Journal of Agriculture, Food Systems, and Community Development
ISSN: 2152-0801 online
https://foodsystemsjournal.org

What do local foods consumers want? Lessons from ten years at a local foods market

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Submitted December 14, 2021 / Revised February 4, February 28, and March 23, 2022 / Accepted March 31, 2022 / Published online June 8, 2022

Citation: Mariola, M. J., Schwieterman, A., & Desonier-Lewis, G. (2022). What do local foods consumers want? Lessons from ten years at a local foods market. *Journal of Agriculture, Food Systems, and Community Development, 11*(3), 211–227. https://doi.org/10.5304/jafscd.2022.113.011

Abstract

The local foods movement is now firmly entrenched in the public imagination and as a feature of the larger food economy. With the most recent wave of local food retail markets now in its second decade, scholarly attention has turned to the factors that correlate with success, yet we know very little about local food consumer purchasing patterns. In this study, we examine a comprehensive database of all food sales spanning ten years at a pioneering local food market in Wooster, Ohio. Analysis of over 1 million sales data points reveals a number of interesting trends: there are predictable seasonal patterns in the rise and fall of sales at the market; there is a notable increase over time in the proportion of sales accounted for by takeaway foods produced in the market's commercial kitchen; co-op members spend more on average per visit than nonmember customers. A successful market needs a balance between a small number of large-volume producers, who dominate sales with a handful of products, and a deep pool of smaller-volume producers, who bring a diversity of products to the market shelves. We conclude with a series of points that are of use to local food scholars, practitioners, and policy advocates.

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Disclosures

Mr. Mariola is a co-op member of Local Roots Market.

Mr. Schwieterman is the salaried executive director of Local Roots Market. He played no role in the gathering or organization of sales data, only in the interpretation of results.

Funding Disclosure

The project received no external funding.

Keywords
Consumers, Cooperatives, Food Hub, Local Food, Local Market, Retail Sales

Introduction

If the official entry of a trend into broad public discourse is heralded by the cover of *Time* magazine, then the modern local food movement became ascendant with a red apple appearing on the March 12, 2007 cover bearing the words "Forget Organic. Eat Local." The reasons for its rise to prominence are well documented. Local foods appeal to consumers because of their association with freshness, quality, nutrition, environmental sustainability, and community (Boys & Blank, 2018). The conventional food system continues a seemingly inexorable trend of becoming more technology- and capital-intensive, large-scale, and concentrated, while local food—typically grown on smaller-scale farms (Martinez et al, 2010)—is associated with alternative forms of production and consumption.

A decade ago, researchers identified a key barrier to the growth of the local foods sector: lack of an effective distribution infrastructure "for moving local foods into mainstream markets" (Martinez et al., 2010, p. 25). Food hubs emerged to act as a coordination vehicle for a wide variety of food producers and processors by playing the critical role of aggregator and marketer, which most producers lack time or resources to accomplish (Matson et al., 2013). In their early incarnation, food hubs consisted primarily of wholesale outlets or distribution hubs, in turn giving rise to a "new generation of community-based food hubs" that add social and environmental goals to their missions (Matson et al., 2013, p. 11).

With the earliest of this "new generation" of retail food hubs having passed the decade mark, a unique body of longitudinal data becomes available. Detailed consumer behavior tracked longitudinally can inform local market managers how best to position their stores as well as the food on their shelves. This paper examines consumer purchasing patterns spanning ten years at Local Roots Market and Café ("Local Roots"), a pioneering local food market in Wooster, Ohio, to add to our knowledge of how retail food hubs can harness consumer preferences, improve market opportunities for small food producers, and galvanize the broader local food systems they are built to serve.

Literature Review

Local food demand is "one of the most important food-industry developments in the past twenty years" (Richards et al., 2017, p. 637), with predictions of continued robust growth (Boys & Blank, 2018). The reasons for this sustained demand are consistent across numerous studies. Topping the list of local consumer desires is food safety and quality—both typically associated with the greater freshness of local food—followed closely by concerns about environmental sustainability and support for local producers and economies (Berti & Mulligan, 2016; Feldmann & Hamm, 2015; Martinez et al., 2010).

Direct-to-consumer (DTC) outlets such as farmers markets and community-supported agriculture might have the highest public profile, but sales handled by intermediaries—retailers, wholesalers, and institutions—account for more than one-third of all local food sales (U.S. Department of Agriculture National Agricultural Statistical Service, 2016) and are the fastest-growing segment of the market (Richards et al., 2017). Within this intermediated local food system, food hubs have "blossomed and emerged as a logistical vehicle that facilitates a local food supply chain" (Matson & Thayer, 2013, p. 44). There are many operating definitions of food hubs in the literature (Berti & Mulligan, 2016, p. 8), but the common denominator is the "aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand" (U.S. Department of Agriculture National Agricultural Library, n.d., para. 1). The main difference among types of food hubs is whether the customer is an institutional buyer (e.g., hospital, restaurant) or an individual consumer.

A distinguishing feature of many food hubs is their status as "values-based food supply chains" that "seek to merge social-environmental mission objectives with efficiency gains" (Berti & Mulligan, 2016, p. 5) by "emphasizing vertical coordination

rather than integration throughout the supply chain in order to reach mutually beneficial aims" (Diamond & Barham, 2011, p. 103). Such statements may gloss over the difficulty of achieving goals that transcend financial profit, as the vast majority of community-oriented food hubs "struggle to meet non-economic social and environmental goals, while also becoming economically viable" (Cleveland et al., 2014, p. 29). Cleveland et al. (2014) suggest that we move away from the dualistic notion of food hubs as being either strictly "idealistic" or "mainstream," and see them as hybrid forms that attempt to merge the community values of the former with the scaling and economic potential of the latter.

In this paper we will focus on retail food hubs, which combine the aggregation and on-site storage of a wholesale facility, the product diversity and local focus of a farmers market, and the shelf displays and point-of-sale system of a grocery store. There is evidence that the retail model is achieving increasing market share within the local food ecosystem. Low et al. (2015), for example, explore the curious phenomenon of a continued rise in the number of farms reporting DTC sales but a plateau in the growth of overall DTC sales. They argue that this can be partly explained by more local food flowing from farmers to retail outlets rather than directly to consumers. As of 2015, they reported 119 farm-to-consumer food hubs in the U.S., including 25 operating as cooperatives, 43 as nonprofit entities, and 41 as for-profit private entities.

To meet their broader, values-based goals, food hubs must be financially sustainable, however; and to be financially sustainable they must appeal to shoppers. Our study thus rests on a fundamental assumption: "Identifying the source of consumer demand can enable food hubs and other local foods entities to tailor the marketing of their products to match the values of consumers" (Matson & Thayer, 2013, p. 44).

Much of the literature on food hubs attempts to articulate the factors that correlate with financial success. Berti & Mulligan (2016) conducted a comprehensive literature review and found three primary sources of success: (1) providing consistent quantities of local food, with (2) a sufficient variety of products, at (3) a price point that keeps them accessible to a wide range of consumers. Another key to success is access to shipping and storage infrastructure, or "wheels and mortar" (Diamond & Barham, 2011). A 2010 USDA report noted the correlation between the success of small enterprises in local food supply chains and their ability to "make investments in processing and distribution infrastructure" (Hand, 2010, p. 18). Other success factors include the availability of up-front capital (Matson et al., 2012); a sufficiently large, trained, and paid staff, as opposed to overreliance on volunteers (Berti & Mulligan, 2016); and maintaining informal producer networks that provide more flexibility than strict contractual relationships with producers (Diamond & Barham, 2011).

Ultimately, the success of a local food hub with a retail sales model rests on building and sustaining consumer demand, and the literature provides several useful observations about what local foods consumers want. One is the integrity of the claims made by producers about growing methods or a food's provenance. An analysis of eight U.S. food hubs notes the importance of being able to track and display the value-added component of each product, and draws a clear link to customer interest: "Preserving the identity of farm products through the distribution process has been critical to driving buyer and consumer demand and allowing the more successful food value chains to flourish" (Diamond & Barham, 2011, p. 111). Schahczenski and Schahczenski (2020) even advocate the use of emerging blockchain technology to move "beyond traceability to full transparency" in local food economies (p. 81).

Another market strategy linked to consumer interest is product diversification. In a literature review on local food systems, Berti and Mulligan (2016) identify the display of a sufficient variety of foods as one of the three most important growth strategies for retail food hubs. Similarly, a 73-article meta-analysis by Feldmann and Hamm (2015) found numerous instances of consumers identifying lack of product availability as a major barrier to their purchase of local foods. Much of consumer demand comes down to that central pillar of consumer studies: convenience. Printezis and Grebitus (2018) note studies spanning decades which demonstrate how much convenience drives con-

sumer behavior and, conversely, that distance to purchasing location is a significant barrier to consumption of local food. They conclude that local food hubs need to feature a wide variety of products in order to entice more one-stop customers.

However, most of these conclusions are based on inferences from the success or failure of food hubs, or on willingness-to-pay studies (e.g., Low et al, 2015; Printezis & Grebitus, 2018). Despite the clear role that consumer demand plays in a local food system, we know very little about actual buying patterns. Thilmany et. al assert that "research to track consumers' evolving preferences and behaviors within [local] food systems … is lagging" (2013, p.131). There has not been an empirical study to determine which products are attractive to local foods consumers and how these patterns have changed over time (Rysin & Dunning, 2016). Furthermore, much of the literature on short supply chains focuses on just one or a handful of food categories (Feldmann & Hamm, 2015). The "lack of market analysis" characterizing most local food system analysis (Berti & Mulligan, 2016, p. 9) leaves market managers with a dearth of useful information, because, as Feldmann & Hamm conclude, "it is difficult, if not impossible, to *infer* consumers' actual behavior" (2015, p. 158; emphasis added).

"One way that scientific research…can contribute to a more sustainable food supply chain is to provide insights into consumer attitudes and preferences" (Wenzig & Grunchmann, 2018, p. 1). More detailed questions that would be of interest to market managers remain largely unanswered. Do buying patterns change seasonally? Which product categories are the most popular? Is there a preference for convenience foods over fresh produce? Do co-op members buy more than nonmembers? We intend to build on the research discussed above to answer such questions using ten years of comprehensive sales data from a single local foods retail market. We begin with a brief account of the founding and evolution of Local Roots Market.

History of Local Roots

The idea for Local Roots Market was hatched when a group of twelve, including farmers and business and nonprofit leaders, from Wayne County, Ohio, began meeting in January 2009 to discuss how to boost the local food system and create new market opportunities for the region's farmers and food producers. The project coalesced around a set of key principles: it would be a cooperative in which producers *and* consumers could be paying members; it would be a year-round, indoor retail establishment; it would operate on a consignment model, taking a minimal commission in order to return the most possible back to the producer; and it would rely heavily on volunteer labor to keep costs down, with just a single full-time market manager.

The group leased and renovated a vacant building in downtown Wooster and opened its doors in January 2010. In addition to food produced by local farmers and processors, the market featured an artisan room with locally produced crafts and a café which purchased ingredients from the market whenever possible. It also served as a community hub, hosting luncheons and meetings for a variety of businesses and local organizations. In its early years Local Roots made appearances in regional and national media (Black, 2012; Goodman, 2012; Merrigan, 2012) and was visited by the Ohio Secretary of Agriculture in October 2010 to highlight the potential of local foods marketplaces. The following year the market received a grant to build a commercial kitchen, which expanded the capacity to produce prepared foods for its coolers and hot foods for the café.

As it has grown, the market has faced fiscal challenges and undergone organizational changes. Its volunteer workforce has slowly given way to more paid staff, today numbering 16 including an executive director. The commission rate for food products has been revised several times in order to keep pace with overhead costs, from an across-the-board 10% combined with a rental fee for shelf space at the outset, to 15% plus shelf space rental a few years later, and then eliminating the rental fees and replacing them with a three-tiered commission structure that holds to the present day: 18% for produce, 20% for fresh foods from the commercial kitchen, and 25% for shelf-stable goods. Local Roots has also increased its use of the traditional retail model in which the market takes ownership of and resells certain products, although the vast majority of sales are still on consignment. One

constant throughout has been the oversight of a board of directors, whose members are elected for two-year terms and meet every other month.

Applied Research Methods

Local Roots uses a point-of-sale (POS) software called Retail Edge that specializes in small retail establishments. We exported every POS barcode transaction that had taken place at a Local Roots cash register from Jan. 1, 2011 through Dec. 31, 2020 to a Microsoft Excel file, then cleaned the data through the following steps:

1. Removed any non-food sales (e.g., artisan crafts, branded t-shirts, vegetable seedlings), with the exception of flowers and Christmas wreaths, which we retained and categorized as produce since they are minimally processed items grown by local farms.
2. Removed all zero-dollar sales (e.g., free cup of water with a meal)
3. Removed all items purchased internally by the market (e.g., the market would purchase cream off the shelf to use in coffee ordered at the front counter) or the café (e.g., the café managers would purchase beets from within the market to use in a beet salad). Our reasoning was two-fold: we did not want to double-count the sale of a particular item (e.g., the beets would be sold once to the café, and then sold again in the form of the beet salad), and we wanted to limit our analysis to food sales to consumers.

The cleaned dataset contained 1,100,593 data points, each representing the sale of a food item. That is, if a customer came to the counter with three potatoes, two heads of lettuce, and one box of cookies, this would result in three data points, one per distinct product (bar code). We then assembled a list of every unique bar code in the database, allowing us to code each item in the market by its food category. There were a total of 7,726 unique items. For initial guidance on coding, we used a categorization scheme created by the U.S. Department of Agriculture as part of its "What We Eat in America" project.[1] We then triangulated this scheme with the ways that Local Roots categorizes their products within Retail Edge, making changes as deemed appropriate to reflect categories that would be most meaningful to local food market managers. Each item was ultimately coded into one of eight categories (Table 1).

Finally, we performed a series of data aggregations and calculations. We did not perform calculations for statistical significance, since we used the complete set of food sales during the ten-year period rather than a sample. We organized the results by means of a series of questions, moving from broader "snapshot" questions to more specific analytical questions that would be of particular interest to market managers.

Table 1. Coding Categories

Produce	Fresh vegetables, fruits, flowers, and wreaths
Meat	Cuts of meat and meat products (e.g., meatballs), frozen or refrigerated
Eggs	Fresh eggs
Dairy	Fluid milk and cultured dairy products such as cheese and yogurt
Shelf-Stable	Packaged foods not in a cooler, such as chips, salsas, granola, flour, dried beans, bottled sauces, and condiments
Baked Goods	Freshly baked products including breads, buns, cookies, and scones
Takeaway Foods	Processed foods made in the commercial kitchen and sold from the cooler or sold hot from the café
Beverages	All bottled and canned beverages

[1] See more about the "What We Eat in America" project at https://www.ars.usda.gov/nea/bhnrc/fsrg

Results

1. Changes to Annual Food Sales Over Time

We began by calculating annual food sales at Local Roots, aggregated across all eight food categories (Figure 1).

Three trends stand out. First, sales notably increased in the first three years: a 14% increase from 2011 to 2012, and an 8% increase from 2012 to 2013, as the market was gaining name recognition in the community and increased foot traffic. Second, sales plateaued for the next five years, with one annual gain of greater than 5% (2014–2015), two years of gains of less than 5% (2016–2017 and 2017–2018), and two years of declines (-2%, 2013–2014, and -3%, 2015–2016). Third, for the past two years the market has seen substantial growth in sales: +18% from 2018 to 2019, and +89% in 2020, when it crossed the $1 million mark sales for the first time.[2]

The growth in 2019 and 2020 is striking. Crossing the $500,000 sales mark in 2019 is a major milestone. An analysis of over 100 food hubs found that every institution classified as "not financially viable" had one thing in common: revenues of less than $500,000 (Fischer et al., 2015, p. 106). The reasons for such a dramatic rise in sales at Local Roots are complex and difficult to tease apart without survey data from consumers, and that is not the purpose of this study. However, we can investigate whether other consumption patterns were correlated with sales figures in order to provide further insights.

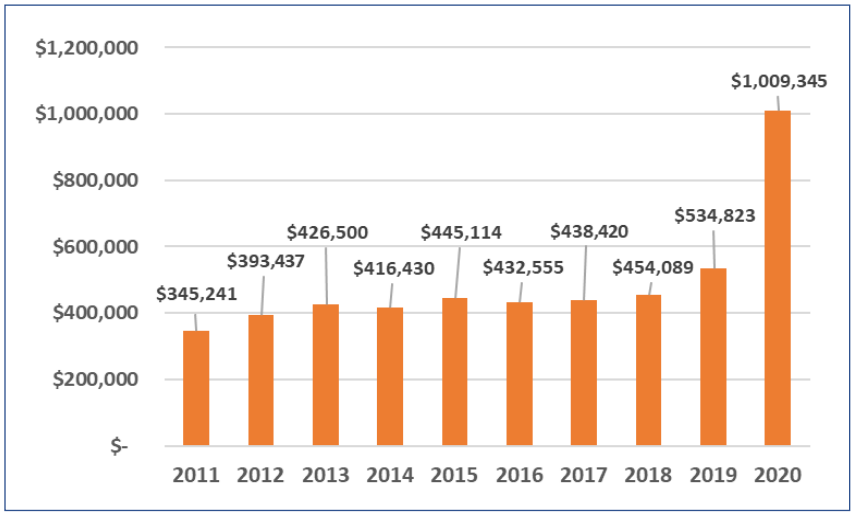
2. Seasonal Patterns in Food Sales

To optimize supply as well as to be able to plan for staffing allocation, maintenance projects, and capital improvements, it is useful for a food retailer to know whether there are predictable seasonal fluctuations in sales. Table 2 presents month-to-month changes in overall food sales, and Figure 2 presents a graph of the same data, averaged for each month across ten years.

Comparing the average change for each month to its mean absolute deviation ("average deviation" in Table 2) gives a sense of the variability for a given month across the ten-year period. Some months are strikingly consistent: for example, all ten Januarys featured a sharp decline in sales from the previous December (average -25%, with a range of -8% to -27%), while all ten Marches and all ten Octobers featured a healthy increase in sales from the previous February and September, respectively. March has an average gain of +22%, with a range from +11% to +40%, and October has an average gain of +13%, with a range from +7% to +20%. Other months are less predictable, such as August and November, each of which has a range extending from negative double-digits to positive double-digits.

Some of the consistent month-to-month changes conform to common sense. A steep drop-off in sales from holiday season shopping in December to the leaner month of January is a phenomenon across all retail sectors (Gallup, 2017). Local Roots is no exception, with the sharpest absolute month-to-month change occurring

Figure 1. Annual Food Sales at Local Roots, All Food Categories, 2011–2020



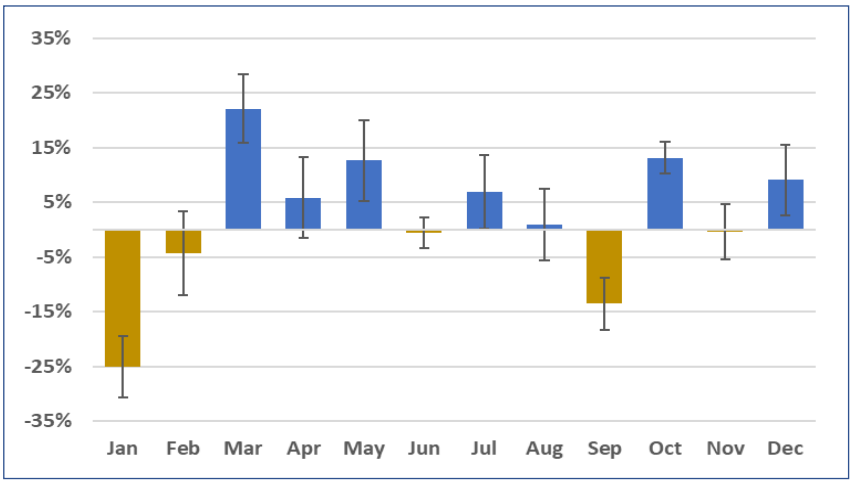
[2] All values in this paper are in US dollars.

Table 2. Change in Food Sales from the Previous Month, Averaged 2011–2020

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011		-14%	26%	23%	-5%	-1%	19%	5%	1%	10%	-10%	-1%
2012	-24%	4%	27%	-5%	15%	1%	-7%	16%	-22%	15%	-5%	3%
2013	-8%	-19%	23%	-4%	17%	2%	11%	4%	-16%	15%	-3%	-1%
2014	-37%	1%	16%	14%	17%	-3%	6%	2%	-15%	14%	-2%	8%
2015	-24%	-9%	23%	3%	10%	5%	3%	-13%	-6%	14%	-3%	19%
2016	-24%	-4%	11%	1%	-4%	3%	-6%	11%	-15%	9%	-2%	15%
2017	-24%	-13%	25%	10%	13%	-6%	4%	-3%	-12%	7%	4%	4%
2018	-28%	7%	15%	-2%	18%	-4%	9%	-5%	-20%	20%	10%	15%
2019	-35%	9%	16%	6%	13%	-3%	11%	-3%	-17%	13%	11%	10%
2020	-20%	-5%	40%	13%	34%	0%	18%	-4%	-14%	15%	-2%	18%
Average	-25%	-4%	22%	6%	13%	-1%	7%	1%	-14%	13%	0%	9%
Avg. Dev.	6%	8%	6%	7%	7%	3%	7%	7%	5%	3%	5%	6%

between December and January. Other changes are more puzzling. For example, what accounts for the notable drop-off in sales between August and September, or the notable increase between February and March? Our data do not allow us to answer these questions, but their consistency is striking and presents valuable information that market managers could leverage. Predictable surges in demand (such as from February to March) can be anticipated by ramping up supply. More crucially for financial viability, predictable dips in demand (such as from December to January or August to September) can be countered with sales, promotions, and other marketing techniques. As Davis (2018) notes, while the "January sales slump" is economy-wide and predictable, "in many cases it's made worse by self-fulfilling prophecies, driven by a lack of marketing activity and active customer engagement tactics" (para. 1).

Figure 2. Average Change in Food Sales from Previous Month, 2011–2020



3. Patterns in Sales by Food Product Category

For a successful food hub, Matson and Thayer ask, "What mix of producers and products is necessary?" (2013, p. 47). A food marketplace needs to be stocked with an optimal mix of products conforming to the distribution of consumer desires. Too many of one type of product, or not enough of another, may stifle sales and reduce foot traffic. The meta-analysis of 73 studies by Feldmann and Hamm found numerous instances of consumers indicating a preference for certain locally grown products over others, ranging from fresh produce to animal products (2015).

Table 3 presents the total number of items sold and the total sales in dollars for eight food categories, summed across the ten years of the study.

Produce accounts for by far the largest percent of items sold (29%), while baked goods and takeaway foods account for an additional 19% each. The three animal product categories (meat, dairy, and eggs) together

account for 17% of items sold.

Comparing total items sold to total sales dollars generated, some items sell in large quantities but generate a much lower percentage of total sales, while others are the inverse, generating a disproportionally higher percentage of sales. Produce falls into the former category, accounting for nearly one-third of items sold in the market but less than one-fifth of total sales dollars. Baked goods are similar, though with a smaller gap: 19% of all items sold in the market have been baked goods, generating just 16% of total sales dollars. The inverse is true of meat, shelf-stable foods, and takeaway foods. The "value differential" for meat is nearly double, as meat products account for 5% of all items sold but 9% of all sales dollars. Takeaway foods are the leading category in terms of dollars generated, accounting for nearly a quarter of all sales dollars but less than one-fifth of all items sold. Shelf-stable foods account for 13% of items sold but one-fifth of all sales dollars.

In large part, these data conform to anecdotal observation: meat products are generally more expensive per unit than most other items, while the produce category includes many items (e.g., lettuce, cilantro, apples) that sell for far less per unit. Market managers could interpret the data in different ways, depending on the marketing philosophy of the institution. Produce is clearly a major generator of consumption, as nearly one-third of all items sold at Local Roots have been fruits, vegetables, or flowers. Despite the lower percentage of sales dollars that it generates, produce is a major driver of foot traffic. Conversely, higher dollar values, and presumably profits, can be generated from meat products, takeaway foods, and shelf-stable foods.

Have the trends shifted over time? Figure 3 presents each food category's total sales by year.

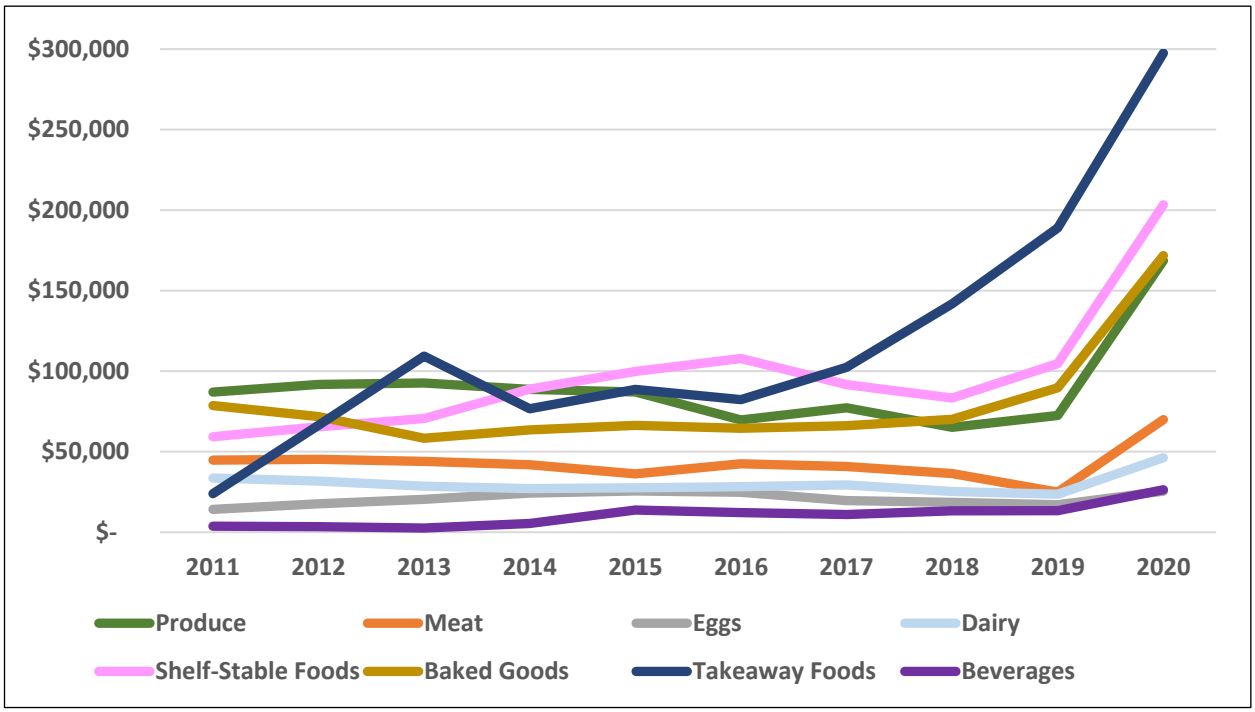
Measured as a percentage of total sales, many categories display stability over time. For example, baked goods fluctuated between 14%–18% of total food sales every year except 2011, even in 2019 and 2020 when overall sales of baked goods went up along with market sales in general. Similarly, shelf-stable foods experienced some fluctuation in absolute sales, but apart from the anomalous year of 2016 they have stayed within 17%–22% of total sales each year. Other categories have seen more notable shifts, both in their absolute and relative sales. Up to 2020, dairy sales declined from $33,605 in 2011 (10% of total sales) to $23,567 in 2019 (less than 5% of total sales). Meat sales followed a similar pattern, declining from $44,779 in 2011 (13% of total sales) to $24,914 in 2019 (5% of total sales). While not as drastic, produce sales also declined to 2020, from $87,013 in 2011 (25% of total sales) to $72,480 in 2019 (14% of total sales). The three categories—dairy, meat, and produce—did experience big upticks in sales in 2020; however, as a percentage of total sales they hardly budged (dairy 5%, meat 7%, and produce 17%).

The chart clearly displays which category has had the most dramatic rise in sales, both in absolute figures and as a percentage of the whole: takeaway foods. Other than 2011, when the commer-

Table 3. Number of Items Sold and Total Sales by Food Category, 2011–2020

	Items Sold		Sales	
Food Category	#	% of total	$	% of total
Produce	322,432	29%	$900,395	18%
Meat	53,608	5%	$426,487	9%
Eggs	65,633	6%	$207,779	4%
Dairy	64,735	6%	$301,435	6%
Shelf-Stable Foods	144,611	13%	$974,852	20%
Baked Goods	211,860	19%	$800,948	16%
Takeaway Foods	213,177	19%	$1,178,010	24%
Beverages	24,536	2%	$105,092	2%
Totals	**1,100,593**	**100%**	**$4,894,998**	**100%**

Figure 3. Annual Sales by Food Category, 2011–2020



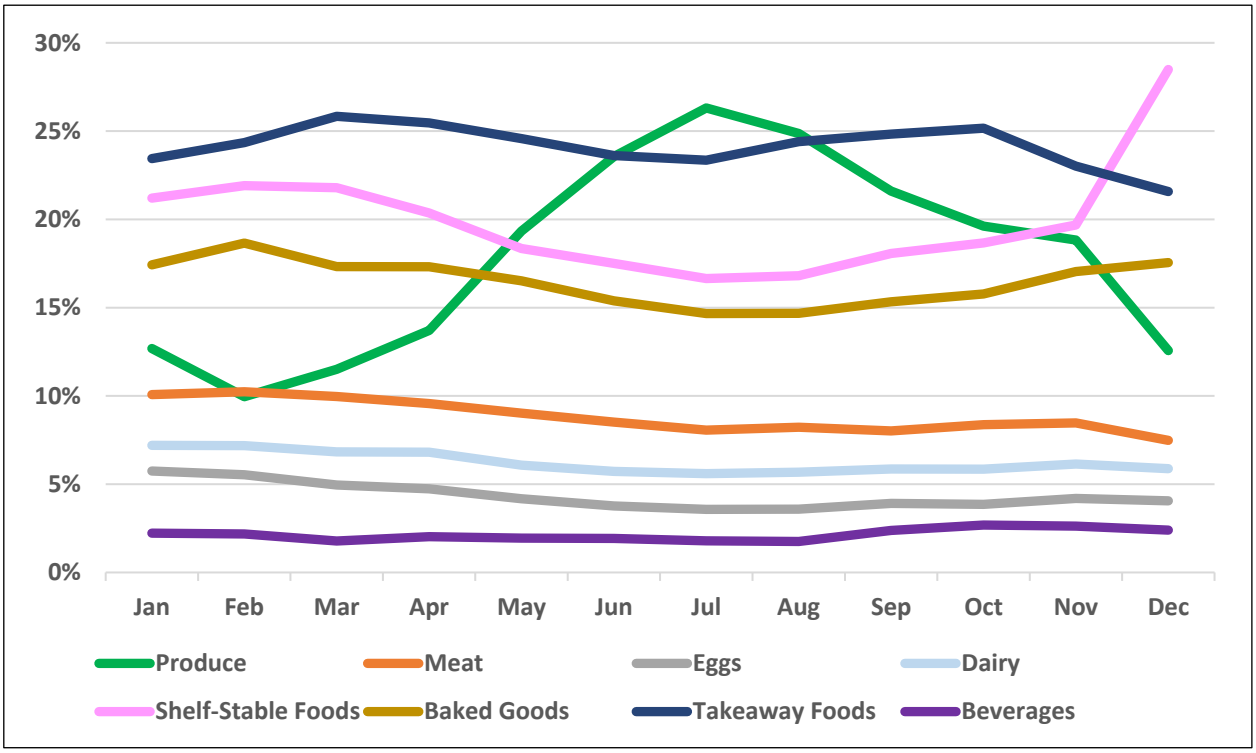
cial kitchen had not yet been installed, this category—representing either hot food sold at the lunch café or foods processed in the commercial kitchen and sold in the market's coolers—has risen from $66,454 in 2012 (17% of total sales) to $297,515 in 2020, accounting for nearly 30% of total sales. The rise in prominence of takeaway foods closely tracks a concerted effort on the part of the market to cultivate more production of foods in the commercial kitchen and to increase sales of hot lunches at the café, including the introduction in 2017 of a weekly rotating roster of chefs, each making their signature lunch on the same day each week. There is thus a compelling case that consumers respond positively to the marketing of more convenience/takeaway/café food produced in-house by local vendors.

A final question we can ask in this category is whether the distribution of sales across product categories changes from month to month. Figure 4 presents sales for each food category as a percentage of total sales for each month.

With just two exceptions (produce and shelf-stable foods), categories are consistent from month to month. Besides those two categories, no category features a difference between its highest month and its lowest month greater than four percentage points. The fluctuations exhibited by produce and shelf-stable foods tell us two things, one predictable and the other more interesting. Predictably, produce sales ramp up from April through mid-summer and then slowly dissipate until November, when they fall off sharply. The highest month for produce is July, with 26% of all sales, while the lowest month is February with just 10% of sales. One would expect this of virtually any local foods market in the temperate Midwest, where even the most rigorous season-extension techniques cannot maintain a bounty of fresh produce in the winter months.

Which categories "pick up the slack" when produce sales fall off? In the case of Local Roots, the answer is clearly shelf-stable foods, which go from a low of 17% in both July and August to a high of 28% in December. There are also minor upticks in the percentages accounted for by meat (from a summer and fall average of 8% to a winter average of 10%) and eggs (from 4% through summer and autumn to 6% by February). Converting this into marketing advice, we would suggest that

Figure 4. Sales by Category by Month, as Percentage of All Food Sales, 2011–2020



the produce deficiency from late fall through early spring should be countered by a greater feature of pantry items such as flour, honey, maple syrup, and dry beans, and snack foods such as chips, sauces, and salsas.

4. Revenue Generation at the Café

A feature that many local food markets might consider is an in-house café or deli serving hot meals and/or fresh takeaway food. A café serves the broader mission of featuring unique food items from the region, and it generates additional foot traffic and revenue. With the help of a local foods market consultancy in Ann Arbor, we did an internet search of six prominent local food markets in the eastern U.S. and found that all of them have an in-house café or deli.[3] A startup market may wonder: Just how much revenue can such a café generate relative to non-café foods?

One of the first major initiatives at Local Roots was the creation of a lunch café, whose primary purpose was to showcase local produce, meat, and other foods. The café has operated under two different business models. From its start in 2011 until 2017 it was operated by the market, generating direct revenue. Those making and serving the food were either market staff or volunteers, costs were incurred by the market, and all revenue went directly to Local Roots. In 2017, the market switched to a chef-producer model, in which different local chefs have one day of the week when they are featured on the menu, for which they produce the food, incur all direct costs, and claim all the revenue minus a 20% commission.

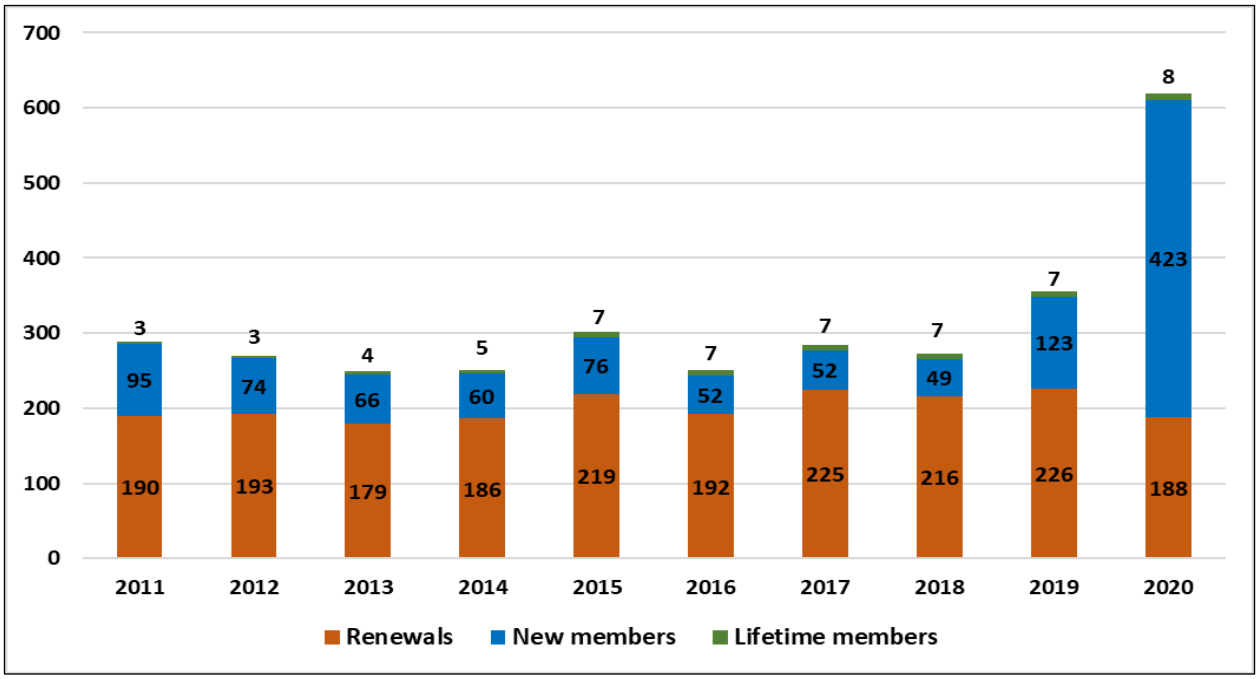
Table 4 presents data on café sales from 2011–2016, when café revenues went directly to Local Roots. This is only a portrait of direct revenue generation; it does not take into account costs, and therefore is not a calculation of profitability. What is notable is that, other than 2011 (when the café

[3] The six markets we searched were Acorn Farmers Market and Café (Manchester, MI); Agricole Farm Stop (Chelsea, MI); Argus Farm Stop (Ann Arbor, MI); Bloomingfoods Co-op Market (Bloomington, IN); Random Harvest Market (Craryville, NY); and The Wild Ramp (Huntington, WV).

Table 4. Revenue from the Market Café, 2011–2016

	2011	2012	2013	2014	2015	2016
Revenue	$18,208	$57,557	$96,844	$57,512	$55,071	$49,692
Percentage of Total Food Sales	5%	15%	23%	14%	12%	11%

Figure 5. Annual Number of Members by Membership Category, 2011–2020



started midyear), the café generated over 10%, and at its height nearly one-quarter, of annual food sales at Local Roots.

5. Member Sales Versus Nonmember Sales

A cooperative is one of several business models that local food hubs can use, each with its own tradeoffs (Matson et al., 2013). As Diamond and Barham state, "nonprofits and cooperatives both can play key roles in value chain development, but should recognize their organizational competencies and limitations" (2011, p. 101). A local food hub organized as a members-based cooperative may want to know the degree to which its sales are driven by paying members, in order to balance the financial and community benefits of having paying members on the one hand, with the staffing costs incurred to recruit new members and renewals on the other.

Local Roots has been a membership-driven co-op since its inception. An annual membership or renewal costs $50, and a lifetime membership costs $1,000. Membership perks include a 1% savings on all products in the store, weekly special discounts, and dividend payouts if the market's annual profits allow. Figure 5 displays the number of members in all three categories from 2011-2020.[4]

The numbers reveal that Local Roots has a faithful base of members, with 179–226 members renewing each year. New memberships came at a range of 49–95 per year until 2019. In 2019 and 2020 the market managers made an explicit priority of gaining new members, resulting in a surge to 123 new members in 2019 and a more than 200%

[4] Lifetime member numbers are cumulative. For example, the three lifetime members in 2011 are the same three as in 2012; in 2013 a single lifetime member was added; etc.

increase to 423 new members in 2020. It might be asked whether this surge in new members was driven by COVID-19, given the impact that the pandemic had on food supply chains, causing substantial increases in bulk buying and online ordering from local food markets (Thilmany et al., 2020). COVID likely had a role, but the increase began in 2019 prior to the pandemic, and, more tellingly, the biggest month-to-month increase occurred in June 2020, when a promotional campaign instituted by managers drove the number of new and renewed memberships from 18 and 9, respectively, in May 2020 to 127 and 66, respectively, in June.

A note of interest to market managers is that, despite the relative constancy of membership renewals over the decade, they did not grow at the rate that they would have if every new member renewed every year. Renewals would seem to be a "low-hanging fruit" where management can focus efforts. The membership gains in 2019 and 2020 show that it is possible to rapidly incentivize more individuals to join for the first time; incentivizing lapsed members to renew is a different effort.

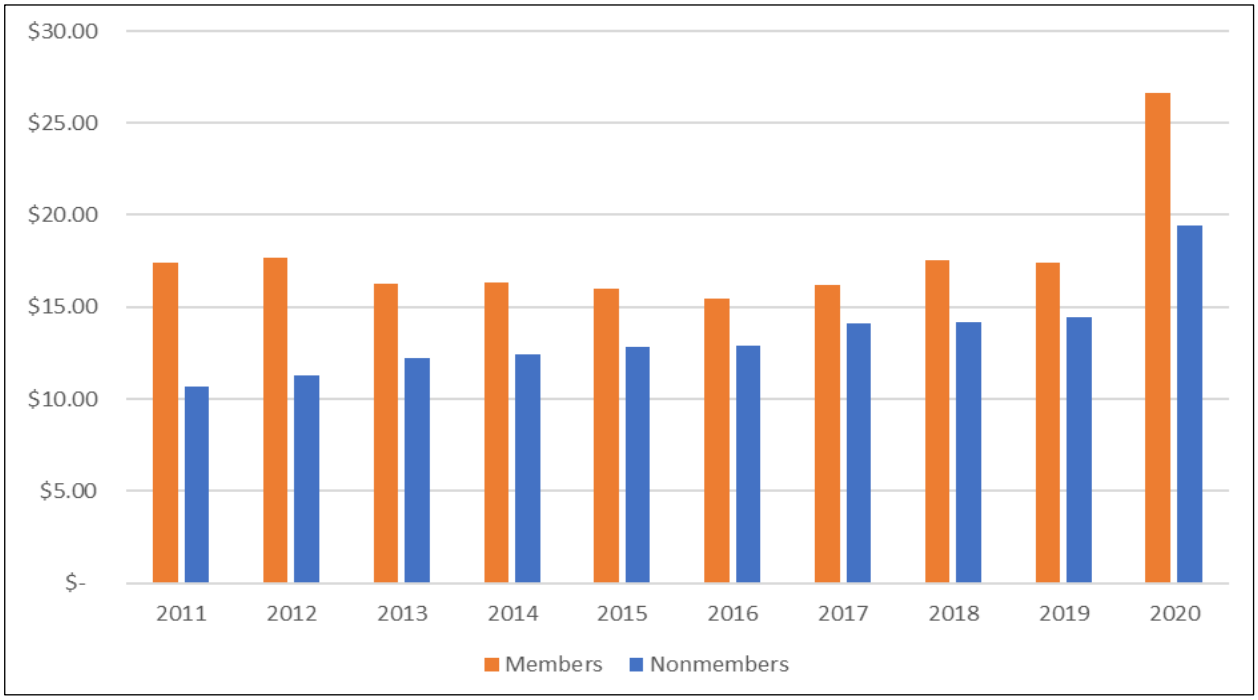
Is it worth the time and effort to incentivize customers to become members? Aside from revenue from membership itself, do members actually spend more at the market than nonmembers? To answer this question, Figure 6 compares the average dollar value of each sales receipt for members and nonmembers. Across the ten years, members on average spend 33% more per market visit than nonmembers, with a range of 15% more (2017) to 63% more (2011). Across the ten-year period, the average value of a sales receipt for members was $17.69, with a range of $15.45 to $26.63, while the average for nonmembers was $13.44, with a range of $10.64 to $19.45. This is in addition to the value of the total annual membership fee itself, which can exceed $10,000 per year.

6. How Widely Are Sales Distributed Across Producers?

Shifting from demand to supply, a market startup may wonder how many major vendors it needs, and how many smaller vendors should supplement the sales of the major sellers. In other words, "What scale of producers is necessary to support the functions of a food hub?" (Matson & Thayer, 2013, p. 46).

To answer this question, we break all vendors

Figure 6. Average Value per Sales Receipt, Members vs. Nonmembers, 2011–2020



in a given year into the following sales categories: <$1,000, $1,000–4,999, $5,000–$9,999, $10,000–$19,999, $20,000+. Figure 7 reports the total number of vendors in each category for each year.

The largest number of vendors in every year except 2020 is those selling less than $1,000. Combining this category with the next largest, we see that the vast majority of producers sell less than $5,000 of product each year (from 68% to 88% in a given year, with an average of 80%). In other words, food sales are dominated by a relatively small handful of high-volume producers but supplemented by a much larger number of smaller producers.

To what degree do the high-volume sellers dominate market sales? Figure 8 presents the percentage of total annual sales accounted for by vendors in the same five sales categories. The percentage of sales accounted for by the two highest sales categories (those selling more than $10,000 per year) hovered at roughly one-third from 2011 through 2017, then rapidly increased to 51% in 2018, 55% in 2019, and 76% in 2020. The pattern correlates strongly with the growth in overall market sales, as seen in Figure 1.

There are multiple ways to interpret this information, based on one's beliefs about how a local foods market should operate. The dominance of a few large-volume vendors can mean full-time livelihoods for some local producers who would otherwise not have an outlet for their products. For example, taking just the year 2020, six producers had sales over $49,000. On the other hand, it also means a concentrated, top-heavy market, which may cut against a belief in producer equity. The large number of sellers achieving sales only in the thousands of dollars might mean that the market is not proving to be a source of economic livelihood for scores of local producers. However, it is also the case that most sellers also vend their products at other markets (e.g., wholesale distributors, farmers markets, online sales) and do not intend for Local Roots to be their sole source of income. For these producers, Local Roots represents a form of market

Figure 7. Number of Vendors by Annual Sales Category, 2011–2020

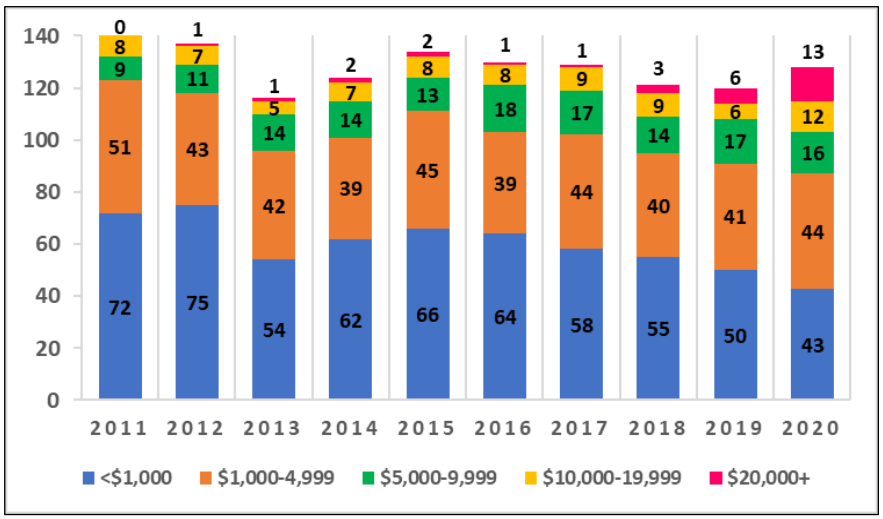
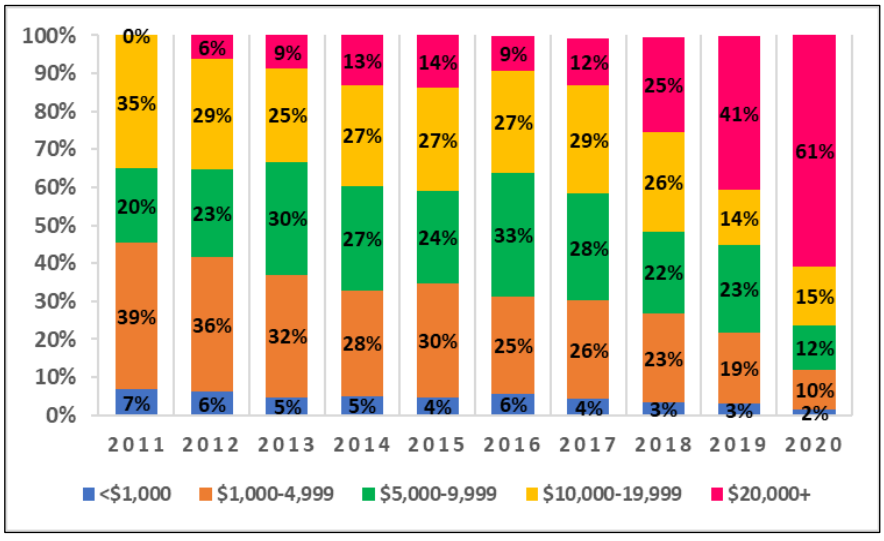


Figure 8. Percentage of Total Market Sales by Vendor Annual Sales Category, 2011–2020



diversification to supplement household income. A qualitative study of motivations and outcomes of local food vendors would help to shed more light on this question. On this note, we turn to a series of concluding thoughts.

Conclusions

A case study of a single institution is by its nature limited in generalizability. No two local foods markets will have the same customer profile, the same set of farmer vendors, or the same foods available at the same times. However, the local foods literature makes clear that there is much to be learned from individual markets that have proven over time to be sustainable. Local Roots has provided consulting to numerous startup local food hubs, and at least one of these "sprout" markets has gone on to offer its own consulting services to a new generation of startups.

In that spirit, we conclude by asking, What insights emerge from our data about consumer purchasing patterns that would be the most useful to other local food hub startups as they seek to capture some of the food economy and contribute to wider community development efforts? We present four practical lessons derived from a decade of experience at Local Roots, and a more speculative reflection on how to craft meaningful public policy that builds on these lessons.

1. There is year-round demand for local food that fluctuates in predictable ways.

The Local Roots experience should help put to rest fears that there is not enough demand to sustain a year-round local foods market. But it is worth knowing that demand fluctuates over the course of a year in a consistent pattern. When produce availability declines after the main growing season, a market will want to stock its shelves with stable foods and pantry items, its coolers with eggs, and its freezers with meats.

2. A market thrives with many vendors of many sizes selling many different products.

The bulk of revenue at Local Roots is driven by a handful of large-volume vendors, notably of baked goods and takeaway foods. But this small number of product lines is supplemented by a much larger group of smaller-scale vendors, whose products bring variety to the market shelves and help sustain foot traffic. Both sets of producers are vital. A marketplace teeming with variety is visually appealing and fills more gaps in the home kitchen, making the customer less likely to travel to a different store for certain products.

3. Takeaway food sells.

The family of products that has seen the most marked increase in sales at Local Roots is takeaway foods, notably those prepared on site in the commercial kitchen and made available in coolers at the store. A commercial kitchen supplying prepared foods at a local market is a major catalyst for sales and foot traffic.

However, we would also note that this category of food comes with two challenges. It can be economically unfeasible for the producers of takeaway foods to utilize local ingredients. The availability of local products at wholesale prices is a solution that local food policymakers should prioritize. In addition, takeaway foods require large amounts of packaging. We encourage markets and policy advocates to think creatively about mitigating the creation of so much disposable waste.

4. Members spend more at the market than nonmembers.

There is a small administrative cost associated with recruiting and retaining paying members of a cooperative, but that cost pays for itself many times over, not just in the form of membership dues but in the fuller shopping baskets that members bring to the counter. Clearly there is some causal ambiguity here. Does the membership itself incentivize spending more dollars, or is it a pre-existing commitment to local food? Would members buy the same amount even were there no membership program? We cannot say with certainty, and this would be excellent material for a follow-up study. Based on years of anecdotal experience, we feel that the paid membership does tighten the bond between consumer and market, incentivizing increased patronage whether monetarily or morally. If nothing else, the revenue from membership dues alone is substantial—at current membership rates at Local Roots, it amounts to over $30,000 per year.

5. Local food policy councils should think holistically and strategically.

Not every town or county has a local food policy council; Wooster, in fact, does not. However, where food policy organizations can influence local markets, our data suggest several policy prescriptions, such as to incentivize vegetable, fruit, and animal producers holistically, rather than focusing on one sector, and to recognize that producers and processors of different scales have different marketing needs—not every small producer wants to become a large producer. A third suggestion was hinted at above: a wholesale local food distribution hub coupled with a retail outlet creates synergies and potentially lowers costs for vendors and consumers alike.

The bottom line is that a diversified agricultural base is as important as a diversified marketplace, so policy advocates should think both strategically and holistically: subsidize season extension techniques for produce growers, but also enhance marketing assistance for grass-fed meat and local egg production; work with retail markets to help build foot traffic, but also with wholesale outlets such as produce auctions to create another node in the local food ecosystem; work to lower land access barriers for beginning farmers, but also lower market access barriers for populations that the local food movement has historically overlooked. We return to this final theme below as we briefly propose several further directions for local foods scholarship.

Future Research Directions

While there are scores of research threads arising from the ongoing development of the local foods marketplace, we set out three that we suggest are most fruitful for future researchers.

Comparative Demand Analysis

Numerous local food retail markets are approaching the same ten-year milestone as Local Roots, presenting researchers with a wealth of data about consumer preferences, farmer responses to demand signals, and other market patterns. The data will allow analysts to build on the analysis presented here by comparing consumption patterns across different markets, business models, and locations. Do seasonal fluctuations in sales and food preferences hold across geographic regions? What is the best business model for an in-store café? Which is more profitable, a consignment model or a resale model? Which is more attractive to farmers? What is the tradeoff between stability of supply and risk of product loss when holding inventory? These are just a few of the many questions that a comparative study using datasets from multiple markets could investigate.

Supply and Marketing Dynamics

The data analyzed for this paper provide only one side of the economic equation: consumer demand. They do not tell us about supply or the many iterations of marketing that affect sales, from what was on the shelf at the time a given product was purchased, to how it was displayed, to its level of freshness, to how many different vendors were selling that particular type of product. In other words, knowing that strawberries outsold apples may tell us what consumers purchased, but it does not inform us whether there were three vendors of strawberries or only one, or whether the strawberries were piled in a shiny pyramid while the apples were off in a corner, or indeed whether both fruits were even on the shelves at the same time. Our second recommendation for future research is the most involved and ambitious: that researchers gather data that allows a deep dive into the impacts of supply dynamics, marketing strategies, display logistics, advertising, and promotions on local food consumption. At the very least, an inventorying system that tracks both incoming supply and purchases—which the systems at most local food markets, including Local Roots, currently do not do—would allow for more fine-grained correlations and relationships to be revealed.

Community Development Implications

A theme only hinted at in this paper is the accessibility and affordability of local food. There are several nested questions here of interest to practitioners and policy advocates. How accessible—logistically and financially—is local food to low-income or other marginalized populations? Where accessibility barriers have been lowered, how frequently do low-income consumers seek out local

foods? That is to say, what kinds of cultural barriers exist alongside economic and logistical barriers that prevent local foods from having a wider reach? And what kinds of incentive programs or other marketing efforts can local food markets develop to achieve a wider reach?

Broadening out to the community development level, what are the ripple effects that greater accessibility and affordability could have on the larger community? We have an increasingly fine-grained understanding of the "what" of local foods consumption, but we have work to do on the "why" and the "how." Local food graced the cover of *Time* magazine over ten years ago for a reason: it is an enticing and sustainable way to connect the consumer and the local producer through fresh, high-quality food. It can also mean a new livelihood for small farms and food makers. Can we now widen that sphere of connectivity to include those historically underserved by the local foods movement?

Acknowledgments

The authors would like to thank Jessica Eikleberry for providing crucial pieces of historical context about Local Roots.

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