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Eat Your Fruits and Veggies: Exploring Fresh-Produce Market Choices

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Direct marketing is integral to the prosperity of most small farms. Although many direct-marketing channels continue to grow, including farmers markets and CSAs, little is known about why consumers are looking to market alternatives to supermarkets and supercenters. To enhance their appeal to consumers, direct-marketing producers are challenged to prove the value of their produce to their consumers, focusing primarily on freshness, uniqueness, and nutritional properties, all of which may explain increasing interest in new cultivars as well as in organically produced fruits and vegetables.

Evidence of direct marketing's growing significance is documented in the 2002 USDA Ag Census which found that the number of farmers using direct-marketing strategies increased from 110,639 to 116,733 between 1997 and 2002. The number of marketing channels has also grown and diversified. One primary direct-marketing channel, farmers markets, grew 79 percent to 3,100 between 1994 and 2002 (Handy et al. 2000) and initial numbers from the 2006 survey suggest the number grew to over 3,700 in 2006. The appeal of direct consumer sales is at least partially because producers hope to avoid expenses associated with using a broker or wholesaler. But another possible explanation from the significant growth of direct-marketing receipts is that producers find direct-market interaction allows them to receive feedback and directly promote attributes that motivate consumers to patronize their operations. Still, there is only minimal information

on what produce characteristics differentiate produce in the eyes of direct consumers so that their needs can be effectively met.

In order to better understand the shopping and product choices of consumers who choose to make purchases directly from producers, we examine factors that influence shopping-choice location as well as how purchases vary among those who directly purchase their fresh produce, using a multinomial logit to explain consumers' primary produce-market choice. Guided by these objectives, we test the hypotheses that a significant share of the consumer market purchases fresh produce directly from producers, and factors motivating the choice of where to shop relate to preferences for shopping location, private and public good-oriented product attributes, and willingness to pay higher premia for produce differentiated by organic certification, local sourcing, and color. Knowledge acquired from this analysis is expected to assist small farms in understanding the consumers who seek to buy directly or through specialty food outlets so that their marketing strategies and plans can be more effective. This paper proceeds with a brief discussion of past research, survey data and methods, and research findings. The paper concludes with some broad marketing implications for producers.

Background

U.S. per-capita consumption of fresh fruits and vegetables rose at an increasing rate of approximately 15 percent between 1987 and 2000 (Dimitri and Greene 2002). Since 1987, the variety of fresh produce items offered by retailers has also diversified with over double the number of unique UPCs representing 345 items. Over the same period, branded produce sales have more than doubled from seven percent to 19 percent of total sales in 1997 (Handy et al. 2000)

Sunding (2003) asserts that, in addition to traditional concerns about nutritional content, purity, and freshness, consumers also may value a prod-

uct more because it addresses a social concern or has a public good aspect, even though the product may not necessarily be "more valuable" or "higher quality" than a conventional product. This is a little-studied aspect of the food market. Among produce purchase-motivating factors, consumers who prefer locally produced agricultural goods tend to value freshness, high quality, fair pricing, social interaction, and locally grown attributes in the produce they purchase at farmers markets, according to previous research (Lockeretz 1987; Brown 2002). With respect to meat purchases, Ziehl, Thilmany, and Umberger (2005) used cluster analysis to show that consumer preferences for natural and regionally produced beef are often motivated by altruistic factors—for example, a consumer's belief that her purchases of natural and regionally produced beef will benefit society by supporting local agriculture and/or by decreasing antibiotic resistance. Among European consumers, Empacher, Gotz, and Shultz (2002) found four clusters of consumers in a study of German sustainable-consumption behaviors, including one labeled "well-organized eco-families who support local and sustainable agricultural practices (civic agriculture and environmental practices)."

This study updates and consolidates this previous work, with a focus on marketing channels rather than particular food products, as the choice of how to connect with potential consumers is an increasingly important decision for producers who feel a restricted access to traditional retail markets or see better opportunities for developing personal sales relationships with the consumer base that is seeking local food offerings.

Data and Methods

This study began in 2005 with an inquiry into the antioxidant properties of 10 cultivars for each of six products commonly sold through direct-marketing channels, information subsequently used to frame potential marketing claims to consumer respondents in a 2006 national survey. Consumer data concerning purchasing habits, attribute preferences, and willingness to pay was collected from a national online survey conducted by the National Family Opinion organization in May 2006. The National Family Opinion organization solicited 3,170 members of its online survey database to take the

survey; a total of 1,549 responses were returned, providing a 48.86-percent response rate.

In general, the survey elicited information on consumer shopping behavior; ratings for different fresh produce production attributes (organic, pesticide-free, traceable from farmer to consumer, locality of farmer, and country of origin); and attitudes about the product itself, including carbohydrate levels, vitamin content, color of produce, and visual appeal. In addition, a contingent-valuation method utilizing payment cards was used to elicit consumers' reasonable and maximum willingness to pay for melons and specialty potatoes with differing production and product characteristics. Both melons and potatoes are common direct-marketing offerings in Colorado and the U.S., and are examples of products for which new nutritionally superior cultivars are available.

Summary statistics of the socio-demographic information and other responses are located in Table 1. The sample is comparable to the United States population based on the U.S. Census in terms of income, household size, and the percentage of households with children living at home. The fact that this sample is predominantly female is consistent with the results of several previous food-based surveys, because females are generally the primary grocery shoppers in a household. Supermarkets and supercenters are still the dominant market choice among consumers, with 1,491 out of 1,549 (96 percent) noting it is where they buy most of their food. Figure 1 shows that this number declines to 1,024 out of 1,549 (66 percent) for respondents' primary produce shopping. Of the remaining respondents, 19 percent say primary produce purchases are direct while another 14 percent buy produce primarily at specialty or health food stores.

Results

In order to get a sense of what motivates consumers when deciding where to shop for fresh produce, as well as what types of product attributes are of greatest importance, respondents were asked to rank a set of factors that enters their decision on a scale from "Not Important" = 1 to "Extremely Important" = 5. Means of each location-related variable are shown in Figure 2 for the full sample, and for subsequent sub-samples of those who buy directly from producers and those who shop primarily at supermarkets

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Table 1. Summary Statistics for the Demographic Variables (n = 1549).

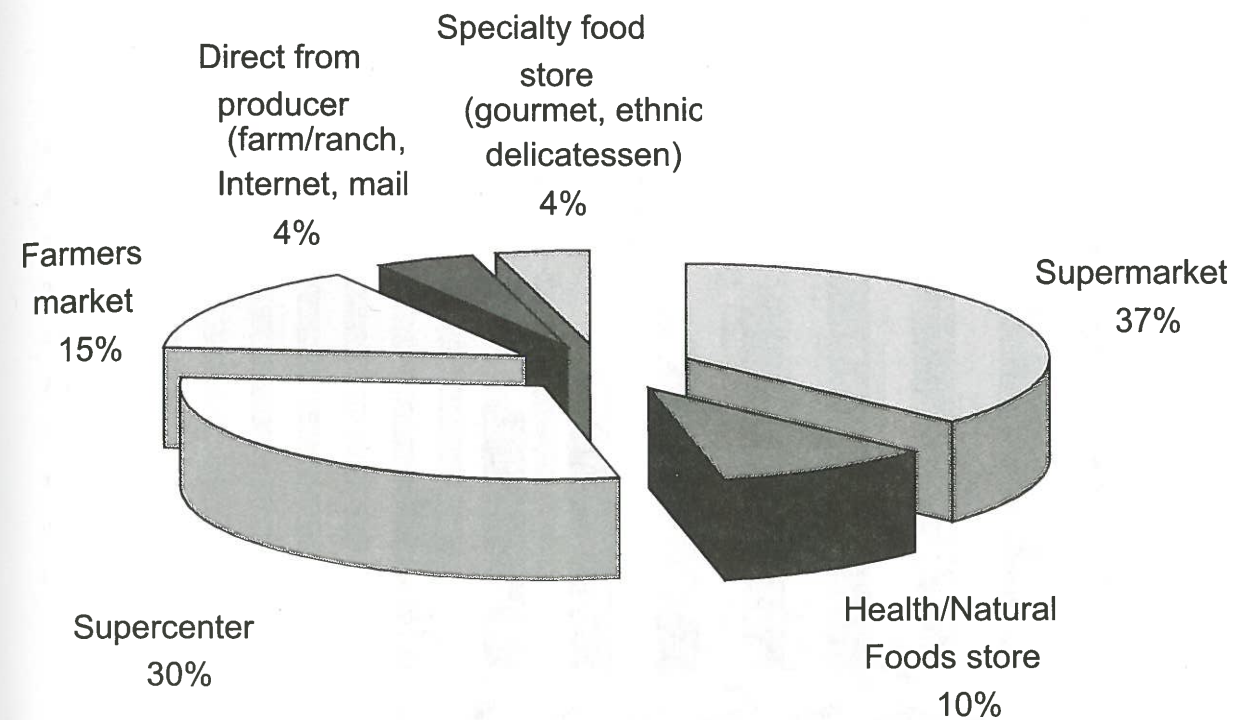
Variable	Description (coding)	Mean	Standard deviation
Age	Years	51.07	14.70
Gender	1 if female, 0 if male	0.74	0.44
Weekly grocery expenditures	1 = <\$50, 2 = \$50-\$99 3 = \$100-\$149 4 = \$150-\$199 5 = \$200-\$299 6 = ≥\$300	2.36	1.01
Market size (persons)	1 = <100,000 2 = 100,000-499,999 3 = 500,000-1,999,999 4 = ≥2,000,000	3.03	1.08
Household income	1 = <\$30,000 2 = \$30,000-\$49,999 3 = \$50,000-\$74,999 4 = ≥\$75,000	2.49	1.17
Race	1 if Caucasian, 0 if otherwise	0.90	0.30
Spanish origin	1 if Spanish Origin, 0 if otherwise	0.03	0.16
Household size	Actual number in household, range: 1 to 7 members	2.41	1.34
Life stage	1 if single, no children, 0 otherwise 1 if couple, no children, 0 otherwise 1 if couple, at least one child in household	0.26 0.40 0.32	0.44 0.49 0.47

and supercenters. For the full sample and for each sub-sample, superior quality, safety, and competitive prices of products were rated highest. Support for local producers was rated a bit higher by direct purchasers, but the difference is not as great as one might expect.

Among production process and product attribute variables (Figure 3), consumers were most concerned that produce was a good value and had an appealing texture and level of firmness. Color, visual appeal, and freshness of the produce were ranked as being similar in importance to the purchasing decisions. Identifying the product as having been grown without the use of pesticides ranked as the most important production-process-related attribute, followed by the product being labeled with the country of origin and being locally grown. Produce that is grown using USDA-certified organic-cultivation methods is the lowest-ranked process-based attribute, a finding similar to past research by Thilmany, Umberger,

and Ziehl (2006) that showed that specific claims such as antibiotic-free (akin to pesticide-free in this survey) were more compelling to consumers. These ratings were standardized for the analysis to control for "rating inflation" across consumers.

Willingness to pay for differentiated produce did vary among the samples, with those who purchase direct paying a greater premium for local, organic, and nutritionally superior produce, both independently and bundled in various combinations (Bond, Thilmany, and Keeling-Bond 2006). Compared to supermarket customers, those who purchase direct from producers are willing to pay seven to 23 percent more of a premium than are supermarket customers. In addition, a smaller percentage of direct-purchase customers opt out of the purchase compared to those who primarily shop at supermarkets, with a greater difference for responses to the local, organic, Vitamin C-rich melon than for purple organic potatoes with high antioxidant levels.



Full Consumer Sample n=1549.

Figure 1. Fresh Produce Purchase Locations.

Bond, Thilmany, and Keeling-Bond (2006) found five distinct consumer clusters, ranging from nine to 44 percent of the market, with some notable differences in preferred shopping choices among the clusters. This analysis moves from a segmentation approach to one of analyzing how various factors influence the probability of a consumer choosing one shopping location/channel or another for their produce.

Multinomial Logit

For further analysis of primary produce shopping choices we used STATA 7.0's multinomial command (STATA 2001), setting supermarket consumers as the baseline case, against which all other coefficients can be compared. The dependent variables for the multinomial logit were discrete 0/1 variables equal to 1 for consumers who indicated they did their primary produce shopping at various outlets, supermarkets, health food stores, supercenters, farmers markets, direct from producer, and at specialty stores, respectively. The details of

the modeling and results are summarized in Table 2, while specific findings are not reported for the sake of brevity.

Supermarket and supercenter consumers were most alike, as one would expect, with the major differences being a higher expenditures on groceries, low and lower-middle incomes, and a higher incidence in all but mega markets among supercenter shoppers, while importance of country of origin and local designation were negatively related to a consumer's probability of being in that group. Those who shopped at specialty markets (delis and ethnic and gourmet stores) also had higher expenditures on produce, rated color and the relationship with producer higher, and were more likely to be lower-middle income, but were less concerned about food safety and recommendations for their store choices and rated firmness and texture of produce relatively lower than did supermarket shoppers.

One surprising result was that consumers at both farmers markets and those who bought direct from producers were not statistically the same in this model, but each of these groups did have similar

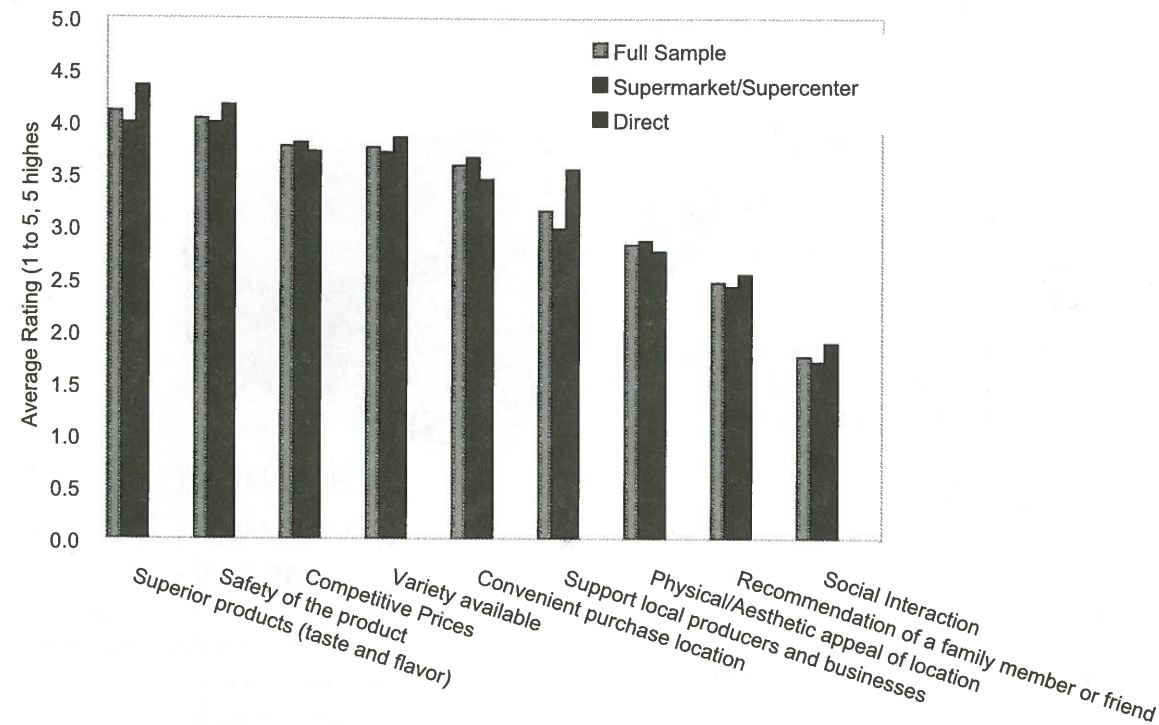


Figure 2. Motivational Ratings for Produce Purchase Locations.

results to the health food store consumers. Those who shopped at health food stores attributed a larger share of their organic premium to perceived food safety and rated good value for the money high but were less likely to be male or to place much importance in brand names relative to supermarket consumers.

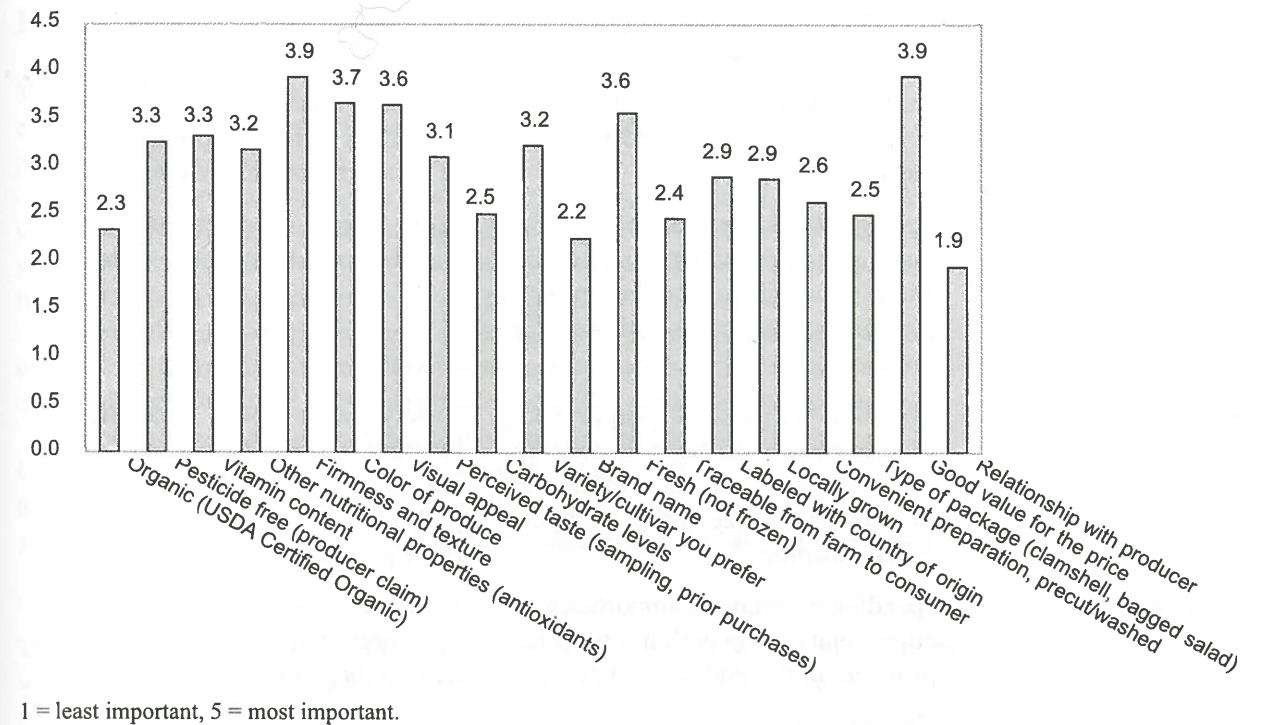
Farmers market consumers tend to be older; spend more on produce; and more highly value organics, vitamin content, color, fresh, traceability, and relationship with producers but food safety, recommendation of friends, and aesthetics were rated relatively low with respect to their choice of shopping location. This represented the highest degree of significant differences from the supermarket-baseline consumers. Those who reported they primarily buy produce direct from producers, also spent more on produce; rate organics, cultivar, relationship with producer, and traceability high; lived in mid-size markets; and were more likely

to be upper-middle income but rate variety, safety, local, convenience, recommendations, prices and social interaction relatively low with respect to store choice and were relatively less likely to value nutritional aspects of the produce.

Marketing Implications and Conclusions

This research focuses on the market choices for fresh produce among U.S. consumers with hopes of informing producers as they consider their supply-chain options, including direct sales to consumers. Organic and alternative production systems are important differentiation factors, but this analysis demonstrates that consumers are motivated by a number of different factors.

Although there is less variability across marketing channels than one might expect, it should be encouraging that produce differentiated by local sourcing, organic certification, or other claims is



1 = least important, 5 = most important.

Figure 3. Production Practices and Attributes.

similarly valued by those who shop in traditional retail environments as by those who purchase produce direct from producers.

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Table 2. Multinomial Logit Results for Primary Produce Shopping Locations.

	Positive impacts	Negative impacts
Supercenter	spending on groceries, importance of traceability, low and lower-middle income, all but megamarkets	importance of country of origin and local for produce
Health food stores	share of organics premium for perceived food safety; importance of value for produce	male, importance of prices in stores, and brand names for produce; share of premium for unique colors
Farmers market	age, spending on produce, importance of organics, vitamins, color, fresh, traceability, relationship with producers, and carbohydrates for produce	food safety, recommendation of friends, and aesthetics for stores
Direct from producer	spending on produce, importance of organics, cultivar, relationship with producer, and traceability for produce; mid-size market, upper-middle income	variety, safety, local, convenience, recommendation, prices, and social interaction for store; share of organic premium for perceived nutrition; color premium for nutrition
Specialty market	spending on produce, importance of color, relationship with producer for produce; lower-middle income	food safety and recommendations for stores; importance of firmness/texture for produce
Base outcome	supermarkets	

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