Farmers Market Consumers: Is Local or Organic Important?

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Consumer demand for alternative foods, such as organic and local products, increased dramatically in the last decade in the United States. Sales of organic products in the U.S. reached $21.1 billion in 2008, representing three percent of total food sales, and are projected to climb to $23.0 billion in 2009 (USDA-ERS 2009). Fresh produce—i.e. fresh fruits and vegetables—have long stood as the top-selling organic products in the U.S. and accounted for 37 percent of organic food sales in 2008 (USDA-ERS 2009), or approximately $7.8 billion. This may be due in part to the fact that the adoption of organic practices has been highest among fruit and vegetable producers (Greene et al. 2009) while production of organic grains—inputs for both processed organic products and organic meats—has been outpaced by demand. Additionally, the Hartman Group estimates that 69 percent of U.S. households purchased one or more organic products in 2008, a figure that showcases the increasingly mainstream nature of organic products (Greene et al. 2009, p.3).

As organics have gained appeal among a wider range of consumers, a trend toward locally produced foods has emerged. This trend is evidenced by the 171 percent increase (from 2,746 to 4,685) in the number of farmers markets in the country from 1998 through 2008 (USDA-AMS 2009), as well as the 2007 estimate of 12,549 agricultural producers in the U.S. marketing products through community supported agriculture (CSA) programs (USDA 2009). There are many reasons consumers choose to purchase local foods, from deriving value from eating foods produced by someone with whom the consumer has a personal relationship and supporting the local economy to wanting to reduce "food miles" (the distance food travels from farm to plate) and placing value on the lower energy costs associated with eating regional and seasonal foods.

For example, a study by Zepeda and Leviten-Reid (2004) found that local food purchases were driven by perceived product freshness and quality, providing financial support to and having direct contact with farmers, engaging in environmentally conscious behavior, and reducing packaging. It has been speculated that local purchasers may be former organic purchasers; in fact, Greene et al. (2009) posit that organic producers may already be facing competition from locally labeled products.

A shift in preferences from organic products to local products could have serious impacts to food and agriculture producers in the U.S., particularly those operating on a small scale. The shift to organics has had financial effects on small operations in terms of increased costs of production due to certification costs, lower yields, etc. Traditionally these costs have been offset by price premiums earned for organics in the market, but as organics have become increasingly mainstream and larger agricultural operations have entered the market (including store-brand organic lines from major retailers such as Wal-Mart, Safeway, and Kroger) small-scale producers have seen price premiums decline.

This study uses survey data collected in-person at farmers markets across Nevada to compare the demographics, preferences, and lifestyle habits of fresh vegetable consumers to contribute to the existing body of work examining organic and local food consumption patterns. Specifically, we examine potential differences between organic and local food consumer types.

Survey Description

During the 2008 farmers market season, in-person surveys were conducted at 12 farmers markets across Nevada by researchers from the University of Nevada, Reno and University of Nevada Cooperative Extension. A total of 669 surveys were collected, with 384 from markets in Southern

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Nevada (the greater Las Vegas area) and 285 from markets in Northern Nevada (the greater Reno area). Respondents were asked questions relating to their food purchasing and consumption habits, including grocery spending and grocery outlets used; their preferences for various fresh produce attributes; their agreement with attitude and lifestyle statements; a quiz assessing their knowledge of the organic production process; their willingness to pay (WTP) for seven different organic, local, and conventional fresh produce items; and demographic information.

Table 1 gives an overview of sample statistics for the variables that were used in the cluster analysis. The variable WTP_organic was constructed as part of a separate logit analysis and is given the value of 1 if a respondent was willing to pay a premium for one or more of the organic vegetables (cucumbers, tomatoes, eggplant, green peppers, and yellow squash) in the WTP section of the survey. The mean of 0.40 indicates that 40 percent of respondents were willing to pay a premium. The variables Local and Pricing came from a survey question asking respondents to rate product attributes on a scale of 1 to 5 in terms of importance when considering a fresh produce purchase, with 1 indicating not important and 5 indicating extremely important. Local, defined as being produced in Nevada, was given an average rating of 3.67 over the entire sample, while product pricing was given an average rating of 3.91. A similar question on the survey asked respondents to rate their level of agreement with a panel of personal statements on a scale of 1 to 5, where 1 indicates strongly disagree and 5 indicates strongly agree. Origin represents the statement "I am concerned about the origin of my food," Diet represents "I am concerned about my health/diet," Exercise represents "Physical activity is an important part of my routine," and Food Safety represents "I am concerned about the safety of my food."

The variables Gardening and Canning came from a section of the survey questions that asked respondents to indicate whether or not they participate in a variety of lifestyle activities. The mean of 0.52 for Gardening indicates that 52 percent of respondents participate in home gardening while the mean of 0.24 for Canning indicates that 24 percent of respondents participate in food canning and/or preservation. Respondents were asked to describe how many meals they eat at home in an average week. The mean of 14.79 indicates that, on average, survey respondents ate between two and three

Table 1. Survey Sample Statistics (n = 669).

Variable	Mean	Std. dev.	Min	Max
WTP_organic	0.40	0.49	0	1
Local	3.67	1.18	1	5
Pricing	3.91	0.97	1	5
Origin	4.25	0.83	1	5
Diet	4.46	0.72	1	5
Exercise	4.06	0.95	1	5
Food safety	4.54	0.73	1	5
Gardening	0.52	0.50	0	1
Canning	0.24	0.43	0	1
Home meals	14.79	4.57	0	21
Education	4.25	1.36	1	6
Children	0.35	0.48	0	1
Married	0.65	0.48	0	1

meals per day at home. This compares to the national average of 14.4 meals per week eaten at home (Ebbin 2000). Demographic information included in the cluster analysis related to level of education, children in the household, and marital status. The mean value of 4.25 for Education indicates that, on average, respondents had at least some college (40 percent of respondents had a bachelor's degree or higher); 35 percent of respondents had children under age 18 in their household and 65 percent were married.

Cluster Analysis and Results

We used cluster analysis to group survey respondents with similar behavior and attitudes into distinguishable consumer segments. The cluster analysis was conducted in SPSS using a non-hierarchical procedure (K-means cluster analysis) which grouped respondents into a pre-specified number of groups. The K-mean cluster analysis seeks to minimize within-cluster variance and maximize variability between clusters in an ANOVA manner. The cluster analysis resulted in three distinct groups, which we labeled as Organic Enthusiasts (264 respondents, 39.5 percent of sample), Local and Homegrown Enthusiasts (240 respondents, 35.9 percent), and Not Enthusiasts (165 respondents, 24.7 percent). Characteristics of each cluster are identified in Table 2.

As some of the mean variable values were similar in value across clusters, t-tests were performed to determine which of these variables were significantly different from one another. Table 3 displays the results of the t-tests; if the abbreviation for one of the other clusters appears in a column, it indicates that the two clusters were significantly different in terms of that variable. If no initials appear in a column, it indicates that the cluster's value was not significantly different from the other two clusters.

Organic Enthusiasts (OE) had the most statistical differences when compared to the Not Enthusiasts (NE) cluster. These differences include a statistically larger proportion of OE were willing to pay a premium for organic vegetables than NE; were less concerned with product pricing than NE; were more concerned with health/diet, exercise, and knowing the origin of their food; ate more meals at home; had higher education levels; and were more likely to be married and to have children. It should be noted that OE was the cluster with the most members.

Although Local and Homegrown Enthusiasts (LHE) did not differ statistically in their WTP a premium for organic vegetables relative to OE, the most important difference between these two clusters, and the key result of the cluster analysis, is that LHE placed significantly more value on local (Nevada) production than did OE. This shows that although local purchasers may also be purchasing organic products, organic purchasers are not necessarily local purchasers. This is consistent with the theory that a subset of consumers in the U.S. is trending toward local options. The LHE and OE clusters were not statistically different in the way they valued product pricing, knowing a product's origin, health/diet, exercise, food safety, or gardening, but they were more likely to participate in canning and preservation of foods and they ate more meals in the home than did OE.

Not Enthusiasts were given this label because they were less concerned with product attributes and were less likely to be involved in the activities used to define the clusters. However, they did not differ from LHE in terms of valuing local (Nevada) production. NE were significantly less concerned with knowing the origin of products than were both OE and LHE, so it is possible that their high rating for Nevada products can be attributed to the fact that the surveys were conducted at farmers markets in Nevada. Aside from local production and food safety, which did not vary statistically across clusters, NE differed from one or both of the other clusters on every other issue, especially pricing. This group may be similar to that identified by Torjusen et al. (2001) as "practical" and less willing to purchase organic foods. Oberholtzer, Dimitri, and Green (2007) also found that price is the primary barrier to organic food purchases for some consumers.

A final noteworthy result is that the clusters did not vary statistically in their valuation of food safety. This is not a surprising result given the number of widespread food product recalls in the U.S. over the past several years, including the multistate 2008 *Salmonella* Saintpaul outbreak in jalapeño and serraño peppers that was initially attributed to tomatoes and took several months to sort out (CDC 2008a, 2008b).

Table 2.Mean Values by Cluster.

Variable	Organic enthusiasts	Local & homegrown enthusiasts	Not enthusiasts
Number of consumers	264	240	165
WTP_organic	0.432(h)	0.396	0.345
Local	3.561(l)	3.739(h)	3.739(h)
Pricing	3.837(l)	3.896	4.048(h)
Origin	4.211	4.236(h)	4.089(l)
Diet	4.519(h)	4.517	4.273(l)
Exercise	4.133(h)	4.071	3.915(l)
Food safety	4.568(h)	4.517(l)	4.533
Gardening	0.545	0.558(h)	0.406(l)
Canning	0.227	0.300(h)	0.170(l)
Home meals	14.644	19.317(h)	8.455(l)
Education	4.697(h)	4.100	3.770(l)
Children	0.375	0.383(h)	0.273(l)
Married	0.669	0.713(h)	0.548(l)

(l) indicates lowest value among clusters; (h) indicates highest value among clusters

Table 3. Statistical Differences in Mean Values by Cluster.

Variable	Organic enthusiasts	Local & homegrown enthusiasts	Not enthusiasts
WTP_organic	LHE	—	OE
Local	NE	OE	—
Pricing	NE	—	OE
Origin	NE	NE	OE, LHE
Diet	NE	NE	OE, LHE
Exercise	NE	—	OE
Food safety	—	—	—
Gardening	NE	NE	OE, LHE
Canning	LHE	OE, NE	LHE
Home meals	LHE, NE	OE, NE	OE, LHE
Education	LHE, NE	OE, NE	OE, LHE
Children	NE	NE	OE, LHE
Married	NE	NE	OE, LHE

Conclusions

Through the use of a survey of 669 farmers market attendants at 12 markets across Nevada this study sought to compare the demographics, preferences, and lifestyle habits of fresh vegetable consumers, specifically to examine potential differences between organic and local-food consumer types. This study contributes to the existing body of work examining organic and local-food consumption patterns. Shifts in consumer preferences to local foods could have major impacts on food and agriculture producers in the U.S., as organic production is costly and small-scale producers are already facing declining price premiums due to competition from large-scale producers and international food retailers.

Using cluster analysis of farmers market survey respondents, this study found three distinct groups of consumers: those that prefer organic products, those that have a preference for local products, and those that are not concerned with either. Although the local cluster also exhibited a preference for organic products, the main difference between the two was the local purchaser's greater emphasis on local production. Local purchasers also ate more meals in the home than did the other two clusters and were more likely to engage in food canning and preservation in the home. The organic purchasers represented the greatest proportion of the sample, with a stronger focus on diet and exercise. Additionally, the three clusters did not exhibit statistical differences in the level of concern they felt over the safety of their food.

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