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Is Local Produce Really More Expensive? A Comparison of Direct Market and Conventional Grocery Produce Pricing

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Abstract

As fresh produce growers look to expand their markets to include lower-income consumers, they must overcome consumer perceptions that direct markets, such as farmers' markets, are expensive and elitist. The absence of pricing data makes comparisons very difficult, which perpetuates misconceptions. This study uses fresh produce pricing data collected at farmers' markets and grocery stores in northern Utah in Summer 2016 to illustrate actual pricing differences across outlets. Results show that, on average, farmers' markets are more expensive, but location and produce item greatly influence price, especially for organics. Locally owned grocery stores were less expensive than national brands.

Keywords: direct markets, fresh produce, grocery outlet, local, price comparisons

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Introduction

While consumer demand for fresh produce at direct-to-consumer marketing channels such as farmers' markets and community supported agriculture (CSA) programs has increased greatly over the last two decades, growth in direct markets has slowed since 2012. Thus, produce growers focusing on direct markets are now seeking new customers and additional market outlets, including winter farmers' markets, agritourism opportunities, and value-added foods. (Debnath, Curtis, and Slocum, 2015). Increasing the customer base at direct markets to include more price-sensitive and lower-income families, such as those on federal assistance programs, could greatly enhance the ability of direct markets to provide a sustainable source of revenue for producers. However, there is a common misconception that produce at direct markets is more expensive than in grocery stores, when, in fact, this is often not the case (Estabrook, 2011).

Although the consumption of fruits and vegetables has been shown to have significant health benefits, the typical U.S. diet does not meet the recommended intake of fruits and vegetables. This is especially true for the low-income population (Quandt et al., 2013). If consumption patterns are to change, it is important that consumers, especially those on federal nutrition assistance program, recognize that healthy food is not necessarily more expensive (Carlson and Frazão, 2012).

This study seeks to illustrate actual pricing differences between farmers' markets and grocery stores by comparing fresh produce pricing as well as comparing organic and conventionally grown produce pricing in northern Utah. Accurate cross-outlet fresh produce pricing information will dispel potential myths regarding prices at direct markets and those of organic foods as well. Increased direct market produce purchases may positively affect consumer health as well as the financial security of fresh produce growers.

Background and Previous Literature

U.S. residents do not consume the recommended amounts of fresh produce, and intake has declined in recent years (Lorson, Melgar-Quinonez, and Taylor, 2009; Slining, Mathias, and Popkin, 2013). This trend is concerning, as diets high in fruits and vegetables are naturally high in nutrients and low in energy, resulting in a reduced risk for obesity and related chronic diseases. Several studies have found that a diet high in fruits and vegetables is associated with lower risk for central obesity (Bradlee et al., 2010), and one dietary intervention for obesity showed that increasing fruit and vegetable intake was more effective than decreasing fat and sugar (Epstein et al., 2001).

In an effort to increase consumption of fruits and vegetables among the lower income population, the U. S. Department of Agriculture (USDA) has made funds available for Supplemental Nutrition Assistance Program (SNAP) participants to shop at farmers' markets. This program has seen significant improvement over the years. There has been an 829% increase in SNAP-authorized farmers' markets (753 markets in 2008 to 6,996 in 2016) and a 638.5% increase in redemptions (\$2,740,236 in 2008 to \$20,235,869 in 2016) (USDA, 2017). In Utah, there are currently 31 SNAP-authorized farmers' markets, a 675% increase since 2008, and

SNAP redemption at farmers' markets increased from \$5,667 in 2008 to \$75,428 in 2016 (Food and Nutrition Service, 2016; USDA, 2017).

Previous literature has primarily examined the cost differences between healthy and unhealthy foods (Carlson and Frazão, 2012; Polis, 2013), and a few state-based studies have examined costs differences between farmers' markets and grocery stores (de Figueiredo, 2010; Estabrook, 2011; Pesch and Keeler, 2015). In general, the state-based studies have found that farmers' market pricing is generally lower than grocery stores for comparable products, especially when a particular item is in season (Claro, 2011; Pesch and Keeler, 2015). The lack of national comparison studies is primarily due to the absence of pricing data for goods sold through direct markets. The USDA Agricultural Marketing Service (AMS) provides pricing data on fresh produce and even organic produce at retail and wholesale markets nationally and regionally but not for fresh produce sold through direct markets, with the exception of selected farmers' market and auction data for six U.S. states, primarily in the Southeast. Hence, there is very little public information for consumers or producers regarding direct market outlet pricing. The lack of data makes comparisons for consumers very difficult, and, consequently, consumers fall back on previous habits (Pollak, 1976), such as shopping only at selected stores and making decisions based upon biased perceptions (Kahneman, 2011). This study provides important insights into the true differences in fresh produce prices across outlets and locations in Utah.

Methods

Data collection was completed from June to October 2016 at four different farmers' markets across northern Utah and seven local and national grocery stores in the vicinity of the farmers' markets. Prices for 33 different fresh produce items were collected over the 2016 season; of those, 28 items were used in this analysis. Produce item price and average weight were collected. When the weight of an item was not available, the national average was used. The sample includes 938 farmers' market and 4,600 grocery store fresh produce price observations.

Prices were normalized to a dollar amount per pound (\$/lb) for each produce item, which was then applied to the national average weight of each produce item. This allows for the comparison across markets for a "basket of produce."¹ The price comparisons were completed using a simple difference in means analysis on individual produce items, as well as for a "basket of produce." Statistically significant differences are reported at the 90%, 95%, and 99% levels. Comparisons were made between grocery store and farmers' market pricing and also by production type (organic vs. conventional), as well as between farmers' market locations and local versus national grocery chains. The analysis was conducted at the regional level using the average price over the entire season. Later, a hedonic price model will be used to assess which components of the fresh produce item including type of production (conventional vs. organic), market type (farmers' market vs. grocery, locally owned vs. national chain), and market location (city, rural, urban) are the most valued by consumers.

¹ Common basket of 14 produce items often purchased in the United States. See Table 2 for a listing.

Results

Table 1 provides a per pound comparison of 28 fresh produce items at farmers' markets and grocery stores for both conventional and organic produce. The price differences for conventional produce range from -173% to 57%, with a negative percentage indicating the farmers' market is more expensive. The most expensive item at a farmers' market relative to a grocery store is romaine lettuce. On average, a pound of romaine will cost an additional \$1.65 at the farmers' market. Conversely, a pound of zucchini at the farmers' market is, on average, \$0.83 less expensive than at the grocery stores.

Table 1. Grocery Store vs. Farmers' Market Comparison by Produce Item

Item	Conventional			Organic		
	Grocery Store (\$/lb.)	Farmers' Market (\$/lb.)	Difference	Grocery Store (\$/lb.)	Farmers' Market (\$/lb.)	Difference
Beets	\$1.21	\$1.12	8%	\$1.55	\$2.51	-63%***
Broccoli	\$1.46	\$2.30	-58%***	\$2.06	N/A	N/A
Cabbage, Green	\$0.81	\$1.03	-27%	\$1.61	\$2.00	-24%
Cabbage, Red	\$0.99	\$1.00	-1%	\$1.51	\$1.50	1%
Cantaloupe	\$0.52	\$0.80	-52%***	\$0.85	N/A	N/A
Carrots	\$0.80	\$1.74	-117%***	\$1.26	\$2.14	-70%***
Cucumbers, Normal	\$1.22	\$0.93	24%***	\$2.45	\$1.64	33%
Garlic	\$3.47	\$7.18	-107%***	\$3.79	\$5.44	-43%
Green Beans	\$2.17	\$2.76	-27%***	\$4.27	\$3.01	30%***
Bell Peppers, Green	\$1.60	\$1.25	22%***	\$3.02	\$2.33	23%
Mixed Greens	\$3.95	\$5.27	-33%***	\$6.38	\$6.00	6%
Onions, Red	\$1.41	\$2.15	-52%***	\$2.09	\$3.03	-45%**
Onions, White	\$1.12	\$1.12	0%	\$1.51	\$1.67	-10%
Onions, Yellow	\$0.77	\$1.09	-42%***	\$1.31	\$1.90	-46%*
Potatoes, Gold	\$1.09	\$1.22	-12%***	\$1.13	\$2.03	-81%
Potatoes, Red	\$0.92	\$1.41	-53%***	\$1.18	\$2.24	-90%*
Potatoes, Russet	\$0.69	\$0.99	-43%***	\$1.36	\$2.50	-84%
Potatoes, Sweet	\$1.66	\$1.00	40%*	\$1.90	N/A	N/A
Raspberries	\$8.66	\$7.53	13%**	\$11.39	N/A	N/A
Romaine Lettuce	\$0.95	\$2.60	-173%**	\$1.51	\$2.79	-85%***
Spinach	\$1.74	\$4.17	-140%***	\$3.93	\$4.55	-16%
Strawberries	\$2.63	\$5.57	-112%***	\$3.69	\$9.33	-153%***
Sweet Corn	\$0.42	\$0.36	15%***	\$0.53	\$0.44	16%***
Tomatoes, Cherry	\$4.71	\$3.59	24%***	\$4.89	\$8.35	-71%***
Tomatoes, Roma	\$1.09	\$1.37	-26%***	\$1.52	\$2.50	-65%***
Tomatoes, Slicing/Vine	\$1.66	\$1.42	15%*	\$2.47	\$2.50	-1%
Watermelon	\$0.43	\$0.41	5%	\$0.31	N/A	N/A
Zucchini	\$1.45	\$0.62	57%***	\$3.07	\$3.26	-6%

Notes: Single, double and triple asterisks (*, **, ***) indicate 10%, 5%, and 1% significance.

Of the 23 conventional produce items with statistically significant price differences, eight were less expensive at the farmers' market. There were fewer statistically significant price differences for organic produce. Generally, organics are less expensive at the grocery store, but this may be due in part to the lack of organic produce at the Utah farmers' markets. On average, 1 lb of organic strawberries cost \$9.33 at the farmers' market and \$3.69 at a grocery store (\$5.64 premium at the farmer's market). One pound of organic sweet corn is statistically less expensive at the farmers' markets, but the cost savings is minimal, at \$0.09 per pound.

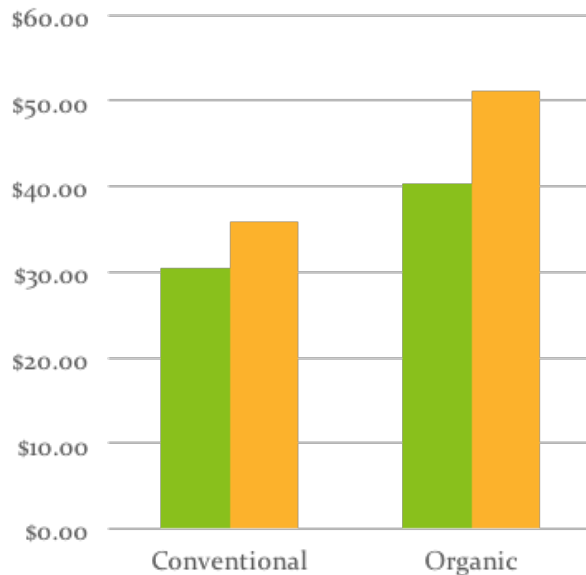
Table 2 and Figure 1 compare an organic and a conventional "basket of produce" at farmers' markets and grocery stores. Prices are based on the average weight of the produce item. The conventional farmers' market basket is priced at \$35.93, and the grocery store basket is priced at \$30.53. The farmers' market basket is 17% more expensive relative to the grocery store basket. The most significant price difference is for a bundle of spinach, which is priced at \$1.30 at a grocery store and \$3.13 at a farmers' market (140% increase in price).

Table 2. Grocery Store vs. Farmers' Market Comparison – Conventional Basket of Produce

Basket Items		Average Weight	Grocery Store Price	Farmers' Market Price	Difference
1 head	Broccoli	0.5 lb	\$0.73	\$1.15	-58%
1 head	Cabbage, Green	2 lb	\$1.62	\$2.07	-27%
2 each	Cucumbers, Normal	0.62 lb	\$1.52	\$1.15	24%
2 each	Bell Peppers, Green	0.5 lb	\$1.60	\$1.25	22%
1 bag	Mixed Greens	5 oz	\$1.24	\$1.65	-33%
2 each	Onions, White	12 oz	\$1.68	\$1.68	0%
5 lb	Potatoes, Gold	5 lb	\$5.44	\$6.08	-12%
2 lb	Potatoes, Red	2 lb	\$1.85	\$2.83	-53%
1 bunch	Spinach	12 oz	\$1.30	\$3.13	-140%
1 carton	Strawberries	1 lb	\$2.63	\$5.57	-112%
1 pint	Tomatoes, Cherry	10.5 oz	\$3.09	\$2.36	24%
1 lb	Tomatoes, Slicing/Vine	1 lb	\$1.62	\$1.42	12%
1 each	Watermelon	13 lb	\$5.58	\$5.31	5%
1 each	Zucchini	7 oz	\$0.63	\$0.27	57%
Total Price			\$30.53	\$35.93	-17.66%

Notes: Significance level: 95%

The price comparison of an organic "basket of produce" (Figure 1) shows that the total price of the basket at a grocery store was \$40.21, whereas the same basket was priced at \$51.05 at a farmer's market (27% more expensive). A carton of organic strawberries has the biggest price difference: farmers' market organic strawberries are, on average, \$5.64 more expensive than organic strawberries bought at a grocery store. Organic gold potatoes also had a significant price difference. In contrast, there are few organic produce items that are on average less expensive at farmers' markets, including cucumbers, green bell peppers, and mixed greens. The supply of

Figure 1. Farmers' Markets vs. Grocery Store Comparison – Basket of Fresh Produce**Figure 2.** National vs. Local Grocery Comparison – Basket of Fresh Produce

organic produce in the northern Utah farmers' markets is fairly sparse, so most of the organic produce data came from the Salt Lake City Downtown Farmers' Market, which was the most expensive.

Table 3 shows the average prices for a conventional basket of produce across the different farmers' markets. Several produce items were unavailable in some of the markets, so a total basket price comparison is not possible. However, looking at each produce item individually, the Kaysville farmers' market is generally the least expensive market, and the Salt Lake City farmers' market is on average more expensive for 9 out of 14 produce items.

Table 4 shows the price comparison of the eight grocery stores where data collection took place. The data were averaged for the two Walmart locations and also for the Smith's Grocery locations. Rancho Market, a locally owned store, has the lowest prices for produce overall, and was the least expensive for seven out of the 12 produce items. However, some of the produce items were unavailable, as it is shown in the table. Although Lee's Marketplace, another local store, did not have the lowest price for any individual item, it was the second least expensive grocery store. The price differences between local and national grocery stores were not statically significant for organic or conventional produce (Figure 2).

Conclusions

We find that farmers' markets are in general more expensive than grocery stores in northern Utah. However, for specific produce items, farmers' markets can be just as competitive or even less expensive than grocery stores. Prices for organic produce tend to be higher at farmers' markets. It's important to point out that the farmers' market prices in our sample varied greatly by location, and the farmers' market basket at two of the four market locations was less expensive than at seven of the eight grocery stores. Hence, location can make a large difference

Table 3. Farmers' Market Comparison – Conventional Basket of Produce

	Basket Items	Average Weight	Kaysville	Logan	Ogden	SLC
1 head	Broccoli	0.5 lb	\$0.33	\$1.33	N/A	\$0.50
1 head	Cabbage, Green	2 lb	N/A	\$2.09	N/A	\$2.00
2 each	Cucumbers, Normal	0.62 lb	\$0.95	\$1.03	\$1.44	\$1.26
2 each	Bell Peppers, Green	0.5 lb	\$0.87	\$1.47	\$1.44	\$1.08
1 bag	Mixed Greens	5 oz	N/A	\$1.29	\$4.00	\$1.80
2 each	Onions, White	12 oz	\$1.18	\$1.37	\$2.91	\$0.99
5 lb	Potatoes, Gold	5 lb	\$5.63	\$6.44	N/A	\$5.67
2 lb	Potatoes, Red	2 lb	\$2.01	\$2.67	\$3.00	\$3.76
1 bunch	Spinach	12 oz	N/A	\$2.99	N/A	\$3.75
1 carton	Strawberries	1 lb	N/A	\$4.95	\$5.25	\$9.33
1 pint	Tomatoes, Cherry	10.5 oz	\$1.79	\$2.81	\$2.10	\$2.84
1 lb	Tomatoes, Slicing/Vine	1 lb	\$1.16	\$1.34	\$1.36	\$1.77
1 each	Watermelon	13 lb	\$3.54	\$5.51	\$5.69	\$5.59
1 each	Zucchini	7 oz	\$0.20	\$0.27	\$0.26	\$0.33
Total Price			\$17.65	\$35.55	\$27.46	\$40.67

Table 4. Grocery Store Comparison – Conventional Basket of Produce

	Basket Items	Avg. Weight	Harmon's	Lee's Mktplace	Smith's Grocery Target	Walmart	Rancho Market	
1 head	Broccoli	0.5 lb	\$0.79	\$0.68	\$0.63	\$1.02	\$0.86	\$0.63
1 head	Cabbage, Green	2 lb	\$1.45	\$1.53	\$1.19	\$1.77	\$2.60	\$1.35
2 each	Cucumbers, Normal	0.62 lb	\$1.53	\$1.62	\$1.54	\$2.03	\$1.40	\$1.18
2 each	Bell Peppers, Green	0.5 lb	\$1.97	\$1.51	\$1.61	\$1.80	\$1.39	\$1.52
1 bag	Mixed Greens	5 oz	\$1.41	\$1.40	\$1.25	\$0.97	\$0.74	N/A
2 each	Onions, White	12 oz	\$1.38	\$1.50	\$1.88	\$1.80	\$1.59	\$0.75
5 lb	Potatoes, Gold	5 lb	\$4.85	\$4.23	\$4.95	\$4.95	\$3.72	\$4.95
2 lb	Potatoes, Red	2 lb	\$1.80	\$1.62	\$2.15	\$2.02	\$1.49	\$1.67
1 bunch	Spinach	12 oz	\$1.10	\$1.72	\$1.36	\$1.47	\$1.40	\$1.07
1 carton	Strawberries	1 lb	\$3.89	\$2.55	\$2.79	\$2.63	\$2.31	\$1.39
1 pint	Tomatoes, Cherry	10.5 oz	\$3.25	\$3.40	\$3.19	\$3.22	\$3.09	N/A
1 lb	Tomatoes, Slicing/Vine	1 lb	\$1.61	\$1.46	\$1.63	\$2.58	\$1.87	\$1.01
1 each	Watermelon	13 lb	\$4.49	\$5.09	\$6.59	\$4.99	\$6.45	\$3.41
1 each	Zucchini	7 oz	\$0.57	\$0.67	\$0.56	\$0.69	\$0.88	\$0.44
Total Price			\$30.09	\$28.98	\$31.31	\$31.94	\$29.79	\$19.37

Notes: Harmon's, Lee's Marketplace, and Rancho Market are local stores.

in pricing. Finally, fresh produce at local grocery stores is less expensive than at national chains, but the price differences are not statically significant. Hence, large chains such as Walmart are not necessarily less expensive, as is commonly thought. Fresh produce can be found at local grocery stores and at some farmers' markets for competitive prices.

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