

Socioeconomic and Environmental Implications of Local Food Networks in Guam

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ABSTRACT

This review of literature seeks to understand the socioeconomic and environmental implications of local food networks in the isolated island community of Guam, before investments in the local food network infrastructure are made. In conducting this review, I focus on local foods' impact on socioeconomic indicators of a community. Initially, this review focuses on food access and economic development. As the review developed, the focus expanded to include local food network's role in food access, community development, and the implications it would have on business and public policy. Local food networks policy implementation is place-based and vary based on a combination of tastes, culture, and political influences. How does the island history and current political state interact with the socioeconomic and environmental implications of local food networks?

Personal Interest

As a CHamoru from the island of Guam, I am interested in our current food system and how changes may impact island sustainability. I am an advocate of the current "buy local" initiative and support the local Community Supported Agriculture (CSA) program on the island. However, I wanted to see if there were any quantifiable measures that would prove that investing in local food networks is a viable means to: improving the health, nutrition, and food access of the local

people, stimulating local economic development through expansion of industry and job creation; and cultivate community development through community involvement.

Introduction

History

Guam is an unincorporated territory of the United States located in the Pacific. At 212 square miles, Guam is the largest and southernmost island in the archipelago of the Marianas Islands. Guam, along with the other Marianas Islands, was first settled by the Austronesian people of Southeast Asia as early as 4000 years ago (Cunningham, 1992). These people would evolve to become known as the CHamoru people, the indigenous people of Guam. The island was discovered by Ferdinand Magellan on March 6th, 1521 during his expedition to circumnavigate the globe and establish a trade route for the Spanish Crown. After this initial contact, Guam would be colonized by the Spanish in 1668, when Blessed Diego Luis De San Vitores arrived in hopes of evangelizing the native peoples. In 1898, Guam was ceded to the United States through the Treaty of Paris after the Spanish-American War. On December 8, 1941, Japan invaded and occupied the island until 1944, when the island was reclaimed by the United States during the Pacific Campaign in World War II. Today, it remains of strategic importance to the United States, holding a vital position for the American military in the Asian-Pacific region.

The diet of ancient Chamorros consisted of “[taro], coconuts, yams, wild yams, arrowroot, and other roots; bananas, breadfruit, rice, sugarcane, Federico nuts,

ginger, and different species of fish and other sea foods were frequently mentioned in early accounts of native food” (Salas & Tolentino, 2018). Until the 1950s, the indigenous people of Guam maintained their diet through local agriculture, primarily horticulture. It was common for families to share familial lands, which they used to grow crops, raise livestock, catch fish, or harvest wild plants and crops (Bevacqua, 2018). This land is what CHamorus referred to as the “*lâncho*”, or ranch.

There was a major shift in the CHamoru diet post World War II, following the introduction of highly processed foods such as canned goods along with the introduction of fast food chains. During this time of rapid modernization, a shift from the *lâncho* to the more stable, reliable grocery store was necessary in order to support the rapid population growth. The indigenous diet was replaced with a more Westernized diet, “one that is high in trans and saturated fats, refined sugar, and salt, and low in fiber and micronutrients” (Hammond & Perez, 2018). Guam is now more reliant on agricultural imports than local agriculture.

There is now a growing movement among the island community that is trying to revive the indigenous diet, or aspects of it, in hopes of improving their health, reducing their environmental impact, and contributing to local economic development through employing local food networks such as Community Supported Agriculture and farmers’ markets. This paper seeks to identify the socioeconomic and environmental implications of local food networks.

LITERATURE REVIEW

Nutrition, Health, and Food Access

Local food networks are characterized by small scale, localized production systems with direct-to-consumer sales and include entities such as farmers' markets or Community Supported Agriculture (CSA) enterprise farms (Stickel & Deller, 2014). Local foods are often fresher and more nutritious than items from nonlocal systems (Martinez, et al., 2010). Foods from local food networks may be healthier because "freshly picked foods ... retain more nutrients than less fresh foods" (Lea, 2005). With access to foods with a better nutrient content, consumers are able to improve their diet with the same amount of food. Furthermore, improving consumer health.

Local food networks also increase the availability of healthier food items within a community. Wider access encourages consumers to make healthier food choices. According to Martinez et al. study *Local Food Systems: Concepts, Impacts, and Issues*, "For this to be true, at least two conditions must be met: Local food systems must increase the availability of healthy food items in a way that is infeasible or impractical for non-local systems, and consumers who purchase local food must make different dietary choices that they would not have made without the local option available" (2010).

One of the largest barriers for a strong local food network and participation in local food networks are taste preferences. Because of the import heavy consumer culture on the island, many consumers on the island desire more than what is currently grown on the island. For example, because of its availability with the dominating non-local food system, consumers on Guam have a preference for strawberries, an imported fruit, over coconuts which grow in abundance readily on the island.

Changing nutrition is partly associated with declining food production and reduced diversity, mainly derived from changing tastes, low incomes, the inability to purchase adequate diets (at high market prices), a growing dependence on store foods, and the poor quality of cheap imported processed foods and drinks.

Whatever the reasons for participation in local foods activity, though, it is becoming apparent that local food involvement is not guaranteed to be a profitable business strategy for local producers. “Individual level producer surveys revealed that most farms engaged in local food production are not profitable until farmer labor is omitted from the accounting equation” (Brown and Miller 2008). Local food networks that do not allow farmers to earn returns are not economically viable. A structure with low margins may explain why the research has failed to demonstrate that local foods systems are a viable economic growth and development strategy.

Economic Development

Economic development is a program, group of policies, or activity that seeks to improve the economic well-being and quality of life for a community by creating and/or retaining jobs that facilitate growth and provide a stable tax base (International Economic Development council, n.d.). “Development of the local food sector has become a popular strategy employed by a range of communities in the hopes of achieving sustainable and equitable economic growth and development” (Stickel & Deller, 2014).

Guam imports an estimated \$20M of food per month, which accounts for about 37% of the island’s import commodities (Bureau of Statistics and Plans, 2015)

According to the Guam Economic Development Authority’s Comprehensive Economic Development Strategy (CEDS), Guam’s agricultural industry employed 340 people out of Guam’s total workforce of 60,950 in 2009 (2011). According to the 2007 Census of Agriculture published by the U.S. Department of Agriculture, Guam produced a total of \$2,436,223 in crops, including root crops, vegetables, fruits, nuts, melons and nursery crops, and utilized 495 acres of land throughout 95 farms.

The expansion of local food markets implies that consumers in a particular area are purchasing more of their food from nearby sources, and that more of the money they spend remains in their local community. If more money stays and is circulated on the island, there is more potential for local food systems to positively impact the local economy. Claims of economic development impacts—in the form of income and employment growth—are common in local foods research.

The most direct way that expansion in local food systems could impact the local economy is through substituting imported goods with local foods. Increased consumption of locally produced foods are more likely to benefit people and businesses within the island. This has greater potential to impact the local economy if the businesses spend the additional income on other products produced within the local area.

For example, a consumer that spends \$100 through a Community Supported Agriculture program within the island instead of a traditional supermarket that imports, for their produce. This spending represents a shift from retailers such as traditional supermarkets which send much of their money to off-island companies. The money that is spent at a local CSA stays within the island's economy and is paid to the business, which will be passed on to its workers. The businesses and the workers can now pass on greater benefits to the local economy if they choose to purchase from other local businesses. Guam has one main supermarket, which relies on off-island sources for most of its inventory, including the produce. Since shipping and handling is absorbed into the work in process to get produce and food items to the island, our consumers must pay a higher price for their products. However, when the products arrive on island, they are either too young, due to premature picking to last the long distance, or they are spoiled because of unexpected delays during travel. Arguably, Guam pays a premium price for an inferior product.

Environmental Impacts

There are numerous negative externalities associated with Guam's large amount of imports. The average shipment that is imported into Guam have traveled long distances, giving these products, as well as the people consuming them, a much larger carbon footprint due to the sheer scale of transportation that is done so frequently. Due to the distance food travels to reach Guam, there are much higher greenhouse gas emissions associated with the food we consume.

Consumers who value high-quality foods produced with low environmental impact are willing to pay more for locally produced food. Several studies have explored consumer preferences for locally produced food. According to the USDA's study *Know your farmer, know your food*, "motives for "buying local" include perceived quality and freshness of local food and support for the local economy. Consumers who are willing to pay higher prices for locally produced foods place importance on product quality, nutritional value, methods of raising a product and those methods' effects on the environment, and support for local farmers (2012).

Guam is also extremely vulnerable to and threatened by the entrance of invasive species, which is made exponentially more likely by the import economy. Two of the biggest current invasive species on the island, the brown tree snake and the rhino beetle which have wreaked havoc on the local bird and coconut tree populations. Both species were introduced through ships importing goods to the island.

Community Development

Community Development Society lists 5 principles of good practice:

- “Promote active and representative participation toward enabling all community members to meaningfully influence the decisions that affect their lives.
- Engage community members in learning about and understanding community issues, and the economic, social, environmental, political, psychological, and other impacts associated with alternative courses of action.
- Incorporate the diverse interests and cultures of the community in the community development process; and disengage from support of any effort that is likely to adversely affect the disadvantaged members of a community.
- Work actively to enhance the leadership capacity of community members, leaders, and groups within the community.
- Be open to using the full range of action strategies to work toward the long-term sustainability and well being of the community.”

Planners and community development practitioners have a growing role in the creation of efficient and equitable food systems which will create social capital for producers and consumers. Before adoption of a local foods networks is accepted and invested in, there sound evidence that of its impact on the community.

SIGNIFICANCE AND BUSINESS/POLICY IMPLICATIONS

As an unincorporated territory of the United States, Guam must not only comply with the laws and regulations set forth by the Organic Act of Guam, but also the laws and regulations of the United States. The Merchant Marine Act of 1920, also known as the Jones Act, is a federal statute which requires that all goods transported by water between U.S. ports be carried on [U.S.-flag](#) ships, constructed

in the United States, owned by U.S. citizens, and crewed by U.S. citizens and U.S. permanent residents. The Jones Act is one of the biggest parts of the problem, effectively keeping the Guam market from sourcing more sustainably from more geographically and financially sound sources and placing that heavy economic and financial burden of cost on the people of Guam.

According to local entrepreneur Brian Artero, the owner and operator of two restaurants on island, shipped foods take around 7-14 days to arrive on island, assuming weather systems do not delay the boats. By this time, much of the ordered produce will spoil, prompting restaurants to throw away spoiled produce and produce in proximity to spoiling due to health codes. To counteract this, many importers order much more than they need, adding to the financial burden businesses already bear from high food costs. Mr. Artero shared that food costs account for about 40-42% of his total costs in each of his restaurants. To counteract this, Mr. Artero has had to increase menu prices in order to keep his restaurants profitable. However, the necessary price increases have pushed away many customers.

CONCLUSION

Overall, the review of literature shows the gap that exists in available research of local food networks. There are many weaknesses and gaps that exist within current research and literature. There are many areas in which only anecdotal evidence exists, showing the need for more quantifiable and measurable

means. There is much potential for growth in this field. Because of the interdisciplinary nature of this local food networks, there is room for collaboration across disciplines such as economists, community planners and legislators to find implications of local food networks. Additionally, much of the literature that exists is based off of a Westernized point of view, which does not completely satisfy the needs of consumers of Guam or has overlooked important cross cultural and social elements surrounding the field of study. This signals a need for more specific research to be done in Guam and the greater Micronesian area to truly understand the implications that it will have on Guam.

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