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Who Attends Farmers' Markets and Why? Understanding Consumers and their Motivations

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Abstract

This study assesses consumer motivations for attending farmers' markets through in-person survey data. Results indicate that consumers attend primarily to purchase fresh produce, followed by social interaction. Purchasing ready-to-eat foods or packaged foods, arts, and crafts were not strong motivators. Consumers attending primarily to purchase fresh produce tend to be married females at higher income levels, individuals with strong diet or health concerns, and individuals who are supportive of local farming and agriculture open space. Those attending for social interaction are more likely to be unmarried males or larger families attending events. Implications for market vendors, managers, and policy makers are discussed.

Keywords: Farmers' markets, fresh produce, attendance motivations, target consumers

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Introduction

The number of farmers' markets in the United States has grown rapidly over the past few decades. Between 1970 and 1986, farmers' markets in some states increased tenfold, with the national total rising nearly 500% (Brown 2001). Growth continued in the early twenty-first century, with the number of markets increasing by 184% from 2000 to 2013 (2,863 to 8,144) (USDA-AMS 2014). Such growth could be attributed to economic factors such as the need for local growers to diversify their sources of income (Brown 2002). Other arguments include that socioeconomic effects that markets have on communities, such as job growth (Curry and Oland 1998), as well as consumer demand for fresh local produce and provision of setting for social interaction and a sense of community (Oberholtzer and Grow 2003; Brown and Miller 2008). Others (Sommer et al. 1981; Hilchey et al. 1995; Cassia et al. 2012) conclude that the existence of farmers' markets allows for the preservation of open spaces and improves the customers' psychological satisfaction.

The literature on farmers' market consumers has focused primarily on consumer preferences and willingness to pay for locally grown and organic produce (Loureiro and Hine 2002; Dimitri and Greene 2004; Gifford and Bernard 2004; Zepeda and Leviten-Reid 2004; Garmon et al. 2007; Keeling-Bond et al. 2009; Curtis and Cowee 2011). Literature examining additional motives for attendance at farmers' markets is limited. The existing studies (Darby et al. 2008; George et al. 2011; Alonso and O'Neill 2011; Murphy 2011) indicate that consumers attend farmers' markets to purchase fresh, high-quality produce and interact with growers. A more detailed analysis is necessary for produce growers, market managers, and policy makers interested in enhancing sales of all goods and services available at markets or seeking to increase fresh produce sales or consumption among consumers.

This study analyzes consumer motivations for attending farmers' markets. The four primary motivations considered were purchasing produce, purchasing ready-to-eat foods, social interaction, and purchasing packaged foods, arts, or crafts. These motives were selected on the basis of products, services, and events available at the farmers' markets examined as well as consumer attendance motives suggested by previous studies (Oberholtzer and Grow 2003; McGarry-Wolf et al. 2005; Brown and Miller 2008; George et al. 2011; Alonso and O'Neill 2011). Literature examining event attendance motivations can be found in the tourism and sports literature (Faulkner et al. 1999; Pegg and Patterson 2010; Nicholson and Pearce 2001; Lee et al. 2010), where survey data is analyzed primarily using factor and/or cluster analysis to identify target consumers by attendance motivation (Middleton 2001; Mair 2010).

This study describes the consumer characteristics, attitudes, and concerns that determine the probability of visiting a farmers' market primarily to purchase produce, as well as the relative probabilities of attending a farmers' market for other reasons. We also analyze consumer types among attendance motivations and formulate managerial and policy implications. Although this study uses data collected from farmers' markets in Utah and Nevada, the findings are likely applicable to farmers' markets throughout the West that offer similar products and services.

Review of Literature

Farmers' markets offer opportunities for local farmers and small businesses to sell directly to consumers, grow a customer base, and test new products and pricing strategies. Farmers' markets also provide opportunities for consumers to purchase fresh, high-quality produce, attend educational events and concerts, and to socialize. Sommer et al. (1981) compared the social and physical attributes of supermarkets and farmers' markets in California and found that customers perceived farmers' markets as more personal, rural, smaller, and friendlier settings than traditional supermarkets. Neil (2002) claimed that farmers' markets are important because they give local farmers the chance to sell the food they raise directly to customers and allow consumers to buy fresh food from the farmers who raise it, providing the opportunity to reconnect consumers with the food supply chain. In addition to produce, other goods and services are available at farmers' markets, including arts and crafts, ready-to-eat foods, beverages, breads, and packaged products (USDA-AMS 2009). Farmer's markets also provide communities the opportunity to create excitement and activity in downtown areas and local neighborhoods.

The literature discussing consumer motives for attending farmers' markets clearly indicates that consumers attend farmers' markets primarily to purchase local produce. While some studies mention other potential motives, they do not specifically analyze these motives. For example, Lyon et al. (2009) used a survey of 391 consumers at farmers' markets in five Scottish towns in 2006 and reported that consumers sought high-quality food products and direct contact with local produce growers. McGarry-Wolf et al. (2005) compared consumer motivations through the use of in-person surveys conducted at grocery stores and farmers' markets in San Luis Obispo County in California and found that consumers perceived produce at farmers' market to be fresher looking, fresher tasting, of higher quality, better value for the money, more reasonably priced, environmentally friendly, and traceable to the growers. They indicated that many consumers do not shop at farmers' market because of convenience issues but didn't examine the reasons for farmers' market attendance outside of produce purchases.

Trobe (2001) interviewed farmers' market consumers in the United Kingdom during the first three months of the market to investigate the reasons for their attendance as well as their attitudes toward a number of food issues, including organic and genetically modified (GM) food, local and seasonal food, and concerns they had over the way their food was produced. Customers visited the markets initially out of curiosity, although some attended specifically to buy fresh food. Respondents had strong preferences for organically grown and GM-free food.

Archer et al. (2003) surveyed a sample of consumers, many of whom were not familiar with the term "farmers' market." They found that consumers generally perceived that farmers' markets sell fresh, quality, locally produced, tastier, healthier, and seasonal food, but expect the food to be higher priced. The majority of individuals who had previously shopped at a farmers' market returned because of the availability of a large variety of fresh, local produce and to support local growers.

Despite the large growth in farmers' markets and the popularity of such markets, very little is known about the types of consumers who attend these markets and their motivations. Existing

studies have focused on consumer demand for specialized or labeled products (local, organic, GM-free, etc.) or attempted to explain why consumers choose to purchase fresh produce at farmers' markets rather than more traditional grocery outlets. Since farmer's markets offer a variety of products beyond fresh produce as well as other services and activities, the role they play in increasing market patronage is a relevant question. This study examines a variety of attendance motives and provides an overview of representative consumer characteristics, concerns, and attitudes by motive.

Model Specification

This analysis employs a random utility framework. Suppose an individual i is assumed to choose the alternative that gives the highest utility among J alternatives. In this study, four alternatives are analyzed: purchasing produce, purchasing ready-to-eat food, social interaction, and buying packaged foods, arts and crafts. The utility function takes the form

$$1) U_{ij} = V_{ij} + \varepsilon_{ij} \text{ for } i = 1, \dots, I \text{ and } j = 1, \dots, J.$$

where V_{ij} is the deterministic component of the utility and ε_{ij} is the random component. The analysis assumes that the random component term is independently and identically distributed (iid) extreme value $F(\varepsilon_{ij}) = \exp(-\exp(-\varepsilon_{ij}))$ so that the logistic model becomes appropriate (Kennedy 2008). It also assumes a linear-in-parameters functional form for the deterministic component of utility (Onozaka and Thilmany-McFadden 2011). The indirect utility V_{ij}^* for individual i choosing an alternative j is

$$2) V_{ij}^* = \beta' X_{ij} + \mu_{ij} \text{ for } i = 1, \dots, I \text{ and } j = 1, \dots, J.$$

where X_{ij} is a vector of characteristics of the consumers at farmers' markets. The parameter vector β is to be estimated. The μ_{ij} is the disturbance that accounts for unobserved factors.

Two versions of the random-utility model described are used in this study, a binary logistic and a multinomial logistic (MNL) model. The logistic model for binary responses explains the effects of consumer characteristics on the probability of attending a farmers' market to purchase fresh produce. To estimate the relative probabilities of attending a farmers' market due to a particular motive as opposed to purchasing produce, a MNL model is used. This model allows us to predict the probability that the j^{th} alternative of the whole set of motives is chosen to be the best primary reason for which the respondent came to the farmers' market. The probability (P) that an individual i chooses to attend primarily due to a motive j is

$$3) P_{ij} = P(y_i = j) = \frac{\exp(\beta_k' X_{ij})}{\sum_j \beta_k' X_{ij}}$$

Purchase produce is the reference category in this analysis and the estimated parameters are interpreted relative to this category. The null hypothesis is that each independent variable has no

impact on the relative probability of attending a farmers' market for purposes other than purchasing produce. The alternative hypothesis is that the variables in the vector X have statistically significant impacts on the probability of attending a farmers' market for purposes of social interaction, purchasing ready-to-eat foods, or buying packaged foods, arts and crafts; that is, $H_0 \equiv \beta_{kj} = 0; \forall k = 1, \dots, K; j = 1, \dots, J$ for K regressors and J choice alternatives/motives and $H_1 \equiv \beta_{kj} \neq 0; \forall k = 1, \dots, K; j = 1, \dots, J$ for K regressors and J choice alternatives/motives.

Data and Variables of Interest

This study uses in-person survey data collected across sixteen farmers' markets in Nevada during the summer of 2009 and Utah during the summer of 2011. Each market was sampled at least three times throughout the season. A total of 1,488 farmers' market consumers completed the survey—669 in Nevada and 819 in Utah. The survey contained questions concerning consumer preferences for product and farmers' market attributes, purchasing habits, and attendance frequencies as well as attitudinal and demographic characteristics (see Table 1 for sample variable summary statistics).

Using a strategy similar to Pascucci et al. (2011), respondents were randomly selected from among attendees leaving the market after completing their purchases. The average respondent was forty-two years old and had completed a four-year college degree; 55% of respondents were from Utah and 45% from Nevada. The average household size was three, 66% of respondents were female, and 62% were married. More than half (58%) had their own home garden, 80% were the household's primary shopper, and 44% reported that they would be willing to join a community supported agriculture (CSA) program.¹

Two additional dummy variables, "spend above average" and "income above average," were included. Spend above average is equal to 1 if a respondent spent more than the sample average, \$24.78, at each farmers' market visit and 0 if they spent below the sample mean. About 48% of respondents spent above the average during each farmers' market visit. Income above average is equal to 1 if a respondent's income is above the sample average, \$75,420, and 0 otherwise. Approximately 57% of the respondents had an annual income above the sample average. This suggests that higher income individuals are more likely to attend farmers' markets than those with lower incomes.

Other attitudinal variables were examined as well, including whether an individual has little time to prepare meals at home, concerns for food safety, concerns for diet or health, buying products with low environmental impact, and enthusiasm for agriculture (see Table 1). Agriculture enthusiasts refer to individuals who consider "open space for agriculture use" and "supporting local farmers" to be either important or extremely important. Each of these variables was rated on a scale from 1 to 5, with 1 being "strongly disagree" and 5 being "strongly agree."

¹ A CSA is a subscription program in which consumers purchase a weekly basket of fresh produce from a local farm.

Table 1. Sample Descriptive Statistics

Variable	Description	Mean
Outcome 1: Purchase produce	Primary motivation is to purchase fresh produce	0.73
Outcome 2: Buy ready-to-eat foods	Primary motivation is to buy ready-to-eat foods	0.04
Outcome 3: Social interaction	Primary motivation is to socialize, attend concerts/music and event/activities	0.15
Outcome 4: Buy packaged foods, arts, or crafts	Primary motivation is to purchase arts/crafts and packaged foods	0.07
Age	Age of a respondent	42 (15)
Visits	Number of farmers' market visits per season	4 to 7
Family size	Total number of people in a household	2.6 (1.43)
Education	Respondent' level of education. 1=middle school, 2=high school, 3=some college, 4=2-year associate degree, 5=4-year college degree, and 6=graduate	4.4 (1.33)
Time to prepare meals	5 point scale degree of agreement a respondent has about having little time to prepare meals	3.5 (0.72)
Food safety concern	5 point scale degree of agreement about food safety	3.7 (0.70)
Concern for diet/health	5 point scale degree of agreement about diet concerns	3.1 (1.22)
Environment impact	5 point scale degree of agreement a respondent has about buying products with low environmental impact	4.4 (0.81)
Agrienthusiast	An average of the responses to "Agricultural open space" and "supporting local growers" is important to me rated on a 5 point scale (1 = strongly disagree, 2 =disagree, 3 = unsure, 4 = agree, 5 = strongly agree)	4.4 (0.77)
Presence attributes	Average of the responses to the importance of the number of vendors, family/child activities, variety of products, and food/beverage vendors rated on a 5 point scale (1 = not important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important).	3.5 (0.91)
Convenience attributes	Average of the response to the importance of the hours of operation, location, free parking, and music rated on a 5 point scale (1 = not important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important).	4.2 (0.74)
Spend above average	Spending at the farmers' market is above sample average (\$24.78); Yes=1 and 0 below the average (of expenditures reported by respondents)	0.48
Income above average	Income is above sample average (\$75,420); No=0, Yes=1. Average of incomes reported by respondents)	0.567
Primary shopper	Is a primary shopper; No=0, Yes=1	0.80
CSA	Would join a CSA program; No=0, Yes=1	0.44
Favorite vendor	Has a favorite vendor; No=0, Yes=1	0.33
Home gardening	Has a home garden; No=0, Yes=1	0.58
Female	Respondents' gender; Male=0, Female=1	0.66
Married	Respondents' marital status; Single=0, Married=1	0.60
UT	Respondents' residence; Nevada=0, Utah=1	0.55

Note. Standard errors are in parentheses.

On average, respondents were unsure about having enough time to make meals at home. They were generally concerned with their health or diet, food safety, and buying products with low environmental impact, meaning that the average rating was four. Consumers at farmers' markets agree that agricultural open space and supporting local farmers is important to them.

Consumer attitudes toward farmers' market attributes were also included. Survey respondents were asked to rate farmers' market attributes on a scale from 1 to 5, where 1 was "not important" and 5 was "extremely important"). The survey included eight attributes, which were condensed into two categories to reduce the number of explanatory variables. The first category consisted of attributes that relate to the physical setup and services present in the market, or "presence" attributes, including the number of vendors, family/child activities, variety of products, and food/beverage vendors. The second category consisted of the attributes that make a farmers' market more convenient, or "convenience" attributes, including convenient location, hours of operation, free parking, and music/concerts. Both variables were rated a 4 (very important) on average by respondents (Table 1). In addition, no evidence of correlation among the variables in the model was found. The highest correlation was between concerns for diet or health and food safety concerns (0.3853).

One survey question provided a list of seven possible attendance motivations and asked respondents, "What is your primary motive for attending the farmers' market? (Check only one)." The seven options included purchasing fresh produce, purchasing packaged foods, purchasing arts/crafts, social interactions, attending events/activities, attending concerts/music, and purchasing ready-to-eat food. The choice set was selected based on the products, services, and events available at all sixteen farmers' markets. As some of the choice alternatives had few observations, these seven were condensed down to four primary motivations. Closely related motivations were combined to reduce model categories and account for low frequencies among some motives (Kennedy 2008). Thus, the four primary motivations considered in this analysis are: (1) purchasing produce, (2) social interaction (condensing social interaction, concerts/music, and event/activities), (3) purchasing ready-to-eat food, and (4) purchasing packaged foods, arts, or crafts (condensing purchasing arts/crafts and purchasing packaged foods).

In the binary logistic model, these responses are coded as 1 for the primary motive of purchasing produce and 0 otherwise. The dependent variable for the MNL analysis is therefore organized around the four primary motives for farmers' market attendance. As shown, 73% of respondents attend farmers' market primarily to purchase produce, while others attended to socialize (15%), buy packaged foods or arts and crafts (7%), and buy ready-to-eat food (4%). The market share for fresh produce growers (almost 75%) outweighs the share remaining for the other vendors (about 25%).

Results

Attending Farmers' Markets to Purchase Fresh Produce

Results of the binary logistic model (Table 2) show that married female respondents involved in home gardening, who visit farmers' markets frequently, and who are agriculture enthusiasts are more likely to attend primarily to purchase produce. Those with large families and those who

don't have time to cook meals at home are less likely to attend farmers' market primarily to purchase fresh produce.

Table 2. Logistic Coefficient Estimates and Marginal Effects (Purchase Produce)

	LR chi2(57) =	217.89
	Prob > chi2 =	0.00
	Pseudo R2 =	0.13
	Log likelihood =	-759.18
	Observations =	1488
	Y= Pr(purchase produce) (predict) =	0.7619
Variable	Coefficients	Marginal Effects (dy/dx)
Age	0.00295	0.000536
Visits	0.166***	0.0302***
Family size	-0.132***	-0.0239***
Education	0.109**	0.0198**
Time to prepare meals	-0.182***	-0.0331***
Food safety concern	0.124	0.0225
Concern for diet/health	0.156*	0.0283*
Environment impact	-0.0971	-0.0176
Agri-enthusiast	0.455***	0.0825***
Presence attributes	-0.154	-0.0280
Convenience attributes	-0.276***	-0.0500***
Spend above average	-0.0454	-0.00824
Income above average	0.240*	0.0440*
Primary shopper	0.313**	0.0594*
CSA	0.302**	0.0542**
Favorite vendor	-0.314**	-0.0585**
Home gardening	0.325**	0.0596**
Female	0.526***	0.0994***
Married	0.591***	0.111***
UT	-0.274*	-0.0493*
Constant	-1.365**	

Single, double, and triple asterisks (*, **, ***) denote significance at the 10%, 5%, and 1% level, respectively.

This discussion focuses only on variables with significant effects. The marginal effects (Table 2) are interpreted as the impact of a unit change in a given variable on the probability that an individual attends a farmers' market to purchase produce. For example, holding all other variables at their means, one extra visit annually to the farmers' market increases the probability of attending a farmers' market primarily to purchase fresh produce by 3%. An additional level of completed education increases attendance by 2%. The predicted probability of visiting a farmers' market for the primary purpose of purchasing produce is 10% greater for a female than for a male, 11% greater for a married person than for a single person, 6% greater for an individual with a home garden than one without, and 6% greater for a primary shopper. Consumers with annual income above the average are 4% more likely to attend in order to purchase fresh produce. On the other hand, the predicted probability of visiting a farmers' market for the primary purpose of purchasing produce is 6% lower for an individual with a favorite vendor and 5% lower for a Utah resident compared to a Nevada counterpart. One additional household member decreases that probability by 2%.

Other Motivations for Farmers' Market Attendance

The MNL model compares a set of four primary motives. Purchasing produce is the reference category, enabling an estimate of the effects of the independent variables on the relative probability that any other motive (ready-to-eat food, social interaction, and packaged foods, arts and crafts) is the primary motivation for attending the farmers' market. The estimated coefficients associated with the MNL model (Table 3) are interpreted relative to the reference category. A positive coefficient indicates that an increase in the variable is associated with an increase in the relative probability of the indicated outcome. For example, increased frequency of farmers' markets visits had a statistically significant negative impact on the probability of attending for social interaction relative to purchasing produce.

Table 3. MNL Model Coefficients Estimates (Purchase Produce as Base Outcome)

Variable	Coefficient Estimates		
	Ready-to-eat foods	Social interaction	Packaged foods, arts, & crafts
Age	-0.00415	-0.00351	-0.00129
Visits	-0.129	-0.276***	0.0410
Family size	-0.00259	0.158***	0.135*
Education	0.0387	-0.0890	-0.239***
Time to prepare meals	0.0608	0.160**	0.318***
Food safety concern	0.0227	-0.114	-0.229*
Concern for diet/health	-0.207	-0.188*	-0.0452
Environment impact	0.0150	0.0745	0.199
Agri-enthusiast	-0.183	-0.457***	-0.582***
Presence attributes	0.0262	0.295**	-0.0937
Convenience attributes	0.147	0.263**	0.389**
Spend above average	-0.348	-0.248	0.923***
Income above average	0.0162	-0.307*	-0.242
Primary shopper	-0.216	-0.326*	-0.259
CSA	-0.967***	-0.111	-0.348
Favorite vendor	0.827***	0.603***	-0.757***
Home gardening	-0.740***	-0.286*	-0.135
Female	-1.065***	-0.530***	-0.199
Married	0.0254	-0.717***	-0.707***
UT	0.248	0.459**	-0.0259
Constant	-0.614	0.660	-0.238

Single, double, and triple asterisks (*, **, ***) denote significance at the 10%, 5%, and 1% level, respectively.

Both farmers' market presence attributes and convenience attributes attract consumers motivated by social interaction as opposed to those who attend to purchase produce. This suggests that consumers whose primary motive is to purchase produce are less concerned about farmers' market attributes such as parking and activities. Furthermore, individuals with home gardens, females, and those willing to join CSAs attend farmers' markets to purchase fresh produce over

purchasing ready-to-eat food and social interaction. Married individuals and consumers with strong concerns for food safety attend primarily to purchase produce as opposed to engaging in social interaction or purchasing packaged foods, arts, and crafts. Similarly, agriculture enthusiasts, primary shoppers, and consumers with strong concerns for health and diet are significantly less likely to attend farmers' markets due to social interaction motives, an indication that they are more likely to attend to buy fresh produce.

Farmers' market attributes have relatively strong positive impacts on attending for social interaction reasons, as do family size, having little time to prepare meals at home, having a favorite vendor, and residency in Utah. Improvement in any of these variables reduces the probability of purchasing fresh produce. In addition, as people become busier with work, school, and other activities that interfere with the time available for cooking, they are less likely to purchase produce at farmers' markets, and farmers' markets become an opportunity for social interaction instead. Results also suggest that social interaction motivates significantly more farmers' market attendees in Utah than those in Nevada. The relative probabilities and marginal effects pertaining to each of the four motivations are shown below (Table 4).

Table 4. MNL Model Marginal Effects

Variable	y=Pr(Purchase produce) = 78%	y=Pr(Ready-to-eat foods) = 03%	y=Pr(Social interaction) = 14%	y=Pr(Packaged foods, arts, & crafts) = 05%
	dy/dx	dy/dx	dy/dx	dy/dx
Age	0.000519	-0.000119	-0.000367	-3.27e-05
Visits	0.0297***	-0.00312	-0.0307***	0.00413
Family size	-0.0214***	-0.00102	0.0168***	0.00562
Education	0.0178**	0.00210	-0.00854	-0.0113***
Time to prepare meals	-0.0308***	0.000736	0.0155**	0.0146***
Food safety concern	0.0203	0.00166	-0.0113	-0.0107*
Concern for diet/health	0.0264*	-0.00593	-0.0199*	-0.000604
Environment impact	-0.0161	-0.000188	0.00695	0.00933
Agri-enthusiast	0.0749***	-0.00298	-0.0465***	-0.0255***
Presence attributes	-0.0266	-0.000264	0.0336**	-0.00668
Convenience attributes	-0.0464***	0.00300	0.0262*	0.0172*
Spend above average	-0.00541	-0.0120	-0.0326*	0.0500***
Income above average	0.0410*	0.00234	-0.0333*	-0.0101
Primary shopper	0.0519*	-0.00529	-0.0360	-0.0106
CSA	0.0505**	-0.0300***	-0.00594	-0.0146
Favorite vendor	-0.0636**	0.0292**	0.0732***	-0.0388***
Home gardening	0.0557**	-0.0244**	-0.0280	-0.00332
Female	0.0971***	-0.0381***	-0.0552***	-0.00378
Married	0.107***	0.00547	-0.0802***	-0.0320**
UT	-0.0513**	0.00618	0.0499***	-0.00478
Observations	1,488	1,488	1,488	1,488

Single, double, and triple asterisks (*, **, ***) denote significance at the 10%, 5%, and 1% level, respectively.

The relative probability that an individual attends farmers' markets to purchase produce is 78%. After controlling for all other variables in the model, one additional farmers' market visit per year increases this probability by 3%. One additional level of education increases the probability by 2%. Increased agreement concerning health/diet concerns and supporting local agriculture (agriculture enthusiast) increases this probability by 3% and 8%. In addition, consumers who are

willing to join a CSA program are 5% more likely to attend primarily to purchase produce. Compared to singles, married people are 11% more likely to purchase produce. There is a 6% higher chance for consumer with a home garden to attend a farmers' market primarily to purchase produce. Having a favorite vendor and residing in Utah decrease the relative probability of attending farmers' markets for the purpose of purchasing fresh produce by 6% and 5%. Females are 10% more likely than males to purchase fresh produce at a farmers' market. An extra household member decreases the probability by about 2%. An additional level of importance for farmers' markets convenience attributes translates into a 5% fall in the relative probability of attending to purchasing produce.

The relative probability that a person attends farmers' markets primarily for social interaction is 14%. Keeping constant all other variables in the model, an additional household member increases this probability by 2%. A one-increment increase in the importance assigned to either farmers' market convenience or presence attributes equates to an increase of 3% in the relative probability of attending farmers' market for the primary purpose of socializing. Conversely, one more trip to a farmers' market per year decreases the relative likelihood of social interaction by 3%. This probability is 6% and 8% less for females and married individuals. Individuals whose income is above the sample mean and those who spend above the sample average at farmers' markets are both 3% less likely to visit farmers' markets for social interaction.

The relative probability that a person attends farmers' markets primarily to purchase packaged foods, arts, and crafts is 5%. *Ceteris paribus*, having a favorite vendor and being married decreases this probability by 4% and 3%. Similarly, an additional level of agriculture enthusiasm reduces it by 3%. The only consumer characteristics that increase this probability are having little time to prepare meals at home (2%), convenience attributes (2%), and spending above the average at a farmers' market (5%).

Finally, the relative probability that a person attends farmers' markets primarily to buy ready-to-eat foods is only 3%. *Ceteris paribus*, willingness to join a CSA program and home gardening reduce that probability by 3% and 2%, Females have a 4% lower chance of attending farmers' markets primarily to purchase ready-to-eat foods over purchasing produce in comparison with males. Having a favorite vendor increases the relative chances of visiting a farmers' market to buy ready-to-eat food by 3%. These consumers attend the market seeking specific prepared foods or specific vendors.

Fresh Produce Consumers at Farmers' Markets

A cluster analysis was conducted to group respondents who attend farmers' markets primarily to purchase fresh produce (1,086 respondents) into three categories differentiated by the amount they spend on fresh produce at farmers' markets. The analysis followed the partitioning clustering process where the K-Means algorithm minimizes the distance of each point from the center value of the group to which the point belongs. Based on consumer characteristics, the K-mean algorithm initialized a set of cluster centers and assigned each observation in the dataset to the cluster with the nearest center. The process was continued until the centers of the clusters stopped changing. Hence, the clusters contain subjects with a high degree of similarity. This analysis grouped consumers into three clusters—low spenders (312 individuals, 29%), medium

spenders (689 individuals, 63%), and high spenders 85 individuals (8%) (see Table 5 for summary stats of characteristics of interest for each group).

Table 5. Characteristics of Fresh Produce Consumers at Farmers' Markets

Consumer Characteristic	Low Spenders	Medium Spenders	High Spenders
	Mean	Mean	Mean
Income	\$34,053***	\$84,764***	\$173,259
Age	39***	45	47
Visits	3.00***	2.73	2.69
Family size	2.401***	2.594*	2.882
Education	4.353**	4.480***	5.235
Time to prepare meals	2.968	2.940	3.129
Food safety concern	4.433**	4.427**	4.635
Concern for diet/health	4.410***	4.424***	4.659
Environment impact	3.603	3.567	3.600
Agri-enthusiast	4.325	4.257	4.265
Presence attributes	3.534	3.497	3.447
Convenient attributes	3.648	3.616	3.618
Spend above average	0.423***	0.502**	0.635
Primary shopper	0.865*	0.824	0.800
CSA	0.506	0.438**	0.565
Favorite vendor	0.353	0.311*	0.412
Home gardening	0.609	0.626	0.659
Female	0.699	0.694	0.682
Married	0.481***	0.730**	0.835
UT	0.625***	0.502	0.471
Observations	312	689	85

Single, double, and triple asterisks (*, **, ***) denote consumer characteristics for which low or medium spenders are significantly different from high spenders (reference cluster) at the 10%, 5%, and 1% levels respectively. The Calinski/Harabsz pseudo-F = 2643.23.

The cluster of high spenders is the smallest; of this group, 84% are married, 80% are the primary shopper, 57% are willing to join a CSA program, 66% have a home garden, and 64% spend above the sample mean. The average annual income for this group is \$173,259, about five times more than that of the low spenders group. The average age is forty-seven years. In comparison to the other two clusters, a representative respondent in this group has a four-year college degree as opposed to two-year associate's degree. In addition, the high spenders are significantly more concerned about both food safety and diet or health, perhaps due their larger family size.

The low spenders cluster is the mid-sized group. In comparison to the high spenders, this group consists of younger individuals with lower incomes. The average person in this group is thirty-nine years old, has a two-year associate's degree, and earns \$34,053 per year. Farmers' market visits for individuals in this group are significantly higher than those of both high and medium spenders. Among this group, 70% are females, 87% are the primary shopper, 63% are Utahans, 61% are home gardeners, and 51% would join a CSA program. The percentage of low spenders in Utah is significantly higher.

Finally, the medium spenders cluster is the largest. The average person in this group is forty-five years old with a two-year associate's degree and earns \$84,764 annually. In this group, 50% spend above sample average, 82% are the primary shopper, 62% are home gardeners, 69% are

female, and 73% are married. While most low and high spenders would join CSA programs, only 44% of medium spenders would join.

Similar characteristics across clusters include the proportion of females and those who home garden (statistically the same across the three groups). Consumers of fresh produce at farmers' markets in all clusters are unsure about having time to prepare meals at home. They agree that agricultural open space and supporting local farmers is important to them. The majority of individuals in each of the three clusters do not have a favorite vendor at the farmers' market. Another common trait across clusters is that farmers' market attributes—both presence and convenience—are only somewhat important.

Conclusions

While the literature on direct markets such as farmers' markets is vast, econometric studies of consumer motivations for attending these types of markets are limited. The few existing studies indicate that consumers attend farmers' markets to purchase fresh produce. While some state other motives, little or no analysis is provided. This study uses data collected from a sample of 1,488 farmers' market attendees in Nevada during the 2009 summer season and Utah during the 2011 summer season. The analysis employs two models to assess various motivations for farmers' market attendance above and beyond purchasing local produce. A cluster analysis was performed to examine consumers purchasing fresh produce at farmers' markets in order to investigate target markets for produce vendors.

The primary motivations for farmers' market attendance among sample consumers are to purchase produce (78%), for social interaction (14%), to purchase ready-to-eat foods (5%), and to buy packaged foods, arts, and crafts (3%). The consumer characteristics that significantly increase the probability of attending a farmers' market primarily for purchasing produce are frequency of visits, education level, concerns for diet or health, enthusiasm for agriculture, income above the sample mean, primary shopper, willingness to join a CSA program, home gardening, and married females. Consumer characteristics that significantly diminish the probability of attending a farmers' market primarily for purchasing produce are family size, having little time to prepare meals at home, importance of farmers' market convenience attributes, having a favorite vendor, and being a resident of Utah.

Consumer characteristics that significantly increase the probability of attending a farmers' market primarily for social interaction are family size, having little time to prepare meals at home, importance of both farmers' market presence and convenience attributes, having a favorite vendor, and being a Utah resident. The likelihood of attending a farmers' market primarily to buy packaged foods, arts, and crafts depends significantly on having little time to make meals at home, importance of farmers' market convenience attributes, and spending above the sample average at farmers' markets. The willingness to join CSA program, being a female, and home gardening decrease the relative likelihood of attending a farmers' market primarily to purchase ready-to-eat food.

Results suggest several recommendations for farmers' market managers, local produce vendors, and policy makers. First, focusing on consumers who attend farmers' markets more frequently is

a viable marketing strategy to increase sales of fresh produce, especially among Nevada residents. Second, improving farmers' market presence attributes does not induce people to attend farmers' markets for the primary motive of purchasing fresh produce. Instead, it will likely attract more socially oriented individuals. However, this does not undermine the importance of farmers' market attributes like parking, operating hours, recreational facilities, and number of vendors. It simply posits that those consumers who assign high importance to these attributes do not come to the market primarily to purchase produce. Third, marketing strategies aimed at home gardeners, those who are interested in CSA programs, females, and married individuals will lead to an increased number of consumers attending farmers' markets to buy fresh produce. Fourth, enforcing high food safety standards for fresh produce at farmers' markets is an important component of maintaining consumer confidence, especially since those consumers spending more on produce at farmers' markets had strong food safety and diet or health concerns. These consumers were also older, married, highly educated, and with incomes above the sample average.

This study examines a variety of consumer motivations for attending farmers' markets. In addition to findings from previous studies—which suggest that farmers' markets attract fresh produce customers—this study indicates that social interaction; buying packaged foods, arts, and crafts; and buying ready-to-eat food are other motivations. This study identifies consumer characteristics, attitudes, and concerns that explain relative probabilities of attending for all four motivations. Consequently, the study contributes to the existing literature by providing useful information to vendors and market managers in their efforts to meet attendee expectations.

This study has some limitations. First, it analyzes consumers by primary farmers' market attendance motivations and doesn't consider secondary motivations. Another limitation is geographic, as the study examines farmers' markets only in Nevada and Utah. However, the findings are likely applicable to other locations with farmers' markets with similar characteristics and products. Findings from this study obviously could be used to compare consumer motivations across regions. Finally, in an effort to minimize the differences among the farmers' markets under consideration, the study uses data from farmers' markets with similar characteristics. However, market size and variety of vendors in terms of product types were not recorded.

Subsequent studies might consider using rank-ordered outcomes to investigate both primary and secondary motives for consumer attendance. Examining the motivations of consumers who don't attend farmers' markets and evaluating how vendors and market managers might overcome their concerns would also be of interest. Future studies could also assess consumer willingness to pay for farmers' market attributes such as family and child activities, music and other events, or facilities and parking, especially among those who attend farmers' market primarily for social interaction.

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