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CASE STUDIES OF SUPERMARKETS AND FOOD SUPPLY CHAINS IN LOW-INCOME AREAS OF THE NORTHEAST:

SYRACUSE STORE 1, NEW YORK

Kristen S. Park, Miguel Gómez, Kate Clancy

Food Industry Management Program
Charles H. Dyson School of Applied Economics and Management
College of Agriculture and Life Sciences
Cornell University, Ithaca, NY 14853

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[1] Extension Associate, Charles H. Dyson School of Applied Economics and Management, Cornell University

[2] Associate Professor, Charles H. Dyson School of Applied Economics and Management, Cornell University

[3] Food Systems Consultant

[4] Author contact: 475C Warren Hall, Charles H. Dyson School of Applied Economics and Management, Cornell University, Ithaca, NY 14853-7801, ksp3@cornell.edu, +1-607-255-7215

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Syracuse Store 1, New York

Introduction

As part of a collection of EFSNE projects that examined distribution systems, 11 store case studies were conducted to gain a better understanding of stores serving low-income areas and their role in the regional food system of the Northeast. The cases are an effort to record important characteristics of the participating stores and their supply chain partners. This case describes a supermarket and with it the supply chains of two of the eight foods in the EFSNE project's market basket, which served as a focal point for many of its research activities.

Case study interviews were conducted between 2012 and 2014. Fictitious names are used to maintain confidentiality of the case study participants.

Place: Syracuse, NY

This case describes a supermarket in a neighborhood of Syracuse, New York. Three years into the five-year project, the store went out of business. The store owners were interviewed while the store was in business, and the information presented here provides a snapshot of the business at that time.

The city of Syracuse has a population of about 144,700. The store is located in a southwest neighborhood of the city.[1] The neighborhood has a median household income of $81,093 (Table 1) which is much higher than that of the county or the state. Despite the high income of households in the neighborhood, the store borders another neighborhood considerably less wealthy.

The store neighborhood has a population that is predominantly Caucasian with only 4.3 percent African American and 3.4 percent Hispanic. The poverty rate in the neighborhood is 4.6 percent; the poverty rate for the rest of the county is 15.2 percent.

The U.S. Census Bureau reports six grocery stores and convenience stores but no supercenters or wholesale clubs in the neighborhood. The neighborhood contains a concentration of 3.9 grocery, convenience stores, and supercenters/warehouse clubs per 10,000 people compared to 6.7 in the county and 7.0 in the state. The concentration of food retailers per 10,000 persons is included in Table 1 to illustrate how this compares to the county and state metrics.

Supermarkets and other grocery stores sell a variety of foods, such as canned and frozen foods; fresh fruits and vegetables; and

[1] The neighborhood is defined as the zip code that contains the store.

fresh and prepared meats, fish, and poultry. Supermarkets are traditionally defined in the food retail industry as large grocery stores having $2 million or more in annual sales. Convenience stores or food marts (except those with fuel pumps) primarily engage in retailing a limited line of goods that generally includes milk, bread, soda, and snacks.

TABLE 1: Demographic and Food Environment Statistics for Syracuse Store 1

	Neighborhood zip code	Onondaga County	New York State
DEMOGRAPHICS			
Population and Age			
Population[1]	15,409	467,846	19,594,330
Median age[1]	44.1	38.7	38.1
Less than 5 years of age[a,1]	3.6%	5.8%	6.0%
Average household size[1]	2.56	2.43	2.62
Education			
High school degree or higher[a,1]	94.4%	90.1%	85.4%
Bachelor's degree or higher[a,1]	44.0%	33.5%	33.7%
Race and Ethnicity			
African American or Black[a,b,1]	4.3%	12.7%	17.0%
Hispanic[a,c,1]	3.4%	4.3%	18.2%
Poverty and Program Participation			
Poverty rate[a,1]	4.6%	15.2%	15.6%
Food insecurity rate[a,2]	13.5%	13.5%	15.8%
Share SNAP recipients[a,d,1,3]	N/A[e]	15.8%	16.3%
Income			
Median household income[1]	$81,093	$54,498	$58,687
FOOD ENVIRONMENT			
Grocery stores[f,4]	1.30	2.63	5.22
Convenience stores[f,4]	2.60	4.00	1.76
Warehouse clubs and supercenters[f,4]	0	0.11	0.07

Notes:

[a] Percentage of entire population.
[b] Alone or in combination with other races.
[c] Of any race.
[d] Calculated by dividing the number of SNAP recipients by the population.
[e] Data not available at the zip code level.
[f] Number per 10,000 people.

Sources:

[1] American Community Survey 5-Year Estimate, 2010 - 2014, copied from http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml on April 27, 2016.
[2] Food insecurity, 2013, FeedingAmerica.org, downloaded from http://www.feedingamerica.org/hunger-in-america/our-research/map-the-meal-gap/data-by-county-in-each-state.html on April 27, 2016.
[3] Small Area Income and Poverty Estimate, July 2013, downloaded from http://www.census.gov/did/www/saipe/data/model/tables.html on April 27, 2016.
[4] County Business Patterns Database, 2013, downloaded from https://www.census.gov/econ/cbp/download/13_data/ on April 29, 2016. Currently online at https://www.census.gov/data/datasets/2013/econ/cbp/2013-cbp.html.

Syracuse Store 1

Syracuse Store 1 is an independent supermarket. The owners acquired the business one year ago and are active store managers and members of the community. The stores sales are estimated at $1.4 million annually with total selling space of 7,500 square feet and 2,500 square feet of storage (Table 2). The store's performance is lower than that of the average supermarket. Weekly sales per square foot are almost one-third the average while estimated weekly sales per full-time equivalent are about one-half the average.

TABLE 2: U.S. Store Operations versus Syracuse Store 1

	Syracuse Store 1	2012 U.S. average
Store size	7,500 sq ft	33,100 sq ft
Weekly sales	$26,931	$312,758
Weekly sales per sq ft of selling area	$3.59	$9.45
Weekly sales per full-time equivalent employee	$2,244 est.	$4,533

Source: Progressive Grocer, "80th Annual Report of the Grocery Industry." April 2013.

The store purchases many of its supplies from its primary grocery wholesaler, Northeast Grocery Wholesaler. In general, an independent store will need the services of a general-line grocery wholesaler. A multi-year agreement is usually required to guarantee the wholesaler enough volume to maintain distribution services to the store. In addition, the store usually is able to receive a number of services offered by the wholesaler, including advertising and promotion program planning, flyer development, layout, and production, architectural and store construction planning and design, market research, store shelf plans, accounting, bookkeeping, check writing, and more.

The overall gross margin for the store is 28 percent. Gross margin is the difference between the purchase price and selling

[2] The store interview was conducted in July 2012. Although this case study is written in present-tense, it is meant to provide a snapshot in time, and the authors make no claims that the data reflect anything other than the store's situation at that time.

price divided by the selling price and is an important measure of the margin available to pay for all operations above and beyond the cost of the product. The 2015 median gross margin for supermarkets reported by the Food Marketing Institute is 28 percent.[3]

Since its purchase one year ago, sales have grown approximately 15 percent, and the store owners believe that it will continue to grow over the next three years. They plan to be in business 10 years from now.

The owners identified some major external limitations that will affect the store's ability to stay in business. The top three limitations are access to cash or credit, taxes, and labor costs, including minimum wage laws and insurance.

The owners believe that lack of demand is the primary factor that affects this store's ability to sell healthy food. One factor that they believe limits the store's ability to procure regionally produced foods from the Northeast is the need to purchase full cases of items.

Market basket items – Frozen broccoli and canned peaches
The two market basket items in this case are frozen broccoli and canned peaches.

Supply Chains

We traced the supply chains of two of our market basket products sold by Syracuse Store 1, canned peaches and frozen broccoli, to determine the sources of these foods and the extent of regional food system participation.

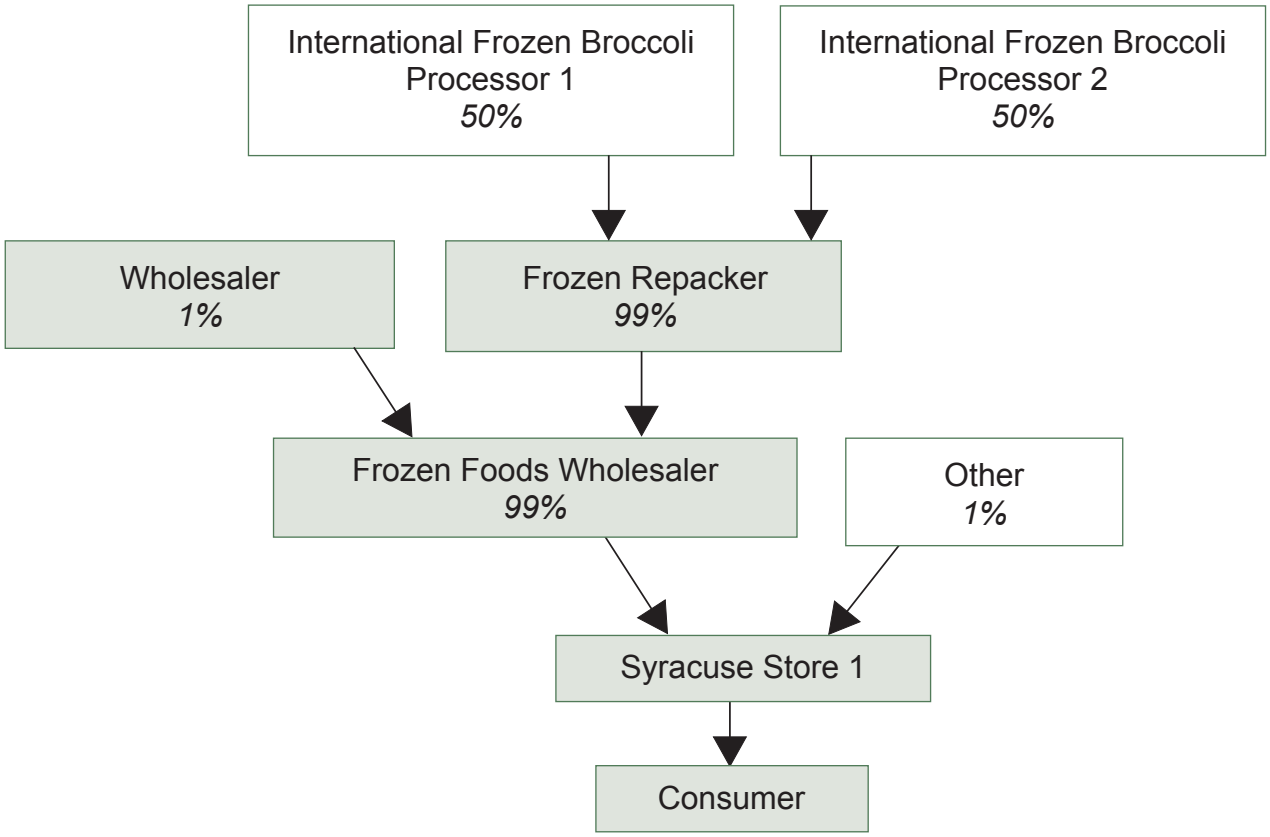
Product 1: Frozen Broccoli

Broccoli production in the Northeast is quite small and is for fresh consumption. There is no significant frozen broccoli production in the Northeast. While companies that repackage frozen loads of broccoli for retail and institutional sales exist in the region, production, cut-up, and freezing is handled almost exclusively overseas.

Figure 1 depicts the supply chain of frozen broccoli for Syracuse Store 1. Starting at the store and tracing back the supply chain, the boxes upstream indicate the percent of the downstream member's total purchases. Frozen Foods Wholesaler provides 99 percent of Syracuse Store 1's frozen broccoli while Frozen Repacker provides 99 percent of Frozen Wholesaler's. The remaining one percent is filled in by other suppliers. Frozen Repacker purchases 100 percent of its frozen broccoli from two international suppliers.

[3] *The Food Retailing Industry Speaks 2016*. The Food Marketing Institute. Arlington, VA 22202.

FIGURE 1: Frozen Broccoli Supply Chain for Syracuse Store 1



Note: Shaded boxes represent supply chain members located in the Northeast Region. Numbers in boxes represent the percent of the next member's supply.
Source: Author's calculations based on case interviews.

Frozen Foods Wholesaler

Frozen Foods Wholesaler is located in the metropolitan area and specializes in distribution of frozen foods. Although Frozen Foods carries a nationally branded frozen broccoli, it also carries a wholesaler label on many products equivalent to a private label. The majority of its frozen broccoli sales are its private label products. Its frozen broccoli products included florets and cuts. The Other wholesaler supplies only a very small portion, one percent, of the store's frozen broccoli.

Frozen Foods does not have a concentrated customer base. The wholesaler's top four customers account for only about 37 percent of total broccoli sales. Its Syracuse Store 1 account is less than one percent of its broccoli sales. The major portion of their sales, 80 percent, are within New York with the remaining 20 percent sold in the Northeast.

The wholesaler has sales people who call on their customers for orders, assist with stocking, and provide other services. Frozen Foods' salesperson rates the present store owners highly on collaboration, timeliness, communication, and trustworthiness and speaks very highly of them.

Frozen Foods has one warehouse supplying frozen broccoli which is located nine miles from Syracuse Store 1.

The wholesaler has used Frozen Repacker as their primary supplier of frozen broccoli for about ten years. Orders are emailed weekly, and it takes one week for the shipment to be delivered to the wholesaler's warehouse. Orders are shipped on semi-tractor-trailers. Delivery costs are included in the price. Prices are negotiated but change rarely, every three years or so.

Frozen Foods is generally satisfied with their vendor. When asked if there are any specific issues, the wholesaler was somewhat dissatisfied with prices and diversity of products available. Frozen Foods believes that other vendors may have better packaging technology.

> "Frozen Repacker repacks large blocks, or totes, of frozen fruits and vegetables into packages for retail and institutional sales."

Frozen Repacker

Frozen Repacker repacks large blocks, or totes, of frozen fruits and vegetables into packages for retail and institutional sales. The business is 12 years old with 28 full-time employees. Total annual revenue is $35.4 million, of which about one-sixth is for frozen broccoli. The company sells frozen broccoli to over 40 different customers with the top five customers receiving about 50 percent of their business. Only about one percent of its broccoli sales are to Frozen Foods Wholesaler.

Most, 70 percent, of Frozen Repacker's sales are to customers in the rest of the Northeast. About 20 percent of sales are to New York State and 10 percent to the rest of the U.S. Frozen Repacker is very satisfied with Frozen Foods as a customer.

Frozen Repacker purchases the large frozen totes weighing 800-900 pounds from two different international broccoli processors with the product coming primarily from Guatemala, Ecuador, and Mexico. Frozen Foods' provides Frozen Repacker its product specifications for its retail packages.

Orders to the international suppliers are placed weekly via email and average 40,000 pounds. Product is transported primarily by ocean cargo ships. For example, a cargo ship takes about 20 days to travel from Guatemala to a Northeast port. The international suppliers take care of import handling. After the ocean transit, product is transported by tractor-trailers from the port to the plant. Delivery costs are included in the purchase price. Frozen Repacker takes ownership upon delivery to its door.

Frozen Repacker has purchased bulk broccoli florets and bulk broccoli stalks from International Supplier 1 of its suppliers for 12 years, as long as the repacker has been in business.

International Frozen Broccoli Supplier 1

We trace the frozen broccoli from one of the international suppliers International Frozen Broccoli Processor 1. This supplier is a manufacturer and distributor of frozen fruits and vegetables. It processes frozen fruits and vegetables and distributes its products primarily to food service and institutional customers. In addition to facilities overseas, it also has processing facilities in the U.S. from where it sources fruits and vegetables already processed from a supply network from the U.S. as well as from around the world.

International Frozen Broccoli Supplier 1 works with local frozen processors in Guatemala, Ecuador, and Mexico to source frozen broccoli. It also provides inputs to the local growers, providing them with resources such as access to capital, fertilizer, and other inputs, and greenhouses for seedling production.

Regional Comparisons

In this section we examine an international frozen broccoli supply chain. Syracuse Store 1's leading brand of frozen broccoli is grown and processed in Guatemala, Ecuador, and Mexico. It does not purchase from any regional broccoli grower or primary processor.[4] We examine the supply chain movement of frozen broccoli from Guatemala as an example of one of these international supply chains.

Table 3 shows the price margin[5] per pound of frozen broccoli obtained by each member of the supply chain. In addition, it indicates the percent of total or proportion of the retail price obtained by each member using the member's price margin. Not enough information was gathered to determine the price margin of the frozen broccoli processor or of the growers supplying the processor. The price margin for the Grower-Processor-International Supplier listed in Table 3 combines the margins for these members into a residual left from the other downstream members.

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[4] Over 95 percent of frozen broccoli sold in the U.S. is imported. The top three countries of origin for frozen broccoli are Mexico, Guatemala, and Ecuador. Source: Foreign Agricultural Service, BICO reports at: https://apps.fas.usda.gov/GATS/BICOReport.aspx

[5] Price margin is defined here as the sale price minus the purchase price.

The Grower-Processor-International Supplier members combined obtain an estimated $0.45 per pound which is 23.7 percent of the final retail price. The price margin for Frozen Repacker is approximately $0.41 or 21.7 percent of the final retail price. We note that the price margin is what is left to pay for all other business expenses and profits. It is not an indication of profitability.

The price margin obtained by the Frozen Foods Wholesaler is $0.25 or 13.2 percent of the retail price. In general, Syracuse Store 1 obtains a higher share of the retail price than do the other members of the supply chain.

TABLE 3: Allocation of Retail Price in Syracuse Store 1's Frozen Broccoli Supply Chain

	International	
	Frozen Broccoli[1] – Guatemala	
Supply chain segment	Price margin ($/lb)	% of retail price
Grower-Processor-International Supplier combined	0.45	23.7
Transportation	0.20	10.7
Frozen Repacker	0.41	21.7
Frozen Foods Wholesaler	0.25	13.2
Syracuse Store 1	0.58	30.7
Total Retail Price	1.89	100.0

[1]Frozen broccoli florets.
Source: Author's calculations based on case interviews.

Table 4 estimates the distance and fuel used to get frozen broccoli from the producer-processor to the retailer. Despite a seventeen hundred mile journey and over 250,000 gallons of fuel, frozen broccoli transportation from Guatemala to New York City was estimated as 0.08 gallons per hundredweight of product, not much greater than the trucking leg from the port to the repacker. This is due to the large capacity of the ocean vessel used in the estimates and the fuel efficiency of the vessel and water transport.

TABLE 4: Food Miles and Fuel Use in Syracuse Store 1's Frozen Broccoli Supply Chain

	Food miles	Transport miles[1]	Vehicle capacity[2]	Transportation fuel use	Fuel use per cwt shipped[3]
Supply chain segment	*number*		*cwt*	*gallons*	
International: Guatemala to Syracuse Store 1					
Guatemala to Elizabeth, NJ	1,776	1,776	3,200,000	254,864	0.08
Elizabeth, NJ to Frozen Repacker	150	150	400	25	0.06
Frozen Repacker to Frozen Foods Wholesaler	236	236	400	39	0.10
Frozen Foods Wholesaler to Syracuse Store 1	11	22	400	2	0.01
All segments	2,173	2,184		254,930	0.25

[1] Transport miles are equal to food miles when product travels over 150 miles.
[2] Assumptions for estimates: ocean vessels from Guatemala to New York can have a capacity of 40,000 pounds per twenty-foot equivalent unit (TEU), transportation unit, and 8,000 TEUs on board. Vessels can obtain 0.01 miles per gallon (assuming 8,000 TEU capacity) (https://people.hofstra.edu/geotrans/index.html). Trailer trucks used for shipping frozen broccoli across land transport have a capacity of 40,000 pounds and obtain 6 miles per gallon.
[3] Assumptions for estimates: Vessels can obtain 0.01 miles per gallon (assuming 8,000 TEU capacity) (https://people.hofstra.edu/geotrans/index.html). Trailer trucks used for shipping frozen broccoli across land transport obtain 6 miles per gallon fuel use per cwt shipped.
Source: Author's calculations based on case interviews.

Prospects for Expansion of Regional Food System: Frozen Broccoli

We define a regional supply chain as one where the product is produced, or grown, in the region. Because the frozen broccoli is from Guatemala, Ecuador, or Mexico, we can say that a regional supply chain for frozen broccoli does not exist for Syracuse Store 1.

Although the broccoli is not grown in the Northeast, some value-added activity, mainly in wholesaling and retailing, is conducted in the region. We weight the member retail price shares (see Table 3) by the proportion of the supply that they provided (see Figure 1) to calculate the extent of total regional participation in the supply chain. Table 5 summarizes the extent of members' participation.

The supply chain stream illustrated here starts with frozen broccoli from Guatemala. This stream contains activities from growers' production, the frozen processor, the international supplier, the frozen repacker, Frozen Foods Wholesaler, and Syracuse Store 1 retailer. Members that are located in the region and contributed value-added activities to the region are the repacker, the wholesaler, and the retailer.

The sum of the activities that take part in the Northeast is 76.3 percent, which means 76.3 percent of the value-added activities

from the store's frozen broccoli supply chain is being conducted in the region.

Prospects for expansion of regional production of broccoli produced for the frozen market on a scale to enter grocery retailing are extremely limited, because of the higher cost of production and labor in the Northeast.

TABLE 5: Extent of Regional Value-Added Activity in the Syracuse Store 1's Frozen Broccoli Supply Chain from Guatemala

	Percent of retailer's frozen broccoli supplies	Value-added[1]	Value-added retained by supply chain member	Extent of regional value-added activity[2]
Supply chain segment	*%*	*% of retail price*	*%*	*%*
International Supplier				
Grower-Processor-International Supplier combined	100	23.7	23.7	
Frozen Repacker	100	32.4[3]	32.4	
Frozen Foods	100	13.2	13.2	
Syracuse Store 1 retailer	100[4]	30.7	30.7	
All segments	100	100.0		
Added-value performed in region				**76.3%**

[1] This column contains the percent margins of retail revenue from table 3 above.
[2] This column captures all regional activity in the Northeast within each supply chain (excludes supply chain activity outside of the Northeast).
[3] Transportation is paid by the Frozen Repacker and its price margin is added to the Frozen Repacker price margin from table 3.
[4] As default, the retailer percent is 100 percent.

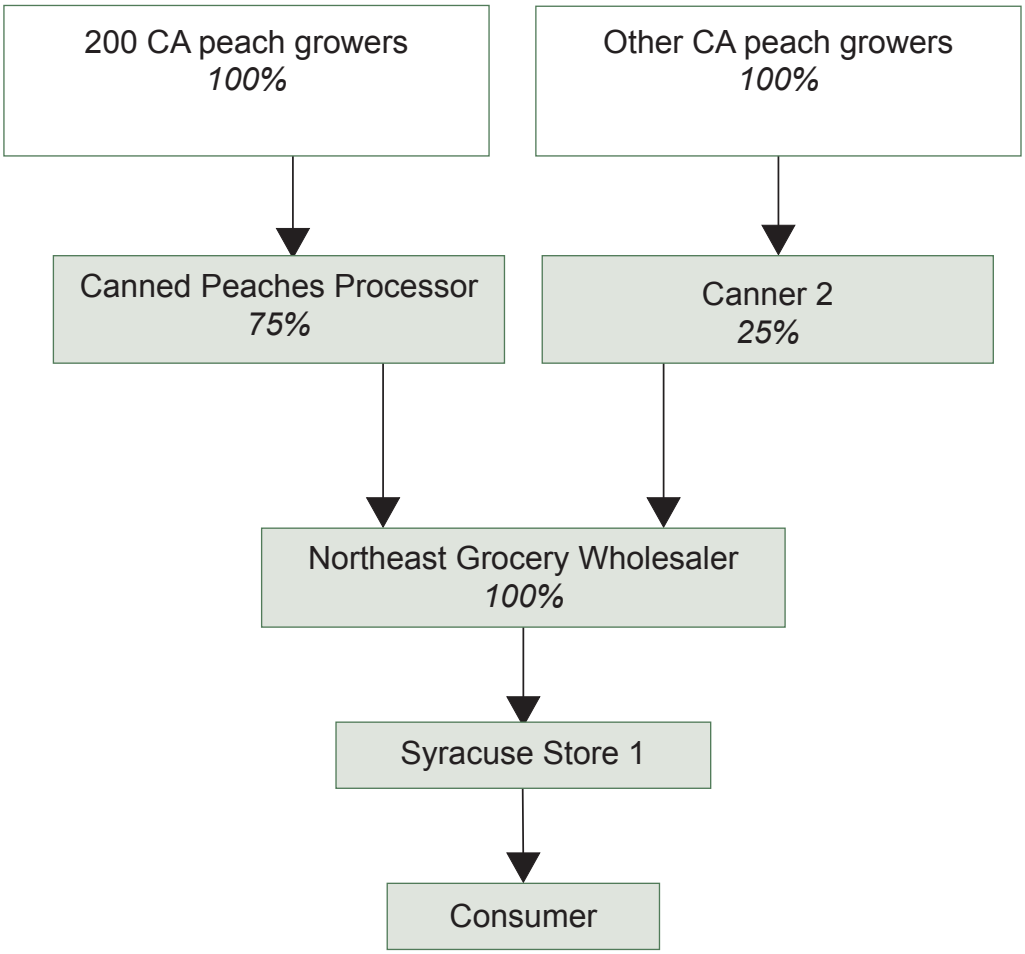
Note: Shaded rows indicate supply chain members located in the Northeast.
Source: Author's calculations based on case interviews.

Product 2: Canned Peaches

Canned peaches are the most popular canned fruit sold in the U.S.

Figure 2 depicts the general supply chain for Syracuse Store 1's canned peaches. Starting at Syracuse Store 1 and tracing back the supply chain, the boxes upstream indicate the percent of the downstream member's total purchases. The store's Northeast Grocery Wholesaler provides 100 percent of Syracuse Store 1's canned peaches.

FIGURE 2: Canned Peaches Supply Chain for Syracuse Store 1



Note: Shaded boxes represent supply chain members located in the Northeast Region. Numbers in boxes represent the percent of the next member's supply
Source: Author's calculations based on case interviews.

Northeast Grocery Wholesaler

The store purchases all of its canned peaches from Northeast Grocery Wholesaler, a regional wholesaler that provides a broad line of grocery products to retail customers. The wholesaler's canned fruits and vegetables sales represent less than one-half of one percent of their total annual sales.

Northeast Grocery Wholesaler has over 150 customers that represent over 300 store locations. Syracuse Store 1 is therefore only one of these 150 customers.

Most of Northeast Grocery Wholesaler's sales, 85 percent, are within the State, and 15 percent are in the rest of the Northeast. A very small percent, about 1 percent, are in Ohio. The canned

peaches are not sold with any certification or attribute on the labels.

Northeast Grocery Wholesaler is very satisfied with Syracuse Store 1 as a customer but is only somewhat satisfied with the store's distance from the wholesaler's distribution center.

The majority of the wholesaler's canned peaches, 75 percent, are purchased from a processor located in California. This processor makes a private label product and a branded product that Syracuse Store 1 carries for its customers.

Northeast Grocery Wholesaler's most popular brand of canned peaches is its private label, sales of which are estimated at around 75 percent of all its canned peaches. And the most popular kind is the 15 ounce sliced peaches in heavy syrup. The processor packs using the private label product specifications and is located in California which is where about 97 percent of peaches for processing are grown.

"Despite Northeast Grocery Wholesaler's preferences for heavy syrup, most U.S. consumers purchase the "lighter" versions and those in heavy syrup go mainly to overseas customers."

Canner 1 Fruit Processor

Canned Peaches Processor has a peach processing plant in California where it also cans apricots and pears. Three other fruit processors also can peaches in California.

The processor contracts with about 200 growers to produce the cling peaches used in canning. The average peach farm is about 50 acres. Peaches are hand-picked, brought to a receiving station where they are assembled and graded by USDA inspectors then shipped to the plant where they are re-graded.

The plant cans peaches for about 50 days. Peaches are packed in heavy syrup, light syrup, pear juice, artificial sweetener, or clarified white grape juice. Off-grade pears are squeezed for juice in the plant and this juice is stored for next season's packing juice. Despite Northeast Grocery Wholesaler's preferences for heavy syrup, most U.S. consumers purchase the "lighter" versions and those in heavy syrup go mainly to overseas customers.

The advantages to locating peach canning operations in California include the large-scale agriculture and the growing conditions which provide superior production yields. For example, grower costs on the west coast are about half that on the east coast because yields are so much greater.

One disadvantage to having production concentrated in such a relatively small growing area is great risk of production losses in case of bad weather, labor shortages, or high pest loads. Another disadvantage is the greater transportation distances to large markets on the east coast. The processor believes, however, that the advantages far outweigh the disadvantages.

Canned peaches and other canned products are moved from the plant to railcars from which they are transported to a consolidation warehouse in the Northeast and shipped to the

grocery wholesaler. The wholesaler can order mixed truckloads of canned fruits from the consolidation warehouse, which is an advantage to them.

Regional Comparisons

In this section we examine a national canned peach supply chain. Syracuse Store 1's peaches are canned by two national processors. We examine the supply chain movement of peaches from one of these non-regional processors.

Table 6 shows the price margin[6] per can of peaches obtained by each member of the supply chain. In addition, it indicates the percent of total or proportion of the retail price obtained by each member using the member's price margin. For example, the grower member in the supply chain obtained on average $0.16 per can and 10 percent of the final retail price. The price margin for the processor was approximately $0.60 or 35.7 percent of the final retail price. We note that the price margin is what is left to pay for all other business expenses and profits. It is not an indication of profitability.

The price margin obtained by the grocery wholesaler, in this case, includes transportation to the store.

TABLE 6: Allocation of Retail Price in Syracuse Store 1's Canned Peaches Supply Chain

	Non-regional	
Supply chain segment	Price margin ($/can) [1]	% of retail price
CA Peach Growers	0.16	10.0
Canned Peaches Processor	0.60	35.7
Transportation[2]	0.07	4.3
Northeast Grocery Wholesaler[3]	0.38	22.5
Syracuse Store 1	0.47	27.8
Total Retail Price	1.69	100.0

[1] Can = 15 oz.
[2] Transportation from processor to wholesaler distribution center
[3] Includes transportation to retail store
Source: Author's calculations based on case interviews

Table 7 estimates the distance and fuel used to get canned peaches from the producer to the retailer. Transportation from Canned Peaches Processor's California plant to its regional warehouse in the Northeast is the most fuel-intensive leg.

[6] Price margin is defined here as the sale price minus the purchase price.

TABLE 7: Food Miles and Fuel Use in Syracuse Store 1's Canned Peaches Supply Chain

	Food miles	Transport miles[1]	Vehicle capacity	Fuel use	Fuel use per cwt shipped
Supply chain segment	*number*		*cwt*	*gallons*	
Non-regional: Canned Peaches Processor to Syracuse Store 1					
Canned Peaches Processor to Warehouse[2]	2,738	2,738	1,400	464	0.33
Warehouse to Northeast Grocery Wholesaler3	114	228	400	38	0.10
Northeast Grocery Wholesaler to Syracuse Store 1[3]	163	326	400	54	0.14
All segments[4]	3,015	3,292		556	0.56

[1] Truck miles are equal to food miles when canned peaches travel over 150 miles.
[2] Rail trains used to transport canned peaches from packaged sunshine to the warehouse have the capacity of 40,000 pounds and obtain 413 ton-miles per gallon. - http://www.ams.usda.gov/AMSv1.0/RuralTransportationStudy 50 foot trailer cars have capacity of 70 tons http://www.midwestrailcar.com/equipBoxcar70-50.html
[3] Trailer trucks used for shipping canned peaches from warehouse to wholesaler and wholesaler to retailer have a capacity of 40,000 pounds and obtain 6 miles per gallon.
[4] The sum may not equal the total due to rounding.
Source: Author's calculations based on case interviews and USDA-Agricultural Marketing Service.

Prospects for Expansion of Regional Food System: Canned Peaches

In general, canning peach producers obtain a low share of the retail price. Most of the value-added activities for canned peaches are in the processing or canning stage.

We define a regional supply chain as one where the product is grown in the region. Therefore, we can say that a regional supply chain for canned peaches does not exist for Syracuse Store 1. All the store's canned peaches originate in California. We use the supply chain originating with Canned Peaches Processor to represent the canned peaches supply chains.

Although the peaches are grown and canned in CA, some value-added activities, mainly in wholesaling and retailing, are conducted in the Northeast. We weight the member retail price shares (see Table 6) by the proportion of that they provide (see Figure 2) to calculate the extent of total regional participation in the supply chain. Table 8 summarizes the extent of members' participation in the supply chain.

The supply chain stream starts with peaches grown in California. This stream includes activities from California peach growers' production, from Canned Peaches Processor, from Northeast Grocery Wholesaler, and Syracuse Store 1 retailer.

The sum of the regional activities by the grocery wholesaler and the retailer is 50.3 percent, which means 50.3 percent of the

value-added activities from the canned peach supply chain is being conducted in the region. The activities are in wholesaling and retailing.

Prospects for expansion of regional production on a scale to enter grocery retailing are limited.

TABLE 8: Extent of Regional Value-Added Activity in the Syracuse Store 1's Canned Peaches Supply Chain

	Percent of retailer's canned peaches supplies	Value-added[1]	Value-added retained by supply chain member	Extent of regional value-added activity[2]
Supply chain segment	*%*	*% of retail price*	*%*	*%*
California canning peaches growers	100	10.0	10.0	
Canned Peaches Processor	100[3]	39.7	35.7	
Northeast Grocery Wholesaler	100	22.5	22.5	
Syracuse Store 1 retailer	100[4]	27.8	27.8	
All segments	100	100.0		50.3%
Added-value performed in region				**50.3%**

[1] This column contains the % margins of retail revenue from Table 5 above.
[2] This column captures all regional activity in the Northeast within each supply chain (excludes supply chain activity outside of the Northeast).
[3] We use Canned Peaches Processor to represent all of the canned peaches canners in Syracuse Store 1's supply chain.
[4] As default, the retailer percent is 100 percent.
Note: Shaded rows indicate supply chain members located in the Northeast.
Source: Author's calculations based on case interviews.

Key Lessons for Syracuse Store 1

As described above, Syracuse Store 1 is a small, independent grocery store located in the city of Syracuse. It purchases most of its supplies from wholesalers. The store has been under new ownership for approximately one year. The product supply chains described in this case are frozen broccoli and canned peaches.

The Store and Its Environment

Effect of size and economies of scale

- Syracuse Store 1 is a small store of approximately 7,500 square feet and solely-owned. The store carries all the products that larger supermarkets do, including meats, produce, and groceries.
- Like most independent stores, it purchases most of its products from wholesalers rather than direct from the manufacturer. Independent stores are often smaller companies that procure primarily from wholesalers, intermediaries between manufacturers and the store. In comparison, self-distributing supermarkets are large enough and have enough stores that they usually purchase directly from manufacturers. This allows the larger companies to buy "in bulk" and achieve discounts provided by the manufacturer. The size of the store itself can affect operations costs for delivery, replenishment, and labor. Deliveries of smaller volumes are more costly and less efficient. Wholesalers and distribution centers often have to break apart full cases to pick individual items for small orders, and transportation is more expensive for small drop sizes.
- In the initial interview, the owners indicated that the most important factors that limit their ability to stay in business are access to cash or credit, taxes, and labor costs. The size and scale of their business may affect their ability to access financial resources and make capital investments.

Effect of ownership structure on the supply chains

- As an independent store, Syracuse Store 1 can choose its own suppliers and business partners and sculpt its selection or assortment of products.
- The owners work with Northeast Grocery Wholesaler that carries many private label products, including canned peaches and frozen broccoli. The private label brands offer an opportunity for the owners to carry competitively priced products.

> “Manufacturing plants for each of these products are located close to areas of commercial production of broccoli and peaches.”

Market Basket Supply Chains

Effect of regional production/industry

- The Northeast region does not produce significant amounts of frozen broccoli or canned peaches. Neither does it significantly produce these products in raw form. Manufacturing plants for each of these products are located close to areas of commercial production of broccoli and peaches. In addition, the cost of labor has drawn frozen broccoli production to a number of countries in Latin America where production and manufacturing labor are both relatively inexpensive.
- Frozen broccoli packages are labeled by country of origin, although this labeling is in small print and not prominently displayed. Canned peaches are not labeled with a source identification, and a source identification will not likely benefit canner or retailer.

Extent of regional value-added activity

- Despite the fact that both frozen broccoli and canned peaches are grown and manufactured outside the region, some value-added supply chain activities are conducted in the region by Frozen Foods Wholesaler, Northeast Grocery Wholesaler, and by Syracuse Store 1 itself. The total value-added activities conducted in the region are estimated as 76.3 percent and 53 percent respectively.
  - We see that even for supply chains in which the origin is very far away there is a lot of value-addition going on in the Northeast. This is important because it translates into economic activity from the distribution and retailing which happens in the Northeast.

Presence of relationships

- The presence of longstanding relationships between the supply chain members is not associated with close proximity. The newest relationships are between the owners and their two major wholesalers, Frozen Foods Wholesaler and Northeast Grocery Wholesaler. The longest-running relationship is between Northeast Grocery Wholesaler and Canned Peaches Processor. Good relationships tend to be preserved even over long distances.

Appendix

Frozen Broccoli Industry Profile

According to the USDA Economic Research Service, 2.6 pounds of frozen broccoli were available per capita in the U.S. in 2015 (Table A.1.). In 2015, 5.9 pounds of fresh broccoli, almost twice that of frozen, were available per capita. In 2013, the last year the USDA ERS collected retail price data, retail prices for fresh broccoli florets were also higher than for frozen broccoli.

TABLE A.1: Broccoli—Average Retail Price per Pound and per Capita Consumption

Form	Average retail, 2013	Per capita availability, 2015
	price per pound	*pounds*
Fresh	-	5.9
Florets	$2.57	-
Head	$1.64	-
Frozen	$1.87	2.6

Sources: USDA-ERS. "USDA ERS - Fruit and Vegetable Prices." Accessed February 10, 2017. https://www.ers.usda.gov/data-products/fruit-and-vegetable-prices.aspx#.Ua5GqJxZ56I%20. and USDA, ERS Food Availability (Per Capita) Data System. Accessed January 19, 2017. https://www.ers.usda.gov/data-products/food-availability-per-capita-data-system/.

While approximately 80 percent of the 2015 fresh broccoli supply in the U.S. was produced domestically, 82 percent of frozen broccoli consumed in the same year was imported.[7] Indeed, in 2015 broccoli accounted for about 30 percent of all frozen vegetable imports. Frozen broccoli imports come primarily from Mexico, Guatemala, and Ecuador (Table A.2.).

TABLE A.2: Frozen Broccoli, Cut/Reduced in Size: U.S. Imports from Selected Countries, 2015

Trade partner	Volume	% of total volume	Value	% of total value
	1,000 pounds	*percent*	*1,000 dollars*	*percent*
Mexico	444,974	78.9%	247,165	80.9%
Guatemala	62,019	11.0%	28,440	9.3%
Ecuador	38,334	6.8%	22,153	7.2%
China	15,568	2.8%	5,299	1.7%
TOTAL	564,283		305,379	

Source: USDA-ERS. "Data by Commodity - Imports and Exports." Accessed February 10, 2017. https://data.ers.usda.gov/reports.aspx?programArea=veg&statyear=2008&top=5&HardCopy=True&RowsPerPage=25&groupName=Vegetables&commodityName=Broccoli&ID=9457#P09f71a77e64d48e8abb51897a0ab1c10_9_384.

[7] "USDA, ERS *Food Availability (Per Capita) Data System*. Accessed January 19, 2017. https://www.ers.usda.gov/data-products/food-availability-per-capita-data-system/.

From 2011-2015 the volume of frozen broccoli imports remained steady while the total value grew (Table A.3.).

TABLE A.3: Frozen Broccoli Imports: Volume and Value

	Volume	Value
	1,000 lbs.	*$*
2011	607,354	291,400,870
2012	584,789	288,213,977
2013	515,093	264,692,431
2014	573,756	295,000,000
2015	564,293	305,379,000

Source: USDA-ERS, "Data by Commodity - Imports and Exports." Accessed February 10, 2017. https://data.ers.usda.gov/reports.aspx?programArea=veg&stat_year=2008&top=5&HardCopy=rue&RowsPerPage=25&groupName=Vegetables&commodityName=Broccoli&ID=9457#P09f71a77e64d48e8abb51897a0ab1c10_9_384.

Data on domestic broccoli production do not differentiate production for frozen versus fresh use, and USDA does not report broccoli production statistics by state. But in Atallah, et al. 2014, authors estimated broccoli acreage and yield for several states using USDA statistics and local verification.[8] Overall, California and Arizona dominate production, but several states in the Northeast also have significant summer and fall production by higher numbers of smaller farms (Table A.4.).

[8] Atallah, Shady S., Miguel I. Gómez, and Thomas Björkman. "Localization Effects for a Fresh Vegetable Product Supply Chain: Broccoli in the Eastern United States." *Food Policy* 49, Part 1 (December 2014): 151–59. doi:10.1016/j.foodpol.2014.07.005.

TABLE A.4: Estimated Broccoli Acreage and Yields in Eastern and Western States.

	Broccoli acreage				Number of farms	Yield (21-pound boxes/ acre)
	Spring	*Summer*	*Fall*	*Winter*		
Maine	0	3,300	2,200	0	71	500
Maryland	0	145	145	0	40	400
New Jersey	0	69	69	0	74	450
New York	0	400	400	0	270	450
Pennsylvania	0	100	100	0	218	550
Total Eastern U.S.	**0**	**4,014**	**2,914**	**0**	**673**	**n/a**
Arizona	5,000	0	5,000	15,000	44	600
California	32,650	32,650	32,650	32,650	416	800
Total Western U.S.	**37,650**	**32,650**	**37,650**	**47,650**	**460**	**n/a**
Total U.S.	**39,741**	**36,824**	**42,069**	**48,706**	**1450**	**n/a**
North Eastern share (%)	0	11	7	0	46	n/a
Western share (%)	95	89	89	98	32	n/a

Source: Atallah, Shady S., Miguel I. Gómez, and Thomas Björkman. "Localization Effects for a Fresh Vegetable Product Supply Chain: Broccoli in the Eastern United States." Food Policy 49, Part 1 (December 2014): 151–59. doi:10.1016/j.foodpol.2014.07.005.

Peaches Industry Profile

According to the USDA Economic Research Service Food Availability (Per Capita) Data System, peaches are the most popular canned fruit as measured by per capita consumption across the country. Canned peach consumption is slightly lower than fresh consumption (Table A.5.). Apples, including applesauce, is the second most popular canned fruit.

TABLE A.5: Canned Peaches Consumption

	Canned	Fresh*
	Per capita use (processed weight)	Per capita disappearance (retail availability)
	lbs	*lbs*
2010	3.63	4.73
2011	3.14	4.47
2012	3.14	3.86
2013	3.28	3.00
2014	3.07	3.26
2015	3.24	2.96

*Includes nectarines

Source: USDA-ERS, Fruit and Nut 2015 Yearbook. Noncitrus Fruit data set. https://www.ers.usda.gov/data-products/fruit-and-tree-nut-data/yearbook-tables/#Noncitrus Fruit.

California is the leading producer of peaches, growing 42 percent of peaches for fresh consumption in 2015 and 97 percent of peaches for processing (Table A.6.).[9] Del Monte, Dole, Seneca Foods as well as Pacific Coast Producers and Treetop have canning plants in California.

In 2015, the Northeast produced about 7 percent by volume but 12.2 percent by value of total U.S. production. Data for fresh versus processing production in the Northeast are not available.

TABLE A.6: 2015 U.S. and Northeast Peach Statistics

Source	Variable	U.S.	Northeast	Northeast, % of U.S.
1	Utilized production, total, *tons*	825,415	58,375	7%
1	Value of utilized production, total *$ thousands*	$605,794	$73,633	12.2%
1	Utilized production, canned, *tons*	339,540	na	na
1	Value of production, canned, *$ thousands*	$160,602	na	na
1	Grower price, canned, *$ per ton*	$473	na	na
2	Canned consumption per capita, *lbs*	3.24	na	na

Sources:
USDA-NASS, Noncitrus Fruits and Nuts, 2015 Summary. http://usda.mannlib.cornell.edu/usda/current/NoncFruiNu/NoncFruiNu-07-06-2016.pdf.
USDA, ERS, Fruit and Nut 2015 Yearbook. Noncitrus Fruit data set." https://www.ers.usda.gov/data-products/fruit-and-tree-nut-data/yearbook-tables/#Noncitrus Fruit.

Although data on retail sales for canned peaches specifically were not available, retail sales growth of canned fruits in general showed mostly flat to negative year-to-year growth from 2012 to 2014 (Table A.7.).

[9] USDA-NASS, Noncitrus Fruits and Nuts, 2015 Summary. http://usda.mannlib.cornell.edu/usda/current/NoncFruiNu/NoncFruiNu-07-06-2016.pdf.

TABLE A.7: Changes in Retail Sales of Processed Fruits and Vegetables

		% change vs year prior		
	% of retail grocery sales 2015	2012	2013	2014
Frozen vegetables	0.26%	-2.4%	-0.7%	-2.4%
Canned vegetables	0.26%	-2.9%	-1.4%	-1.3%
Canned fruit	0.09%	-3.2%	-0.7%	-3.3%
Frozen juices, drinks	0.02%	-10.0%	-13.6%	-8.8%
Shelf-stable juice, drinks	0.51%	-3.5%	-3.7%	-3.0%
Total fresh produce	4.45%	1.8%	6.5%	4.4%

Source: "Consumer Expenditures Annual Report, 2015." 2016. *Progressive Grocer.*

Mintel, a data intelligence company, reported that private labels accounted for 31.4 percent of the canned/jarred fruit sales in 2015. Dole was the leading national brand with a 32.2 percent share followed by Del Monte with 29.5 percent.

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2017-15	Case studies of supermarkets and food supply chains in low-income areas of the Northeast: Syracuse Store 1, New York		Park, K.S., Gomez, M. and K. Clancy
2017-14	Case studies of supermarkets and food supply chains in low-income areas of the Northeast: Pittsburgh Store, Pennsylvania		Park, K.S., Gomez, M. and K. Clancy
2017-13	Case studies of supermarkets and food supply chains in low-income areas of the Northeast: Onondaga County Store, New York		Park, K.S., Gomez, M. and K. Clancy
2017-12	Case studies of supermarkets and food supply chains in low-income areas of the Northeast: New York City Store, New York		Park, K.S., Gomez, M. and K. Clancy
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2017-07	Case studies of supermarkets and food supply chains in low-income areas of the Northeast: Baltimore Store 2, Maryland		Park, K.S., Gomez, M. and K. Clancy
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