are destined for distant markets, they are harvested before they have reached full maturity and still reach full color and texture once harvested. Studies like “Pre-harvest and postharvest factors influencing vitamin C content of horticultural crops” by Lee and Kader (2000), have shown that foods harvested before full maturity are lacking in nutritional quality when compared with those harvested at full maturity.

In a 2007 study for the Harvard School of Medicine’s Center for Health and the Global Environment, author Kathleen Frith describes the nutritional advantages of locally grown and purchased foods, saying:

“First, even when the highest post-harvest handling standards are met, foods grown far away that spend significant time on the road, and therefore have more time to lose nutrients before reaching the marketplace. Second, farmers growing for a local (and especially a direct) market favor taste, nutrition and diversity over shipability when choosing varieties. Greater crop diversity from the farmer means greater nutritional diversity for the eater. Third, in direct and local marketing strategies, produce is usually sold within 24 hours after harvest, at its peak freshness and ripeness, making consuming them a more attractive prospect. Fourth, during this short time and distance, produce is likely handled by fewer people, decreasing potential for damage, and typically not harvested with industrial machinery. Minimizing transportation and processing can ensure maximum freshness and flavor, and nutrient retention.” (p. 3)

The research supporting locally grown and purchased food being nutritionally richer is mainly based on studying the choices and reality of conventionally grown and purchased foods, not by studying locally grown foods. It is assumed for example, that because fruits and vegetables are picked before they are ripe in order to ship and locally grown and purchased foods do not need to ship, that they get picked at their peak. This

could be a weakness in the literature supporting local food being nutritionally superior, yet as it is the research that has been done to date, I will utilize the findings throughout the paper.

This study is intended to be situated as a bridge between Amartya Sen's theories around the causes of famines and the current theories being developed about the extreme malnutrition being experienced in America today. Once thusly situated, it will look at current efforts occurring in Indianapolis, Indiana, U.S.A. to address the issues of malnutrition using urban and peri-urban (the land between suburbs and the countryside) local food production.

C. Methodology

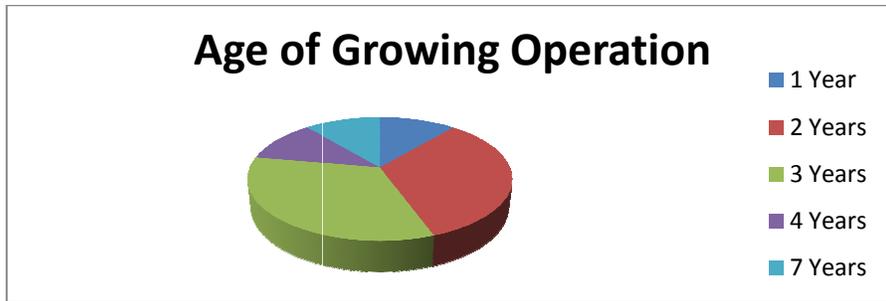
The research used a mixed-method flexible (also referred to as qualitative) approach to data collection and analysis including observation, interviews and surveys. This approach was particularly suited to my research because the research questions and focus were formed during observations I made while working with WHS and evolved as further data was obtained through interviews. The flexible design approach is described by Robson (2002), in his book *Real World Research* as having “fundamental characteristics such as an evolving design, the presentation of multiple realities, the researcher as an instrument of data collection and a focus on participants’ views.” (p. 166). The legitimacy of the flexible design approach is described thus by Anastas and MacDonald in their work *Research Design for Social Work and the Human Services*:

Flexible or qualitative methods have traditionally included the researcher and the relationship with the researched within the boundary of what is examined. Because all any study can do is to approximate knowledge of phenomena as they exist in the real world (fallibilism) the process of study itself must be an object of study. Because all methods of study can produce only approximations of reality and incomplete understanding of the phenomena of interest as they exist in the real world, the findings of

flexible method research can be seen as no more or less legitimate than those of any other type of study (p. 60)

In an attempt to add credibility to the research as well as deepen my personal learning, the research used what Robson (2002), calls “using reflexivity to identify areas of potential researcher bias” (p. 173), which entails writing down issues related to personal value systems, issues of class, race, gender, etc. that surfaced while conducting the research. I used the reflexivity guidelines outlined in Robson’s book at the outset of my research and revisited them periodically.

The data collected was primarily qualitative in nature, collected through ten semi-structured one-on-one interviews, one open-ended questionnaire and through participant observation. Interviewees fell into two distinct groups, the first one consisting of eight farmers, the second of two social service providers. The farmers interviewed work in an urban or peri-urban area within and around Indianapolis and were chosen for interviews based on two criteria: their physical location (required to be within or around the city), and that they are currently growing and selling produce as a main source of income. The latter requirement was necessary to differentiate between urban farmers and urban gardeners since often both groups will be growing on the same amount of land. While this is a relatively small sample size, it encompassed over 2/3rds of the farmers growing within the city and is thus a significant portion of the urban and peri-urban growers. All of the farmers interviewed have been operating their current growing operation for less than seven years; the age of growing operation is in the chart below.



The second group of interviewees consisted of social service providers that are all focused in different ways on alleviating hunger and malnutrition. The interviews were conducted with a staff member from Second Helpings, a local anti-Hunger organization and with a WHS staff member. The open-ended questionnaire was administered to a staff member of a food access program, Garden on the Go, which sells produce in food deserts out of a mobile van, in place of an in-person interview.

Each interviewee was given an informed consent form to review and sign and date, which they all did. All interviews were recorded on either a cell phone recording application or a hand-held recorder, although mid-way through one interview the recording equipment failed and I was forced to take notes, capturing the interviewee's answers to the best of my ability. Interview duration varied lasting from 45 minutes to 90 minutes in length. After every interview, the conversation was transcribed manually. Once all of the interviews were completed and transcribe, I began the process of coding. The interviews were coded using the quasi-statistical approach of reading through interview transcriptions and identifying similar phrases, words and themes in participants' answers.

Research limitations:

The participants in this research are fairly representative of farmers within and around Indianapolis. However due to my research requirement that farmers interviewed use farming as their main source of income, it limited the types of projects that could be included in this study. Had I not included this requirement, it would have opened up a more diverse array of growing operations from educational programs to community gardening operations. I saw this limitation as a necessary one however, in order to design a manageable study. This requirement also resulted in a pool of participants who were largely of European descent, primarily between the ages of 25 to 45, thereby reflecting the perspective and experiences of a fairly homogenous group.

The interviews took place primarily during the spring and summer months which are extraordinarily busy times for farmers. Thus, I was only able to interview some farmers while they were in the midst of working, whether that was at a farmers' market, while fixing equipment, or harvesting. That atmosphere made for wonderful experiences such as picking ripe cherries from the tree and assisting curious customers, but led to somewhat disjointed interviews where the farmers could not always give their full attention to answering questions.

The small sample size and the focus on the local context make any conclusions and findings difficult to generalize beyond the target area.

D. Findings

My findings are organized into themes that are further broken down into the sub-categories of farmer answers and social service provider's answers. The responses to questions are displayed in "Most Common Answer" tables. These tables are intended to display the themes

touched upon during interviews. The questions posed were all open-ended and accordingly, each interviewee gave nuanced and varied answers. They are not listed in order of importance, but rather of the most frequent themes and opinions that arose. More in-depth review of the answers will be addressed in the Discussions section. While many of the same questions were posed to farmers as social service providers, some were not applicable and so will have no information for one of the groups.

Basic Economic Model

All of the farms, with one exception, used one or more outlets to sell their product. Seven out of eight farmers ran a Community Supported Agriculture (CSA) vegetable subscription program; six out of seven farmers sold to restaurants; three out of eight ran a farm stand; and two farmers sold at at least one farmers' market. This question was not posed to social service providers for obvious reasons.

Main Clients

When asked to describe the main client base that each farm served, they all described the majority of their clients as white, middle to upper-middle class. All three social service providers responded that they served vulnerable or financially struggling populations of unspecified race or ethnicity.

Opportunities for Increasing Growth of Local Foods

When asked questions regarding perceived opportunities for increasing the supply of local food in Indianapolis, the themes that emerged from the group of farmers varied, the most common responses are listed in the table below.

Farmers' Perceived Opportunities for Increasing Growth of Local Foods

Most Common Responses

- Increasing consumer awareness (6)*
- Higher demand than supply in restaurants or institutions(6)
- Ease of land access (3)

**Indicates number of participants who gave response. Total number of participants was 8*

The most dominant theme was that there was a growing demand for local food due to increased consumer awareness or education. One farmer noted the growth in increased consumer awareness by saying:

“Well, we look around us and see that people are becoming more and more concerned. They see food scares from contaminated foods from industrial agricultural sources. And this is really where the media is our friend. People hear about obesity and the need to eat more vegetables, to eat healthier foods. Media sources are always talking about the newest additive to strawberries or the danger from something grown in some industrial farm. This helps the local food movement because people become more aware of the issues and who they can trust buying from.”

Another prevalent theme was the ease of access to land within Indianapolis. Several farmers noted the vacant land that riddles the urban area as an opportunity for expanding production possibilities or for increasing the number of farmers within the city. Three farmers specifically mentioned the ease of attaining farm land as one of the aspects that attracted them to farming in Indianapolis.

Another frequently mentioned opportunity for increasing the growth of local food in Indianapolis was in sales to restaurants and institutions, with six farmers mentioning either restaurants or institutions as areas of perceived opportunities. One farmer stated:

“I think that restaurants are the growth area. For several reasons: one, there are more restaurants; two, they're using local sourcing as a marketing tool, I think bringing in, particularly organic vegetables from long distances is getting more and more expensive so the prices are coming together and there's no guess work....I feel kind of like we should give restaurants, we should give them credit, even I think that probably ethnic restaurants, like maybe we could provide tomatillos to La Parada or something like that.

That is something we haven't even bothered looking into because, I mean we work with four restaurants and I can barely meet their demand."

Restaurant and institutional demand was also touched on when asked about barriers to increasing the supply and access to local foods in Indianapolis. Four farmers agreed that there was a possible demand but agreed that they personally would be unable to meet the supply because the demand existed at a lower price point than farmers were able to charge or they were unable to grow in the quantity demanded. One farmer said:

"I think that there's a ton of potential but again, I think it goes back to you have to have the supply in order to meet the demand. So I think that it would be great for there to be local produce in corner shops, or more corner shops or more food trucks buying local but right now we don't have the capacity of growers if that demand was there."

All three social service providers stated that they would be interested in working more closely with farmers to bring more local food to their clients.

Barriers to Growth of Local Food

Farmers' Perceived Barriers to Increasing Local Food Sales in Indianapolis

Most Common Responses

- Government Subsidies (5)*
- High Cost of Local Food (4)
- Lack of Experienced Farmers (4)
- Uncertainty of Long-term Land Contracts (4)
- Scale of Urban Farms (4)

**Indicates number of participants who gave response. Total number of participants was 8.*

For four farmers, their belief that there are opportunities to sell to more restaurants and institutions led directly into the sentiment that there were too few experienced farmers in the city, either making it difficult for the existing farmers to hire staff to

increase their own production possibilities or that there was more land available for production than was being put to use.

The other most common responses are listed in the table below.

The most prevalent perceived barrier to increasing local food in Indianapolis was government's agricultural subsidies, with five farmers mentioning subsidies as an issue. Specifically, agricultural subsidies were viewed as artificially lowering the cost of processed foods and creating a distorted market. One farmer described the impact of government subsidies thus:

“How do you determine the real price of food when the government is subsidizing? I understand the reason for subsidies, I understand, but you destroy a market. I'm all about the free market. You destroy a market when you start to tell people what they can and can't do. Or when you come in as big brother and you reward someone for doing something. So subsidizing is going to be a tough one because the value on the food is not where it should be.”

Another farmer stated: “We are essentially choosing to make chips cheaper than broccoli. So if we were to choose to make broccoli cheaper than chips, it would affect how people eat.”

All three social service providers mentioned both cost and quantity as a barrier to increasing local food sales. Cost was seen as the primary barrier to both the individuals that they serve as well as a barrier to purchasing or acquiring local food to serve within their institution. Quantity was described as a barrier due to the high volume of food needed in their programs.

The Role of Local Food in Increasing Access to Healthy Foods

**Farmers' Perceived Role of Local Food in
Increasing Access to Healthy Foods**

Most Common Responses

- Education (4)*
- EBT at Farmers' Markets (3)
- No time to address as full-time farmer (2)

**Indicates number of participants who gave response.
Total number of participants was 8.*

When asked about the role local food can play in increasing access to healthy foods, there was only one dominant theme that came out, with everyone giving fairly different answers to the questions. Four out

of eight farmers mentioned educating the public about food choices as one of the primary roles.

Three out of eight farmers mentioned that more Farmers' Markets having access to EBT

Machines could make healthy foods more accessible to more people in Indianapolis. Two

farmers mentioned that as full-time farmers, they felt like they did not have time to focus on

increasing access to healthy foods and suggested that that was a role for another profession, that

farming itself was so time consuming that addressing social issues was unattainable: "As

beginning farmers there's not much extra, it's so much to handle getting a farm up and running

and off the ground and everything that's involved in that that to throw in social activism on top

of it, it's too much." Only one farmer cited a specific action they were taking towards increasing

access to healthy foods saying:

"I'm sure there's unmet demand on the part of individuals with reduced financial means, limited financial means to purchase locally grown food. [...]One thing I'm doing this year is offering subsidized CSA shares to a particular school population, families of students at a specific school in town. And there's been definite interest on their part; with those potential customers who participate in a CSA when the financial burdens are reduced and they're being reduced through reduced cost overall as well as a more generous payment timeline. I think that there are ways to structure a CSA so that it is more financially accessible. To do that places some burden on the farmer because there's a more, there's a longer payment plan. There's a greater risk of all the expenses not being covered."

All three social service providers mentioned education as the main role for local foods in

increasing access to healthy foods in Indianapolis. One interviewee responded simply, "I think

that there are great opportunities for education, to work with kids, to reach out to schools, to raise awareness of nutrition, to raise awareness of where food comes from.”

Social service providers interviewed recognize the importance of increasing access to healthy foods for their clients, the benefits of local food for the local economy and how that can ultimately benefit their clients as well. The representative from Garden on the Go stated: ‘Encouraging our community to enjoy local food increases our food security as a nation and adds to the prosperity of our local economy. Local food also decreases the amount of greenhouse gases used to transport your food to your dinner plate.’ Further, they added that

“Studies have shown that people with greater access to supermarkets or a greater abundance of healthy foods in neighborhood food stores, consume more fresh produce and other healthy items. The healthier eating habits people have now, the less likely chronic diseases will develop over time.”

Yet, they are unable to purchase local food due to budget constraints:

“Because of the programs goals of improving access and affordability of produce in food deserts, Garden on the Go places a priority on providing a high quality, but affordably priced, product to its customers. Conventionally grown produce is often more affordable, so for Garden on the Go, we purchase mostly conventionally grown produce from regional wholesalers.”

A recurring quandary for the social service providers appears to be that while they recognize the benefits and potential long-term impact of making locally grown food accessible to their clients, that goal is not currently attainable. Garden on the Go, which focuses on increasing physical access to healthy foods, prioritizes providing the food at a price they believe is feasible for their customers, which is lower than the prices at which local foods are offered at. The representative from Second Helpings, which relies heavily on food donations, mentioned that they are working on strengthening ties to the agricultural community in Indiana but saw several shortcomings in relying on local to alleviate hunger saying,

“You have to be honest with ourselves and realize that the crops in our area are soybeans and corn, and the corn isn’t all sweet corn either, some of it’s feed corn, some of it grown for other purposes. And so when we talk about what’s available in the immediate area, while there’s a lot of farmland, it’s not all the kind of crops that we would use in hunger relief. So I think we have to be realistic about that as well. It’s more than just reaching out to farmers, if you really want to put more fresh produce into this hunger relief community, it comes from different places, but if you want to get more local fresh produce into this community, you have to actively really start to grow it and encourage people to grow it for that purpose.”

In the same interview, the representative went on to say

“There’s a perception out there that fresh is always best. Fresh is best when it’s really, really, really fresh. But if given a choice between some really mushy tomatoes that are really well past their prime and a nice solid can of tomatoes that were picked at their peak nutritionally, I want that can of tomatoes.”

The representative from WHS also recognized the importance of supporting local food production and making it more accessible to their clients but also described the difficulty in doing so by saying,

“As a public institution, one that saves lives every day, we have to justify every dollar that is taken out of that arena and reallocated. That means that if we are going to buy local food for our cafeteria, or create new programs, and I would love to, we have to be able to point towards solid research and numbers and prove how that will also save lives which is incredibly challenging.”

So while the institutions and organizations that serve low-income populations and have various interests and involvement in foods expressed a desire for more local foods, they all saw cost as the primary barrier for the populations that they serve.

E. Discussion

When looking at farmers’ economic models as well as their perception of the demographics of their customers, it becomes clear that they are largely serving a population that can afford to pay for a premium product. The common perception among farmers interviewed that the amount

of demand in the restaurant market exceeds the supply currently available. Because farmers interviewed generally feel that they are easily able to sell as much as they can grow to restaurants and clients that are willing to pay a premium for the product, they are not looking towards selling to any other markets. Many people thought that there could be greater demand for locally grown food in low-income communities yet they have no incentive to investigate further because they are currently easily selling their product at full price and making a living at it. At the scale at which these farmers are operate, which is almost exclusively on less than one-acre of land, they are employing a strategy similar to that of the luxury goods business: sell fewer goods at a high per unit price. To some extent, the parcel size of the land available within the city, in addition to the limited supply of qualified employees, restricts the urban and peri-urban farmers' ability to grow enough food to pursue a different marketing and sales strategy. This raises serious concerns about the ability of commercial urban farming to address issues of food access for low-income populations in Indianapolis who are unable to afford vegetables at the urban farming price point.

If the demand of higher-end restaurants and clients were to be filled due to an increase in supply, farmers may begin to look towards expanding into currently unexplored markets, including in low-income communities. This would entail pursuing an alternative strategy based less on the luxury goods model and based more on selling higher quantity at a lower price point. This would require farmers acquiring long-term access to larger parcels of land than they have currently. At this point in the Indianapolis food economy, there are too few producers to fill the demand for locally grown food.

Despite the limited contiguous growing space available to urban growers, they do have a few advantages over rural farmers that if recognized and utilized, could give them a competitive

advantage and allow them to reduce their costs. One farmer interviewed outlined the advantages saying,

"I do feel like there are all these benefits that we have that rural growers don't: our distribution is closer, our land is typically free, we require less petroleum. We have all these benefits kind of built-in and my hope is that in exchange, growers are willing to, even if it's just providing food to great initiatives, get food into areas with limited access."

That sentiment was only expressed by one farmer, yet it outlines some of the benefits of farming in the city. Those cost-saving benefits are currently limited by the need to charge higher prices due to small product quantities. There are many things at work when discussing access to land for urban farmers in Indianapolis. While the physical plots of land are generally small, amounting to less than $\frac{1}{4}$ of an acre on average, there are many plots of land available. The city of Indianapolis has made over 200 parcels of land available anyone wishing to grow food to license the land at no cost for five years. There are also numerous plots available for farming or gardening use from private owners at no to little cost. Many of the farmers interviewed utilized privately owned vacant lots for production and were confident that should the need arise they would have no difficulty securing more land. The excess of vacant land in the city comes from a population loss in the urban core a trend that can be seen in other so called rust-belt cities such as Cleveland, OH, St. Louis, MO, or Detroit, MI. Center township, which encompasses most of Indianapolis' urban neighborhoods, lost about half of its population between 1960 and 2000 resulting in rampant home vacancies and a diminished tax base (Taft, 2011). The number of vacant lots in the city is steadily increasing as the City of Indianapolis continues to with the plan to demolish nearly 2,000 abandoned homes by the end of 2012 (Jarosz, 2011). There appears to be a dearth of private land lying fallow as well. During my time with WHS, I took part in several conversations with land owners who were looking for someone to farm their land and were

unable to find any takers, which demonstrates the sheer ease at which land can be acquired for growing in the city.

Once the land is acquired, there is some question of the length of time the land will remain available. Many farmers expressed concern about their ability to plan for the future on the land that they are currently growing on. One farmer interviewed expressed concern over the reliability of land access saying, “Also, when you make community gardens and it makes a lot look good, a developer often comes and develops it. So I’ve been concerned about that for a long time.” Her farming partner added,

“She’s seen that in action. She did community gardening in Fall Creek proper back when the city called it Dodge City. It’s all pretty, you’d never know because there are houses on all of the lots she had gardens on. Every single one of the lots she gardened on has a house on it now because it looked so attractive.”

The fear is that while Indianapolis has suffered a huge population loss in the past, leaving a surplus of vacant land, the trend will reverse and as land value increases in the city farmers will lose their land to development.

Farming, especially using organic methods, requires that much attention be paid to the health and composition of the soil, which can take years to develop and cultivate and may be discouraged by the uncertainty of land contracts. This could impact the yields and quality of the vegetables grown on the land if a farmer is not given or taking the time to invest in building the soil. The uncertainty of land contracts could also discourage farmers from investing in infrastructure such as wash-stations and tool sheds, which can result in inefficiencies in production as the farmer is likely to spend more time transporting produce and tools to one location.

Both farmers and social service providers agreed that the high cost of local food was a barrier to increasing access to local foods. Many of the farmers went into depth about the cause of the problem, often citing government subsidies. Local foods, which are nutritionally denser and come with fewer questions regarding the use of pesticides, fertilizers and GMOs, are not seen by the farmers as being as well supported by the government as commodity crops and large farms. The USDA runs a Sustainable Agriculture grant program funding research and education projects for small farms, commonly referred to as the SARE program (USDA, 2012) as well as other grant programs available to small farms. One farmer mentioned the increase in ease of using Supplemental Nutritional Assistant Program (SNAP), formerly known as food stamps, benefits to buy local produce saying,

“Just coming through the senate is approval for a new bill that basically triples the amount of money available to Farmers’ Markets to make them able to accept SNAP benefits. So I think that has a fair amount of potential. They’re talking about upping the number of machines that can accept SNAP cards around the country from 1200 Farmers’ Markets in the country that now have it to their goal of 4000 markets that can accept food stamps across the country. It still comes down to cost though, with your food stamps you can buy 40 pizzas from Papa John’s or you can go to the Farmers’ Market two times a month.”

Some cities have tried to bridge the gap between the government’s encouragement of using SNAP benefits at Farmers’ Markets and the higher prices there than other venues with programs like Double Up Food Bucks. The Double Up Food Bucks program is operated in Michigan and Ohio by the Fair Food Network and funded by over 30 private and community foundations and corporations. The program works by:

When a person eligible for SNAP (Supplemental Nutrition Assistance Program) uses his or her SNAP Bridge Card to shop for food at a farmers' market, the amount of money that he or she spends is matched with Double Up Food Bucks bonus tokens. The tokens can then be exchanged for Michigan-grown fruits and vegetables. (Fair Food Network, 2012)

This program helps customers stretch their money further and incentivizes shopping at Farmers' Markets. It has been run with success and has been mimicked by various other organizations throughout the country. One key to the success of this program is the broad-based institutional and corporate support which provides funding and promotion. Indianapolis could greatly benefit from a similar program based on some of the issues identified by the farmers and social service providers interviewed. Development of a similar program would require that an organization or institution take lead on development and implementation. Currently in Indianapolis, there is no clear leader for this type of program although there are plenty of potentials.

F. Conclusions

Returning to Amartya Sen's theory of famines, the low income community in Indianapolis does not currently have enough in their entitlement set to acquire the highest quality, nutrient-dense food available, leaving them to be both nutritionally starved and overfed. The supply of locally grown food is too low to push producers towards expanding their markets, making it unlikely that there will be a market-based solution towards making healthy food more accessible for low-income families in the near future.

There is potential to change the availability of locally grown produce by expanding the entitlement set of low-income individuals. Because the entitlement set includes governmental and community assistance, enacting a program similar to Double Up Food Bucks or increasing eligibility for SNAP benefits would add to the entitlement set thereby making local foods more accessible financially to low-income Hoosiers.

It is a daunting task to increase access to healthy foods for low-income communities in Indianapolis. The market alone is not going to solve the problem of access without a major overhaul in subsidies and a lot of time. Moving forward to achieving that goal requires coordination between low-income residents, farmers, social service providers, institutions and governmental representatives.

Recommendations

The supply of locally grown food could be increased in two ways: by increasing the number of farms or by increasing the quantity that existing farms grow. There are a number of ways to increase the number of farms by training and attracting new farmers. I recommend that the Marion County Extension Offices or Purdue Extension Services develop a robust New Farmer Training Program focused on vegetable production. This would give more people the information and experience needed to successfully operate their own farms, or to work on an existing farm which could increase the production of those farms substantially. The City of Indianapolis' Office of Sustainability could promote their Urban Gardens Program more broadly and widely through such national channels as the Community Food Security listserv and other publications to attract experienced farmers from throughout the country. Where land is scarce and expensive in other urban areas, it is abundant and inexpensive in Indianapolis. That, combined with the lure of a market where demand exceeds supply, could entice farmers to move to Indianapolis and begin farming, thereby increasing the supply of healthy food in the city.

To increase the quantity of produce that existing farms grow, larger parcels of land need to be made available to farmers who will be growing vegetables. One way of doing this is to pass Farmland Preservation legislation protecting land that has traditionally been farmed from being used for development. The City of Indianapolis could also consider selling the parcels of land

that they are currently leasing through the Urban Garden Program below market price to give gardeners and farmers more stability in their land access. This could give farmers the assurance they need to invest in infrastructure such as hoop houses and tool sheds, which could potentially increase the efficiency of the farm and extend the season, thereby increasing the quantity produced.

Putting more money into programs like the SNAP program and expanding the support for increasing the number of Farmers' Markets that accept benefits could also do a great deal to make healthy foods more accessible to low –income Americans. But there is no magic bullet; the problem must be addressed in a myriad of ways, using multi-pronged approaches including policies and programming, to truly make any difference.

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Appendix : Interview Questions

1. Can you tell me about your farming operations: history, production, etc.?
2. What is your farm's basic economic model?
3. Who are your main clients? Who do you target?
4. What opportunities for growth do you see for increasing local food sales in Indianapolis?
5. What barriers do you think exist to increasing local food sales in Indianapolis?
6. What role does local food play in increasing access to healthy foods?
7. Is there anything else that you would like to add?