Evaluating the Factors Influencing the Number of Visits to Farmers' Markets.

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Abstract

The primary objective of this paper was to determine key factors impacting the frequency of consumer visits to Texas farmers' markets measured in number of visits per month. Data obtained from in-person surveys administered in two farmers' markets locations were used to determine consumer, market factors, and socio-demographic characteristics of shoppers affecting frequency of visits. The results of the model showed that travel distance, number of adults in the household, market promotional characteristics such as entertainment and education activities, food events, as well as education and age were all determinants of frequency of visits to farmers' markets.

*Key Words***:** direct marketing, frequency, local, farmers' markets

JEL Classification: R11

Introduction and background

During the last four decades, the number of farmers' markets has rapidly grown from 340 in 1970 to 7,175 in 2011 (AMS, USDA, 2011). Total local food sales by farmers were estimated to be at $4.8 billion, including $887 million in direct-to-consumer sales, $2.7 billion in intermediate marketing channels only, and $1.2 billion through markets with both direct and intermediate channels (USDA, 2008 Agricultural Resource Management Survey). The rapid increase in the number of farmers' markets is attributed not only to changes in consumer tastes and preferences and changes in the economics of agriculture, but also to the passage of the Farmer-to-Consumer Direct Marketing Act of 1976 by the US Congress (Brown, 2001).

Farmers' markets are considered a local source of fresh, nutritious products and typically include vegetables, fruits, herbs, flowers, plants, baked goods, honey, nuts, meat and poultry products as well as dairy products and eggs. Producers sell their products at farmers' markets in order to get a greater share of the retail dollar and, hopefully, increase profits. Usually, there are price premiums in direct marketing channels compared to traditional channels (Kuches 1999; Govindasamy, 1998). Low et al. (2011) found that small farms with gross sales under $50,000 were more likely to market their products using farmer's markets and roadside stands compared to larger sized commercial farmers. Medium and large scale farms are more likely to produce enough quantity to match the logistics required for using traditional intermediate marketing channels. According to the US Census of Agriculture (2007), about 78.1 percent of US farms had sales under $50,000 per year. It is also important to consider that 25 percent of the vendors surveyed by AMS in 2009, reported farmers' markets sales as their only source of farm income. Though, vendors and farmers' markets success should not only be analyzed from the sales performance (Schmit, 2011). Some farmers can be considered recreational, or part time, farmers

which do not totally depend on farm income. Uematsu et al. (2011) found that the use of direct marketing channels by farmers was positively correlated with their education level, which was expected considering those direct marketing strategies requires a special set of skills and abilities.

According to the Agricultural Marketing Service (2009), farmers' markets have an average of 959 visitors per week. Consumer reasons and motivations to attend farmers' markets vary greatly. The characteristics that attract consumers to farmers' markets can be grouped as product features and variety, the actual market experience, and socio-demographic characteristics of consumers as it relates to the market and products. Most studies have shown that product quality and freshness were the most important factors consumers expect to find at farmers' markets and may attract consumers (Govindasamy et al., 1998; Sommer et al., 1984; McGarry Wolf et al., 2005; Brown, 2002). In addition, several studies also found that consumers perceive farmers' markets products to be fresher looking, fresher tasting, and higher quality products than those sold at intermediate marketing channels such as supermarkets (McGarry Wolf et al., 2005; Martinez et al., 2010; Brown, 2003.). Onianwa et al. (2006) found that consumers prefer to shop at farmers' markets because of the product freshness, price, and better appearance, as well as greater variety and selection possibilities.

Organic and locally grown products have become important attributes for consumers attending farmers' markets (Gallons et al., 1997; Kuches et al., 1999; McGarry Wolf, 2005). Curtis et al. (2010) found that the majority of products purchased at farmers' markets were organic. Even though there are many definitions for local products, the 2008 Food Conservation and Energy Act (2008 Farm Act) adopted by the U.S. Congress defined local or regional products as those sold within 400 miles from its origin or within the State in which they are

produced. The consumer usually defines local products as those that are sold regionally through direct-marketing channels (Martinez, 2010). For some consumers, buying local has to do with supporting the "little guy" (small local business) as well as the local farmers (The Hartman Group, 2008).

Previous studies have shown that visits to farmers' markets are influenced by market features such as employee attitude, cleanliness of facilities, as well as convenience of locations and parking (Govindasamy et al., 1995; Lehman et al., 1998; Keeling Bond et al., 2009). Lehman et al. (1998) showed that consumers were less likely to purchase in a market where appearance of the products was less attractive than in the supermarket. Location and distance were also important factors determining the shopping frequency at farmers' markets. The purchase experience, such as a farm-based recreational experience, was also found to be another characteristic that influences the customer decision to attend a farmers' market (Govindasamy et al., 1998; Rimal, 2010; Sommer, 1982). In addition, McGarry Wolf et al. (2005) indicated that home-made cooking and family meals were important consumer attributes correlated with farmers' market shoppers. The enjoyment of cooking by adults in a household was found to be positively associated with the number of visits to farmers markets.

Socio-demographic characteristics that explain consumer's purchases at farmers' markets have mixed results in the literature. For example, data collected by Onianwa et al. (2006) revealed that the average age of respondents was 41 years old, ten years younger than the 51 years old average found by Govindasamy et al. (1998). Brown (2002) also described consumers of farmers' markets as people of middle age. A study conducted in San Luis Obispo County, California, revealed that age range of consumers buying at farmers' markets were similar to those buying in supermarkets (McGarry Wolf et al., 2005). Similarly, no significant differences

were found in consumers' age groups between both direct and indirect marketing channels (Brown, 2003; Zepeda et al., 2006). On the other hand, Wixson et al. (2011) found a positive effect of age on shopping at specialty food stores.

Education is another important factor to consider when evaluating visit frequency to farmer's markets. Results varied according to demographics of the survey sample. Govindasamy et al. (1998) and Onianwa et al. (2006) found that most of the consumers in farmers' markets tend to have higher education levels. Similarly, McGarry Wolf et al. (2005) showed that consumers are more likely to have completed post graduate work. In the case of Brown (2002), farmers' markets consumers were found to be well educated women. In contrast, some studies found that education had a negative effect on local or organic food purchases (Jekanowski et al. 2000; Thompson et al.1998). Zepeda et al. (2006) and Brown (2003) did not find any correlation between education and local food purchases. Jekanowski et al. (2000) and Wixson et al. (2011) found income level positively correlated with the purchase of local agriculture products. However, several studies found that income was not a significant factor in determining the number of visits to farmers' markets (Keeling Bond et al., 2009, McGarry Wolf et al., 2005, Brown, 2003).

As Keeling-Bond et al. (2009) point out, demographics tend to be a weak predictor of consumers who purchase at farmers' markets. The double-digit growth of farmers' markets suggests that a large section of the population is participating in this marketing channel and there is no particular consumer type that represents a plurality. For this reason, results from demographic studies should be carefully considered and the conclusions may not be extrapolated to other geographical areas with different demographic characteristics.

The main objective of this paper is to analyze the main factors that motivate consumer frequency of visits to farmers' markets. The dependent variable is consumer frequency of visits, measured in number of visits per month and it is explained by consumer factors, market factors and consumer socio-demographic characteristics. Consumer factors include, the distance to the market, relative importance of price in making purchases, number of adults in the household and number of children in the household. Farmers' market characteristics include acceptance of coupons (WIC), entertainment activities, food activities, contests, festivals, and activities for kids. Socio-demographics characteristics include education, income, gender, and age.

Data and Methods

The data for this study were obtained via in-person surveys administrated in the Spring of 2008 at two farmers' markets locations in Texas. The questionnaire included the following: 1) number of visits to farmer's markets, 2) purchasing habits, 3) important factors affecting their decision to shop at farmers' markets, and 4) consumer's socio-demographic characteristics. A total of 170 questionnaires were completed and used in this analysis.

The frequency of customer visits to the farmers' markets was recorded as the number of visits per month and it ranged from 1 to 5. The survey was administered to visitors present in the market, and no information was collected from non-visitors. Thus, a Zero-truncated Poisson Regression model (ZTP) was utilized to analyze the variables that influence the frequency of visits to farmers' markets. The model results were validated using a Zero-truncated Negative Binomial Regression model (ZTNB) in order to check for dispersion of the data.

The visit frequency to farmers' markets was modeled as a function of the distance to market (*dist*), perceived importance of price for consumers when buying fresh products (*price*),

number of adults in the household (*adults*), number of children in the household (*children*), women with infant children coupons (*wic*), promotional events considered important by the consumer, including entertainment activities (*entert*), food events (*food*), contests (*contest*), educational activities (*eductact*), festivals (*festivals*) and activities for kids (*kids*); socio-demographic factors included education level (*edu*), income (*inc*), gender (*male*), respondents age range between 31-40 (*age30*), between 41-50 (*age40*), between 51-60 (*age50*) and more than 60 (*age60*). Table 1 contains descriptive statistics of the data that was obtained from the survey.

(1) $$Frq = f\ (consumer\ factors, market\ factors, sociodemographics)$$

[Place Table 1 Approximately Here]

The ZTP and ZTNB models were selected for use due to their design for data in which zero outcomes were excluded. The software package STATA 12.0 was used to conduct the econometric (Long and Freese, 2006). The ZTP model maintains the same basic attributes of the regular count Poisson Regression Model. Let μ be the expected number of visits to farmers' markets in a month; and let *y* be a random variable that indicates the actual number of visits to a Farmers' Market. The relationship between the expected count, μ, and the probability of observing any number of visits, *y*, is specified by the Poisson distribution as:

(2) $$Pr\ (y \mid \mu) = \frac{e^{-\mu}\mu^{y}}{y!} \qquad \text{For y=0,1,2,3,…,Y}$$

which allows each outcome to have a different value of μ and where each observation *i* is taken from a Poisson distribution with mean and the variance μ_i. In this instance, μ_i represents the expected number of visits to farmer's markets to each outcome of frequency (y_i):

(3) $$\mu_i = E\ (y_i \mid x_i) = exp(x_i \beta)$$

The Poisson Regression Model, combining observed heterogeneity, can be represented as

(4) $$\Pr\ (y_i \mid x) = \frac{\exp(-\mu_i)\mu_i^{y_i}}{y_i!}$$

where x_i represents the vectors of the independent variables chosen to explain the model with their respective β. Thus, for a given set of x's, the probability of observing a zero is Pr ($y = 0 \mid x$) = exp ($-\mu$), so the probability of a nonzero count is Pr ($y > 0 \mid x$) = 1 - exp ($-\mu$). Because the data was collected at farmers' market locations, then the observations include respondents who had at least one visit, and hence data is truncated at one. In this study, the probability of each outcome is computed given that the known outcome is greater than zero. Conditional probability, Pr ($A \mid B$) = Pr (A and B) / Pr (B), and thus the probability of observing a specific value of y, given a minimum data range of 1 is:

(5) $$Pr\ (y_i \mid y_i > 0, x_i) = \frac{\Pr\ (y_i \mid x_i)}{\Pr(y_i > 0 \mid x_i)} = \frac{\Pr(y_i \mid x_i)}{1-\exp(-\mu_i)} \quad for\ y > 0$$

This formula increases each unconditional probability by the factor $\{1 - \exp(-\mu)\}^{-1}$, forcing the probability mass of the truncated distribution to sum to 1.

The Zero-truncated Negative Binomial model utilizes the same concept resulting in the conditional probability for the ZTNB being and it tests for dispersion in the data:

(6) $$Pr\ (y_i \mid y_i > 0, x_i) = \frac{\Pr(y_i \mid x_i)}{1-(1+\ \alpha\mu_i)^{-1/\alpha}}$$

A large dispersion in the ZTP model results in biased and inconsistent estimates of the β's and consequently, in biased estimates of their probabilities. The ZTP accounts for observed differences among sample members (μ_i) as a function of observed x_k. The ZTNB considers this limitation of the ZTP by adding the parameter α that reflects unobserved heterogeneity among

observations. The ZTNB test results for $\alpha=0$ indicates no dispersion in the data; therefore a ZTP model is appropriate for this analysis. Since no data dispersion was found, results from the ZTNB model are not included, but are available from the authors upon request.

Results and Discussion

The socio-demographics variables obtained from the survey were compared with demographic information of the Texas population, obtained from the U.S. Bureau of the Census (Census 2010) (Table 2).

[Place Table 2 Approximately Here]

When compared to the census data, a smaller percentage of survey respondents were under 30 years old, fewer were male, fewer had a high school or less education level, a smaller percentage were African-American or Hispanic, fewer households with children, and fewer had income of less than $25,000. Categories where the percentage of survey respondents exceeded the census were age over 30 years, college and graduate education, Caucasian, and income greater than $25,000. In general, the differences between the sample and the average demographics of the Texas population is due to the fact that the sample group surveyed was a sub-sample of the Texas population that visit farmers' markets in two specific locations.

Product quality and chemical free were considered the most important attributes by survey respondents (55.9 and 15.9 percent). Moreover, 77.6 percent of respondents believed that a higher product quality can be found at farmers' markets. Other perception based drivers of farmers' markets visits such as price, variety, place of origin, convenience, seasonality, and locally grown were also considered by respondents, but did not rank as high as quality and chemical free. About 45.3 percent of the consumers considered it important to support local

farmers, and 72.9 percent considered it important to have organic foods available at farmers' markets.

Results obtained from the ZTP model are presented in Table 3. The interpretation of the parameters follows that of a Poisson Regression Model, where the $\exp(\beta_k)$ indicates the factor increase in the number of visits for a unit increase in x_k holding all other variables constant. The average frequency of visits for all respondents was 2.03 with corresponding expenditures of $24.82 per visit. Consumer factors such as distance to markets (*dist*) were found to be a significant factor determining the frequency of visits to farmers' markets. For every additional mile a visitor has to travel there is a reduction of 0.9631 in the expected number of visits per month (Table 3). Almost 60 percent of the survey respondents live within 4 miles of the markets, 12.9 percent live less than 1 mile away and 46.5 percent between 1 to 4 miles. This coincides with Lehman et al. (1998) who found that consumers have higher probabilities of purchasing in farmers' markets that are located closer to their daily travel route. Keeling-Bond et al. (2009) found that location is relative less important for consumers that always or occasionally purchase their products in direct marketing channels, compared to those consumers that never use this direct market channel. Furthermore, McGarry Wolf et al. (2005) found that convenience is the key detractor to why consumers do not shop at farmers' markets. Thus, according to the distance coefficient, location is still a very important factor for farmers' markets since consumers are primarily attracted from nearby neighborhoods (Brown, 2002).

[Place Table 3 Approximately Here]

Adult household size (*adults*) had a positive and statistically significant effect on the number of visits to farmers' markets. This result is in agreement with the findings of Wixson et al. (2011), who suggested that only household size had a positive effect on shopping at farmers' markets, while age, income, or education did not. Farmer markets promotional events such as food events (*food*), educational activities (*eductact*) and festivals (*festivals*) were all statistically significant, while entertainment activities (*entert*), contests (*contest*) and kids' activities (*kids*) did not have an effect on the number of visits. While food events were statistically significant, the coefficient was negative, indicating a reduction of 0.7418 visits in the presence of food events. Educational activities and festivals had a positive and statistically significant effect in increasing the number of visits by a factor of 1.4434 and 1.5215 respectively (Table 3). Thus, farmers should consider which events are drawing consumers to farmers' markets depending on the demographics of nearby neighborhoods as evidenced by the distance to market coefficient. For example, consumers looking for farm products such as fruit and vegetables might not be interested in food events as much as consumers who enjoy cooking. Educational activities and festivals had a positive and significant effect on the frequency of visits. All of these activities that increase frequency of consumers to farmers' markets might be encouraged and promoted by the market keeping in mind their customer base.

Consumer socio-demographics characteristic such as highly educated households tend to visit farmers' markets more frequently. Education level (*edu*) was analyzed using a continuous variable which included Some High School, High School, Some College, College, and Graduate College. The positive factor for this variable equaled 1.2346 and was significant at the 5 percent level. It is important to consider that both cities in the sample were college towns, and therefore, the influence of universities on both cities should be taken into consideration, particularly when

conclusions from these surveys are being extrapolated to other areas. From the data collected in the survey, 76.5 percent of the respondents had a higher degree of education; 40 percent with a college degree and 36.5 percent with a graduate degree, much higher compared to the 32.2 percent from Texas census. Income (*inc*) was not a statistically significant predictor of the frequency of visits to farmers' markets. This result is not surprising and coincides with the findings of Keeling Bond et al., 2009 and McGarry Wolf et al., 2005.

The percentage of females in the sample was significantly higher (67.6), when compared to the average Texas population, consistent with the findings of previous studies (Govindasamy et al., 1997; Onianwa et al., 2006; McGarry Wolf et al., 2005; Jekanowski et al., 2000; Brown, 2002; and Arrington et al. 2010). However, there were no statically significant effects of the gender variable on visits frequency.

Consumers aged 30 or less made up 44.9 percent of the census. But only 27.6 percent of the survey respondents were under 30. Variables indicating age between 31-40, 41-50, 51-60, and 61 or more, are in all cases higher in the survey than in the Texas' Census demographics. This can be an indicator of which age ranges are more attracted to farmers' markets as compared to the original percentage present in the state. This result coincides with other studies in which middle age and above was mostly found in consumers at farmers' markets (Govindasamy et al., 1997 and Brown, 2002). From the ZTP model (Table 3), age groups from 31 to 40 (*age30*) and 41 to 50 (*age40*) had a positive and significant effect in the number of visits to farmers' markets, with increasing factors of 1.4968 and 1.6780 visits with the presence of each variable respectively. Shoppers from these two age groups belong to the Generation X which are mostly in their 30's and early 40's and are characterized by being more ethnical diverse.

Demographic characteristics might not be a strong predictor of a specific farmers' markets given the large number of markets and the heterogeneity of nearby neighborhoods as pointed out by Keeling-Bond et al. (2009). The market activities selected for promotional efforts need to consider the demographics of the market visitors to ensure the messages are reaching their customer base. Mixed results found from consumer socio-demographics are evidence that these factors cannot be used as good predictors.

Summary and Conclusions

There is an increasing consumer interest in local food products and direct marketing. The majority of farmers that sell products directly to the consumer or through some intermediated channel are composed of small growers. Alternative marketing channels allow smaller producers to capture a higher margin on their products and often times a price premium associated with differentiated products. This paper looks at the factors that motivate consumer to visit local farmers' markets.

Distance to the market was found to have a negative effect in the model which highlights the importance of farmers' markets location and the shopping styles and customer profiles might differ significantly depending on the location of the market. Household size, specifically the number of adults in the household, was found to be a significant predictor of frequency of visits to farmers' markets. Even though there were some socio-demographic variables with significant effects on the on the number of visits to farmers' markets in our Texas sample, the literature has shown mixed effects in the significance and the magnitude of these effects. Perhaps the most general finding is that of Lehman et al. (1998) who suggested that consumers tend to visit farmers' markets in close proximity to their home or work places or, more generally, to their

daily travel route. The model results suggest that location, in terms of miles traveled to the market does have a negative and significant impact on the frequency of visits. From this standpoint and as Keeling-Bond et al. (2009) points out, demographics may be a weak predictor of farmer's markets visits and purchases due to the large number of markets and the heterogeneity of their location and hence the socio-demographic profiles of nearby visitors.

Market characteristics and promotional activities, such as educational activities and festivals had a positive effect in increasing the frequency of visits to farmers' markets. No significant effects were found for entertainment activities and activities for kids. In contrast, food events had a negative effect. The effects of promotional activities are highly influenced by the demographics of market visitors and it is probably a direct reflection of the interest of the specific demographic groups associated with each specific market. Hence, promotional events should consider the demographics of their customer base in deciding which promotional activities to implement.

Direct marketing of farm products through farmers' markets and the total number of these outlets have consistently increased over the last decade. However, this still accounts for a small percentage of farm products that are consumed. By considering local consumer and market factors, and significant socio-demographics characteristics, farmers' market managers can more effectively target their key audiences and improve the effectiveness of their promotional and marketing strategies. In doing so, managers can redirect marketing and promotional efforts in order to increase the frequency of visits and thus their overall sales and profits.

Table 1. Descriptive Statistics of Surveyed Characteristics Used to Analyze Frequency of Farmers' Markets.

Variable	Description	Obs	Mean	Std. Dev.	Min	Max
Consumer Factors						
dist	Distance to market in miles	170	6.0912	4.8418	1	17
price	Relative Importance of Price	170	0.0706	0.2569	0	1
adults	Number of adults in the household	170	1.9412	0.6409	0	4
children	Number of children in the household	170	0.5294	0.9178	0	6
Market Factors						
wic	Acceptance of WIC Coupons (=1 if true and 0 otherwise)	170	0.0647	0.2467	0	1
entert	Entertainments Activities (=1 if true and 0 otherwise)	170	0.5765	0.4956	0	1
food	Food Events (=1 if true and 0 otherwise)	170	0.6353	0.4828	0	1
contest	Contests (=1 if true and 0 otherwise)	170	0.1941	0.3967	0	1
educact	Educational Activities (=1 if true and 0 otherwise)	170	0.3588	0.4811	0	1
festivals	Festivals (=1 if true and 0 otherwise)	170	0.2353	0.4254	0	1
kids	Activities for Kids (=1 if true and 0 otherwise)	170	0.2588	0.4393	0	1
Consumer Socio-demographics Characteristics						
edu	Education Level (1=some high school, 2=high school, 3=some college, 4=college and 5=graduate)	170	4.0118	1.0088	1	5
inc	Income Level (=1 if more than $50,001 and 0 otherwise)	170	0.6294	0.4844	0	1
male	Gender (=1 if male and 0 if female)	170	0.3235	0.4692	0	1
age30	Age between 31-40 (=1 if true and 0 otherwise)	170	0.2000	0.4012	0	1
age40	Age between 41-50 (=1 if true and 0 otherwise)	170	0.1765	0.3823	0	1
age50	Age between 51-60 (=1 if true and 0 otherwise)	170	0.2118	0.4098	0	1
age60	Age between 61 or more (=1 if true and 0 otherwise)	170	0.1353	0.3430	0	1

Table 2. Demographics Comparison between Farmers' Markets Survey Data and Texas State 2010 Census.

Description	Survey	Texas
	---------- %	----------
Age less than 30 (=1 if true and 0 otherwise)	27.65	44.9
Age between 31-40 (=1 if true and 0 otherwise)	20.00	14.0
Age between 41-50 (=1 if true and 0 otherwise)	17.65	13.7
Age between 51-60 (=1 if true and 0 otherwise)	21.18	12.4
Age of 61 or more (=1 if true and 0 otherwise)	13.53	15.0
Gender (percentage of male)	32.35	49.60
Households with children	34.71	38.90
Some high school level of education (=1 if true and 0 otherwise)	2.94	9.60
High school level of education (=1 if true and 0 otherwise)	5.88	25.60
Some college level of education (=1 if true and 0 otherwise)	14.71	22.80
College level of education (=1 if true and 0 otherwise)	40.00	23.60
Graduate level of education (=1 if true and 0 otherwise)	36.47	8.60
African American (=1 if true and 0 otherwise)	2.35	11.50
Caucasian (=1 if true and 0 otherwise)	81.18	45.30
American Indian (=1 if true and 0 otherwise)	1.76	0.30
Hispanic (=1 if true and 0 otherwise)	11.18	37.60
Asian / Pacific Islander (=1 if true and 0 otherwise)	2.94	3.80
Other Ethnicity (=1 if true and 0 otherwise)	0.60	1.50
Income less than $25,000 (=1 if true and 0 otherwise)	7.06	25.50
Income between $25,001-$50,000 (=1 if true and 0 otherwise)	30.00	25.60
Income between $50,001-$75,000 (=1 if true and 0 otherwise)	34.12	18.20
Income of $75,001 or more (=1 if true and 0 otherwise)	28.82	30.70

Source: U.S. Bureau of the Census, Census 2010

Table 3. Results from Zero-Truncated Poisson Regression

Number of observations		170	
LR $chi^2(18)$		68.32	
Prob > chi^2		0.0000	
Pseudo R^2		0.1380	
Log likelihood		-213.38	
frq	**Coef.**	**Std. Err.**	**exp(β)**
Consumer Factors			
*dist***	-0.0376	0.0180	0.9631
price	-0.5547	0.4371	0.5742
*adults***	0.3000	0.1193	1.3498
children	-0.0949	0.1090	0.9094
Market Factors			
wic	-0.5327	0.5113	0.5870
entert	0.0511	0.1542	1.0525
*food**	-0.2987	0.1571	0.7418
contest	-0.1446	0.2283	0.8654
*educact***	0.3670	0.1466	1.4434
*festivals****	0.4197	0.1620	1.5215
kids	-0.0119	0.1733	0.9881
Consumer Socio-demographics Characteristics			
*edu***	0.2180	0.0914	1.2436
inc	0.0230	0.1779	1.0233
male	-0.0261	0.1559	0.9743
*age30***	0.4033	0.2407	1.4968
*age40***	0.5176	0.2487	1.6780
age50	0.1099	0.2617	1.1162
age60	0.3126	0.2666	1.3669
*_cons***	-1.0819	0.5441	0.3389

* Significant at the 10 percent level.

** Significant at the 5 percent level.

*** Significant at the 1 percent level.

References:

Arrington, K., J.H. Dennis, and M. Mazzocco. "An Evaluation of Consumer Segments for Farmers' Market Consumers in Indiana and Illinois." Selected Paper prepares for presentation at the 2010 WERA-72 Agribusiness Research Emphasizing Competitiveness and Profitability Meeting, Santa Clara, CA, June 2010.

Brown, A. "Counting Farmers' markets." *The Geographical Review*, 91 (4), October 2001: 655-674

Brown, A. "Farmers' Markets Research 1940-2000: An Inventory and Review." *American Journal of Alternative Agriculture*, 17 (4), January 2002: 167-176.

Brown, C. "Consumers' Preferences for Locally Produces Food: A Study in Southeast Missouri." *American Journal of Alternative Agriculture*, 18(4), April 2003: 213-224.

Curtis K.R., M.W. Cowee, M. Velcherean, and H. Gatzke. "Farmers Market Consumers: Is Local or Organic Important?" *Journal of Food Distribution of Research*, 41(1), March 2010: 20-24

Gallons, J., U.C. Toensmeyer, J.R. Bacon, and C.L. German. "An Analysis of Consumer Characteristics Concerning Direct Marketing of Fresh Produce in Delaware: A Case Study." *Journal of Food Distribution Research*, 28, February 1997: 98-106.

Govindasamy R. and M. Nayga. "Determinants of Farmer-to-Consumer Direct Market Visits by Type of Facility: A Logit Analysis." *Agricultural and Resource Economics Review*, 26 (1) April, 1997: 31-38.

Govindasamy R., M. Zurbriggen, J. Italia, A. Adelaja, P. Nitzsche, and R. VanVranken. "Farmers' markets: Consumer Trends, Preferences, and Characteristics." New Jersey Agricultural Experiment Station, P-02137-7-98, June, 1998.

Jekanowski M.D., D.R. Williams II, and W.A. Schick. "Consumers' Willingness to Purchase Locally Produced Agricultural Products: An Analysis of an Indiana Survey." *Agricultural and Resource Economic Review*, 29(8), April (2000): 43-53

Keeling-Bond, J., D. Thilmany, and C. Bond. "What Influences Consumer Choice of Fresh Produce Purchase Location?" *Journal of Agricultural and Applied Economics*, 41 (1), April 2009: 61-74.

Kuches K., U.C. Toensmeyer, C.L. German, and J.R. Bacon. "An Analysis of Consumers' View and Preferences regarding Farmer to Consumer Direct Markets in Deleware." *Journal of Food Distribution Research*, 30(1), March 1999: 124-133.

Lehamn, J., J.R. Bacon, U. Toensmeyer, J. Pesek, and C. German. "An Analysis of Consumer Preferences for Delaware Farmer Direct Markets." *Journal of Food Distribution Research*, 29, February 1998: 84-90.

Long J.S., and J. Freese. "Model for count outcomes." *Regression Models for Categorical Dependent Variables Using Stata*. Second Edition, College Station, Texas: Stata Press Publication, 2006.

Low S.A., S. Vogel. "Direct and Intermediated Marketing of Local Foods in the United States." USDA, Economic Research Report Number 128, November 2011.

Martinez S., M.H. Hand, M. Da Pra, S. Pollack, K. Ralston, T. Smith, S. Vogel, S. Clark, L. Lohr, S. Low and C. Newman. "Local Food Systems: Concepts, Impact, and Issues". Economic Research Report, No. 97, Economic Research Service, U.S. Department of Agriculture, Washington, D.C., May 2010.

McGarry Wolf M., A. Spittler, and J. Ahern. "A Profile of Farmers' Market Consumers and the Perceived Advantages of Produce Sold at Farmers' Markets." *Journal of Food Distribution Research*, 36(1), March 2005: 192-201

Onianwa O., M. Mojica, and G. Wheelock. "Consumer Characteristics and Views Regarding Farmers Markets: An Examination of On-Site Survey Data of Alabama Consumers." *Journal of Food Distribution Research* 37(1), March 2006: 119-125.

Rimal A., B. Onyango, and J. Bailey. "Farmers Markets: Market Attributes, Market Managers and Other Factors Determining Success." Paper presented at Annual Meeting of Agricultural Economics Association, Denver, Colorado, July 25-27, 2010.

Schmit T.M., and M.I. Gómez. "Developing viable farmers markets in rural communities: An investigation of vendor performance using objective and subjective valuations." Department of Applied Economics and Management, Cornell University, Food Policy 36, 2011: 119-127.

Sommer R., M. Stumpf, and H. Bennett. "Quality of Farmers' Market Produce: Flavor and Pesticide Residues." *The Journal of Consumer Affairs* 16(1984):130-136.

The Hartman Group. "Consumer Understanding of Buying Local". February 2008. Http://www.hartman-goup.com/heartbeat/2008-02-27

Thompson G.D., and J. Kidwell. "Explaining the Choice of Organic Produce: Cosmetic Defects, Prices, and Consumer Preferences." *American Journal of Agricultural Economics,* 80, May 1998: 277-287.

Uematsu H., and A.K. Mishra. "Use of Direct marketing Strategies by Farmers and Their Impact on Farm Business Income." *Agriculture and Resource Economics Review*, 40(1), April 2011: 1-19.

U.S. Bureau of the Census, Census 2010. Table DP-1. Profile of General Population and Housing Characteristics: 2010. Geography: Texas.

U.S. Bureau of the Census, Census 2010. Table DP02. Selected Social Characteristics in the United States. Geography: Texas

U.S. Bureau of the Census, Census 2010. Table DP03. Selected Economic Characteristics. Geography: Texas

US Department of Agriculture. National Agricultural Statistical Service. 2007. US Census of Agriculture.

US Department of Agriculture. National Agricultural Statistics Service and Economic Research Service, 2008 Agricultural Resource Management Survey

Wixson S.E., A.L. Katchova, T.A. Woods, and W. Hu. "The Role of Specialty Food Stores and Farmers' Markets in the Procurement of Local Foods." Paper presented at the Southern Agricultural Economics Association Annual Meeting, Corpus Christy, TX, February 5-8, 2011.

Zepeda L., and J. Li. “Who Buys Local Food.” *Journal of Food Distribution Research*, 37(3). November 2006: 5-12.