



Comparison of Case Studies of Supermarkets and Food Supply Chains in Low-income Areas of the Northeast

A summary of “Case Studies of Supermarkets and Food Supply Chains in Low-Income Areas of the Northeast: A Cross Case Comparison of 11 Case Studies.” By Kristen S. Park^a, Miguel Gómez^a, Kate Clancy^b, Extension Bulletin 2018-02, published by Charles H. Dyson School and Applied Economics and Management, Cornell University and the Northeast Regional Center for Rural Development at Penn State.

The goal of the “Enhancing Food Security in the Northeast through Regional Food Systems (EFSNE)” Project was to better understand the potential for regional food systems to address food security challenges in the region. As part of this seven-year, USDA-funded project that examined food production, distribution, and consumption in the Northeast U.S., researchers conducted 11 case studies to describe and characterize participating supermarkets in low-income neighborhoods in five urban and four rural study locations across the region. They also identified and measured some of the regional and non-regional food supply chains that served the stores. While each of the 11 case studies revealed numerous findings about the specific foods and stores studied, several broad findings, discussed here, cut across all of the cases.

These case studies¹ constitute the first in-depth descriptions of supermarket supply chains in low-income areas of the Northeast. They document new, key insights about how certain foods get from grower to store. This information will help supply chain entrepreneurs, food system advocates and policymakers strengthen regionally focused food supply chains and support greater food self-reliance for the Northeast.

Using the project’s market basket of food items², the researchers examined price margins (defined as the sale price minus the purchase price) and calculated the economic activity generated by companies in the supply chains such as aggregation and transportation. Notwithstanding the limited number of market

basket items, the researchers were able to provide a glimpse into many different supply arrangements and supplier entities.

Activities

Researchers examined the supply chains of seven foods in the EFSNE project’s market basket: fresh apples, fresh potatoes, fresh cabbage, milk, ground beef, canned peaches, and frozen broccoli. Each product was studied in at least two different stores. Researchers conducted interviews with store owners and managers about various store operations and suppliers. They then conducted interviews with members of the store’s supply chains. During these interviews, they gathered information pertaining to key supply chain characteristics such as marketing margins, prices, volumes, flows, quality of relationships among supply chain participants, form of contracts, and mode of transportation.

^a Dyson School of Applied Economics and Management, Cornell University

^b Food systems consultant. University Park, MD

¹ See <https://goo.gl/Xp1N7Y>

² See “Using a Market Basket to Explore Regional Food Systems,” EFSNE Research Brief No. 8, <https://goo.gl/Fs74yh>.

Defining a regional supply chain as one where the product is produced or grown in the region, the researchers assessed how these supply chains are configured, how they operate, and how they compare to non-regional supply chains on transportation efficiency, share of retail price, and addition to economic activity in the food chain.

Findings

The findings present key lessons for researchers and policymakers about how regional food systems operate and how changes by farms, wholesalers, and retailers might better support more food self-reliance in the Northeast.

In general, ownership, size, and economies of scale can affect the structures of a store's supply chains. In these case studies, all stores were independently owned. Independent owners generally are not large enough to have their own distribution centers, so they purchase most of their supplies from large grocery wholesalers and fill in the rest from smaller distributors, wholesalers, and manufacturers. This was the case with seven of the 11 supermarkets studied.

A few stores used alternatives to the large grocery wholesalers. For example, two stores were under a license contract with large chain store companies to buy from their distribution centers. Two of the stores purchased directly from processors or manufacturers, maintained a warehouse, and distributed to their own stores. Many of the stores purchased from a variety of specialty wholesalers in order to offer a wider assortment of products. While direct control of their supply chains back to the producer was usually not possible for the stores, one store purchased directly from a farm.

While the two licensed stores benefitted from economies of scale by purchasing from their chain store wholesaler, they had to purchase almost exclusively from this wholesaler and follow strict guidelines for store layout, assortment of products, and other store operations. The independent stores seemed to have greater flexibility in their procurement strategies. Some stores developed their product assortment to cater to their customers and neighborhood

even though this meant finding alternative and niche suppliers and working with multiple suppliers. These efforts set them apart from other stores with standard product assortments. For example, one store made the effort to locate and purchase Middle Eastern products from a distant specialty distributor. In another case, the owner sought to include more food choices and healthier options, including fresh fruits and vegetables. This commitment led the store to buy from a fresh produce wholesaler vendor that procured over 60% of its potatoes and cabbage from within the state.

Several of the participating independent stores used alternative buying arrangements which helped them offer competitive prices to their customers. These arrangements included: being a member of a retail buying cooperative; owning a warehouse and buying in bulk; and buying and selling discounted products that are overstocked, close to their expiration date or expired. Overall, these stores were able to access smaller and sometimes more unique distributors and distribution systems, such as hard discount suppliers, ethnic food wholesalers, and regional suppliers.

On the whole, the stores that used these alternate buying arrangements significantly outperformed the average U.S. supermarket in several key retail performance metrics including weekly sales, weekly sales per square foot, and weekly sales per full-time employee. This was despite the fact that ten of the 11 stores were physically smaller than the average U.S. supermarket. That said, the size of the store can affect operations costs for delivery, resupplying product, and labor. Deliveries of smaller volumes are more costly and less efficient because wholesalers and distribution centers often have to break apart full cases for small orders, and transportation is more expensive for small drop sizes.

The Northeast region is an important producer of many of the market basket items, notably apples, cabbage, and fluid milk. It also produces potatoes for fresh consumption and for processing as chips and some cattle for beef processing. The region does not manufacture commercial volumes of canned peaches or frozen broccoli. A most notable, new finding is

that a significant proportion of many of the market basket items that were purchased by the stores were produced within the Northeast.

Table 1. Percent of Stores' Market Basket Items Produced in the Northeast

Market Basket Item	Percentage of stores' purchases produced regionally*	Regional production as a % of U.S. production
Apples	77	16%
Cabbage, fresh	40	20%
Potatoes, fresh and processed	39	5%
Ground beef	n/a	n/a
Milk, including all dairy products	100	15%
Peaches, processed	0	0%
Broccoli, fresh and processed	0	0%

* Researchers' estimates from case study interviews. Calculated from USDA, NASS, Quickstats: https://www.nass.usda.gov/Data_and_Statistics/index.php.

However, even though many of the stores' apples, potatoes, and cabbages were grown in the region, their supply chains were not any shorter in terms of numbers of intermediaries than their non-regional counterparts. The milk supply chains were entirely regional; no non-regional chains existed. Whether the supply chain was regional or non-regional did not affect the number of actors in the supply chain; however, it appeared that the size and scale of the producer did.

Past research has examined food miles traveled by some specific products into a given market area. In the EFSNE study, regional supply chains had substantially fewer food miles and transportation costs than non-regional supply chains. In each of the metrics used to evaluate transportation, distance, efficiency and cost as a percent of retail price, regional supply chains were shorter geographically, more efficient, and less costly than their non-regional counterparts, particularly when dealing with perishable products. Researchers also calculated the average share of

retail price retained by producers to see if regional producers captured a greater share of the retail price than non-regional producers whose products are sold in the Northeast. They did not see a relationship between the farm share of retail price and regional versus non-regional supply chain.

For this study, the researchers defined "value-added" in economic terms³ to represent a change in product form, time, or place to make it more desirable to or preferred by customers. By examining price margins, volume and other factors, the researchers observed that the value-added activity occurring in the Northeast was sizeable even in supply chains where the product was grown outside the region. Even for supply chains which originate far away, such as frozen broccoli from Mexico or Guatemala, there can be a lot of value-addition occurring in the region arising from economic activity in the part of the distribution system which is located in the Northeast.

Despite the frequent availability of regionally produced products, many of these products were often not well labeled with information about where the product was grown. Transparency did not emerge as a major theme in supply chain discussions. Most stores did not know the origin of each of their products. In general, stores have more difficulty in knowing where products originate when their supply chains have multiple layers of intermediaries.

Conclusion

These case studies illuminate the extent to which regionally produced and non-regionally produced items are reaching independent supermarkets in low-income areas. The full study profiles the market basket products and explores the particular dynamics of each product in relation to its path to the study supermarkets. The research also shows that regional supply chains add significant economic activity. In addition, even non-regional supply chains have members within the region who contribute significant economic activity to the region.

³ Coltrain, Barton, and Boland (2000)

The food supply chains in the U.S. are highly efficient in many ways. Yet emerging issues in food transparency, food waste, transportation costs and inefficiencies, and environmental impacts, along with growing interest in self-reliance may exert pressure on supply chains to change.

An opportunity may exist for supply chain members to work collaboratively to identify regionally sourced perishable products (e.g., apples, cabbage, milk, potatoes). Prominent labels and signage may increase the sale of these and other regionally produced products. Stores may still need to rely on their wholesalers to

coordinate regionally grown products. In this case, labeling products at the farm-level would be extremely important in order to maintain the identity of the product through the supply chain.

On the whole, regional supply chains may be increasingly attractive. This study both shows the need and opens the door for more research on many other foods. The research makes a substantial contribution to understanding the system which can lead to beneficial policy and marketplace changes in the Northeast food system. ❖

About the EFSNE project

The work described here is part of a larger research project called “Enhancing Food Security in the Northeast through Regional Food Systems” (EFSNE). From 2011 to 2017, the EFSNE project engaged more than 40 partners at multiple universities, non-profits and government agencies around the question of whether greater reliance on regionally produced food could improve food access in low-income communities, while also benefiting farmers, food supply chain firms and others in the food system. Learn more at <http://agsci.psu.edu/research/food-security>.

EFSNE is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number (#2011-68004-30057) and is led by the Northeast Regional Center for Rural Development. Any opinions, findings, conclusions, or recommendations expressed in this publication do not necessarily reflect the view of the U.S. Department of Agriculture.

This brief was written and edited by:

- Kristen Park, Cornell University
- Miguel Gómez, Cornell University
- Kathy Ruhf, Northeast Sustainable Agriculture Working Group
- Kate Clancy, Food Systems Consultant
- Kristen Devlin, Northeast Regional Center for Rural Development at Penn State