Consumer Willingness to Pay for Locally Grown Products: The Case of South Carolina

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Selected Paper prepared for presentation at the Southern Agricultural Economics Association Annual Meeting, Dallas, TX, February 2-6, 2008

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Abstract

The objective of this study is to evaluate South Carolina (SC) consumers' willingness to pay for "SC grown" products. Results indicate that consumers in SC are willing to pay an average premium of 27% for local produce and 23% for local animal products. Premiums for local products are influenced by age, gender, and income.

Key words: Contingent valuation, demand for local products, state branding and promotion programs

Introduction

In recent years there has been an increase in consumer interest in locally produced foods. A lead article in the March 12, 2007 issue of Time magazine labels "local… the new ideal that promises healthier bodies and healthier planet" (Cloud, 2007). Consumer interest in local foods is reflected in the continued growth of the number of farmers markets which increased from 2,410 in 1996 to 4,385 in 2006 (AMS, 2006). This interest also resulted in the success of the Whole Foods grocery chain which offers a variety of locally grown products (Whole Foods Market, 2007). Other grocery chains are also supporting this trend of emphasizing and offering locally grown products. For example, Bi-Lo grocery stores, a SC-based chain, have promoted locally grown produce since 2004 (SCDA, 2004).

The rise in consumer interest in local foods has been accompanied by increased participation of state departments of agriculture in promoting locally grown foods. While "state grown" promotion programs have been in place since the 1930s, the number of states conducting such programs went up from 23 to 43 between 1995 and 2006 (Patterson, 2006). A large portion of this increase resulted from the Community Food Security Act, which generated $22 million of support for 166 local food system initiatives from 1996 to 2003 (Tauber and Fisher, 2002). Previous research suggests that at least some of these state branding and promotion programs have been successful. Govindasamy et al. (2003) argue that *the Jersey Fresh* program provided a $32 return for fruit and vegetable growers for every dollar invested in the program.

While this evidence suggests that consumers have strong preferences for locally grown products, there is limited information about the exact magnitude and drivers of

these preferences. In fact, our literature review identified only a few studies that looked at the demand for locally grown agricultural products. Eastwood, Brooker and Orr (1987) argue that consumers in Tennessee have no strong preferences for or against locally grown fresh produce with exception of tomatoes. However, it is likely that consumer preferences have changed since this 1987 study. Jekanowski, Williams and Schiek (2000) found that 60% of Indiana consumers were very likely to consume locally produced food products. The remaining 40% of Indiana consumers in their study were either neutral or somewhat likely to purchase locally produced food products. They found that female consumers who have positive perception about local product quality and who were long time state residents have a greater likelihood of purchasing local agricultural products. Loureiro and Hine (2002) show that Colorado consumers are willing to pay a higher premium for "local" than for "organic" or "GMO-free" attribute in potatoes. This premium was calculated at 10% over the initial price with consumer preferences for locally grown potatoes mostly driven by concerns about nutrition. In contrast, Brown (2003) indicated that 58% of surveyed Missouri consumers were unwilling to pay a premium for locally grown food products if they were of the same quality as other products. However, 22% of respondents indicated that they would pay at least a 5 % (and in some cases much greater) price premium. Darby et al. (2008) showed that Midwestern consumers value locally grown strawberries more than strawberries grown elsewhere in the U.S. Interestingly, consumers that shopped at direct marketing outlets were willing to pay almost twice the premium of the grocery store shoppers ($0.92 vs. $0.48) per basket of locally grown strawberries. The authors argued that the preference for a "local" attribute is separate from the "freshness" and "less corporate" product attributes.

The literature reviewed here supports the argument by Giraud, Bond and Bond (2005) that the premiums consumers are willing to pay for locally branded products vary by state and by product. Given that no information is available about South Carolina consumer's preferences for locally grown products and importance of this information for producers, retailers and government agencies involved in promoting locally produced agricultural products, the primary objective of this study is to evaluate South Carolina consumers' willingness to pay for the "locally grown" characteristic in produce products and animal products. A secondary objective is to identify the socio-demographic characteristics affecting consumer preferences for the SC agricultural products.

This study uses a contingent valuation framework because this approach allows isolating consumer preferences for a specific product attribute ("SC grown" in this case) and measure consumer willingness to pay (WTP) for this attribute. In terms of a more general contribution, most previous studies of consumer preferences have either focused the importance of the "local" attribute at the specific product level (e.g., Darby et al., 2008; Loureiro and Hine, 2002; Eastwood, Brooker and Orr, 1987), or at the aggregate agricultural product level (Jekanowski, Williams and Schiek, 2000; Brown, 2003). This study extends the literature by calculating and comparing consumer willingness to pay for "local" attribute at an intermediate level of produce and animal product aggregation. This information may be particularly useful for evaluating alternative investments in different product promotions.

The results of this study will help policymakers and marketers to make more informed decisions about consumer response to labeling and promotion of locally grown products. This research will also provide these groups with a means of targeting

consumer groups that may be more responsive to promotion efforts. For policymakers and marketers, estimates of the premiums that consumers are willing to pay for the locally grown attribute in various products can guide promotion investment decisions and efficient fund allocation. This issue is particularly important since many of the recent state branding campaigns (including the effort just started in South Carolina) are taxpayer funded.[1] For producers, the information contained in this study may help select most profitable marketing strategies.

Conceptual Framework

The contingent valuation framework is used to elicit South Carolina consumer preferences for produce with the "SC grown" attribute. Contingent valuation methods have been traditionally used to evaluate consumer preferences for non-market (e.g. environmental) goods. However, in recent years contingent valuation has been applied to measure consumer preferences for new products or products with new attributes or features, such as genetically modified products (Kaneko and Chern, 2005; Loureiro and Hine, 2002), or eco-labeled products (Loureiro, McCluskey and Mittelhammer, 2002). We use contingent valuation approach because it allows us to concentrate on the "SC grown" attribute in products and measure consumer willingness to pay (WTP) for this specific attribute.

Contingent valuation methods ask respondents hypothetical questions about their willingness to pay for products with specific attributes. Evaluation of consumer responses to these questions also allows estimation of the proportion of population (i.e., market share) willing to purchase a product with specific attribute at alternative prices (Louviere,

Hensher, and Swait, 2000). The product attribute examined in this study is the "South Carolina grown" characteristic. The contingent valuation questions used in the consumer survey are presented in Appendix 1. The questions use a dichotomous choice format, where a responder is asked to identify his/her choice to buy or not to buy a product at the stated price. Two types of products are investigated: produce products and animal products. Surveyed individuals were initially asked if they would purchase an in-state or out-of-state grown product at the same bid price, i.e., price differential (PD_I) equal zero. If respondents indicated a preference for in-state products, they were subsequently asked if they would be willing to pay a randomly selected premium bid, i.e. price differential (PD_H) greater than zero, to consume the in-state grown product over the out-of-state product. If they did not indicate a preference for in-state products in the first question, a follow up question with a price bid was not asked.[2]

The initial and follow-up bids were expressed in terms of a percentage premium over the product price for two reasons. First, the approach controls for cross-price effects (Lusk and Hudson, 2004). Second, percentage premiums are a valid measure of price regardless of the variability in the quality and quantity of products purchased by households. The percentage price premium bids used for in-state products were 0% (for initial bid) and 5%, 10%, 20%, 30% and 50% (for follow-up bid) above out-of-state product prices and were determined by pre-testing of the survey.

The three possible responses to the bid scenarios are (1) a "no" to the first bid (i.e., no preference for in-state over out-of-state products at 0% premium), (2) "yes" to both bids (i.e., preference at 0% premium and preference at higher premium), (3) a "yes" followed by a "no" (preference at 0% premium, but no preference at higher premium).

The sequence of questions defines the following ranges for the true WTP values: (-∞, PD_I], [PD_I, PD_H], [PD_H, -∞). The following three discrete outcomes of the bidding process are observable:

$$D = \begin{cases} 1 & WTP < PD_I \\ 2 & PD_I < WTP < PD_H \\ 3 & PD_H < WTP \end{cases} \tag{1}$$

where WTP is the individual's willingness to pay function for "South Carolina grown" attribute in products. Assume that the WTP function is:

$$WTP = X\beta + u \tag{2}$$

where X is a vector of explanatory variables, β is a conformable vector of coefficients and u is a random variable accounting for unobservable characteristics. If $u \sim F(0,\sigma^2)$, where F is a cumulative distribution function with mean zero and variance σ^2, then the choice probabilities corresponding to expression (1) are:

$$\begin{aligned} P(D=1) &= P(u < PD_L - X\beta) = F(PD_L - X\beta) \\ P(D=2) &= P(PD_L - X\beta < u < PD_H - X\beta) = F(PD_H - X\beta) - F(PD_L - X\beta) \\ P(D=3) &= P(u < PD_H - X\beta) = 1 - F(PD_H - X\beta) \end{aligned} \tag{3}$$

and the log-likelihood becomes:

$$\begin{aligned} L = &\sum_{D_1} \ln F(PD_L - X\beta) + \sum_{D_2} \ln[F(PD_H - X\beta) - F(PD_L - X\beta)] \\ &+ \sum_{D_3} \ln[1 - F(PD_H - X\beta)] \end{aligned} \tag{4}$$

where D_j indicates the group of individuals belonging to the jth bidding process outcome. Given a choice for the F cumulative distribution function, the parameters β and σ^2 can be estimated. Theoretically, the WTP for in-state produce can have both positive (premium) and negative (discount) values.[3] The WTP is also restricted in the lower tail

by a 100% discount (free good) and on the upper tail by the disposable income. The results of this model are interpreted as the proportion of consumers willing to pay for "South Carolina grown" attribute more than a stated premium (Louviere, Hensher and Swait, 2000).

Estimation of the parameters in equation (4) requires an assumption about the parametric distribution *F*. The most commonly assumed distribution functions for *F* are the lognormal and normal distributions (e.g., Cameron, 1988; Lusk, 2003). The model was estimated for both distributions to test for sensitivity of the results to the distribution assumption. Maximization of the log-likelihood function (4) was performed using MATLAB. The vector of explanatory variables in (2) included socio-demographic characteristics of the individuals as well as the variables related with consumers' perceptions and motivations. The socio-demographic characteristics included in (2) were hypothesized to be similar to those influencing consumer expenditures on fruits and vegetables in general (e.g., Nayga, 1995) and those included in other analyses of consumer preferences for local products (e.g., Jekanowski, Williams, and Schiek, 2000). In addition, consumer perceptions and motivations regarding state-grown products were also hypothesized to influence their choice.

Data

The data for this study were collected by Richard Quinn and Associates via a telephone survey of a random sample of South Carolina consumers conducted on March 7 and 8, 2007. The survey generated 500 observations. The survey was designed to measure the attitudes and perceptions of South Carolina consumers about "SC grown"

agricultural products. The survey also collected information on the socioeconomic characteristics of the respondents as well as consumers' perceptions about the quality of SC products and motivations to buy state grown products.

Table 1 presents a summary comparison of the socio-demographic characteristics of the sample versus the state population. The survey respondents were slightly older, wealthier, and better educated than the average South Carolina resident. The sample proportion of female respondents and household size were similar to the corresponding characteristics of the state population. The survey revealed that most South Carolinians shop for groceries at least once a week and spend on average about $106 per shopping trip. On an average shopping trip South Carolina residents spend about $21 on produce and about $38 on animal products.

Table 2 presents the consumer responses to the contingent valuation questions for produce. The survey revealed that at equal prices (0% premium), 95% of consumers would choose state-grown produce over out-of-state produce. At a 5% premium level, 78% of consumers will still prefer state-grown fruits and vegetables. The South Carolina preference in consumers decreases as the premium level increases, representing only 30% of the market at the 50% premium level. Responses are very similar for animal products. At equal prices, 94% of South Carolina consumers would choose state-grown animal products over out-of-state animal products. At a 5% premium level, 75% of consumers will still prefer state-grown animal products. At the higher premium levels, the market share for state-grown animal products decreases more rapidly than for produce, with 33% of consumers choosing state-grown animal products at the 30% premium level and only 14% of consumers choosing state-grown animal products at the 50% premium level.

Table 3 presents summary statistics and definitions of the variables used in the willingness to pay models. Socio-demographic factors hypothesized to influence consumer willingness to pay for state-grown produce include age, income, gender, location and number of members in the household (standard variables used in demand for food models, e.g., Nayga, 1995).

Previous studies have shown that consumers often respond to non-pecuniary factors in their choice of consumption locally grown products (e.g., Scarpa, Phillippidis, and Spalantro, 2005; Eastwood, Brooker and Orr, 1987). Consumer characteristics describing length of residence in the state, employment in agricultural sectors, and making purchases through direct marketing outlets are included to represent these non-pecuniary factors. It was also hypothesized that the motivation to buy SC products has an impact on the premiums consumers are willing to pay for these products. The majority of survey respondents (71%) indicated that their main motivation to buy SC products was either to support SC farmers or the SC economy. Only 24% of respondents indicated that their main motivation in choosing SC products was their superior quality. However, it is not clear which motivation (quality or farmer support) would result in the highest premium.

Finally, the perception about of the quality of SC products versus out of state products was included as an explanatory variable in the WTP models. When consumers were asked how the quality of SC products compares to out-of-state products, 78% indicated that SC products were about the same or better quality than products from other states. It was expected that consumers that have a positive perception about the quality of the local products would be willing to pay a higher premium for these products.

Estimation Results

The estimation results section is divided in two parts. The first part presents the results corresponding to the population mean willingness to pay measures and the simulated demand curves and the second part shows the results related with the factors driving the willingness to pay for South Carolina grown products.

The mean willingness to pay for SC produce and animal products was obtained by estimating equation (2) using only an intercept. The resulting parameter estimates correspond to the population mean willingness to pay premium (Cameron, 1988). The results presented in table 4 show that mean willingness to pay for South Carolina grown animal products was slightly lower than that for produce, 23% and 27.5%, respectively, based on the model assuming a normal distribution. This finding is consistent with our expectations because the local attribute may offer more advantages in produce than in animal products. Still, it is important to point out that this difference in willingness to pay premiums is very small with overlapping 95% confidence intervals.

There is little difference between the results estimated with a model assuming a normal distribution and a model assuming a lognormal distribution, which suggests that results are robust with respect to this assumption. Both sets of results are also consistent with the empirical data shown in table 2, which suggests that the mean willingness to pay is between 20% and 30%.

The models including only the intercept were also used to simulate demand curves for South Carolina grown produce and animal products. Figure 1 presents the simulated demand equations using the normal and lognormal models as well as the

empirical contingent valuation response data (as also shown in table 2). Points on the simulated demand curves and the raw contingent valuation data points show the proportion of the population (i.e., market share) that would choose SC grown products over out-of-state products at various premium levels. Therefore, figure 1 can be used to make comparisons between the simulated curves and the observed responses, between the simulated demand equations assuming different distribution assumptions, and finally between the demand curves for produce and animal products.

Figure 1 shows that simulated model results are very close to the observed responses. Figure 1 also indicates that the demand curves based on normal and lognormal distribution assumptions are similar. Finally, the comparison between the demand curves for South Carolina grown produce and animal products reveals that the main difference between them is the value of the intercept between the demand curves and the vertical axis. This intercept represents the premium value at which all South Carolina consumers will stop choosing South Carolina grown over out-of-state products. This premium is higher for produce (85%) than for animal products (71%), which is consistent with the empirical evidence showing that market share for animal products drops more rapidly as the premium increases.

The estimated equations were also used to analyze the sensitivity of the demand for the "South Carolina grown" attribute to changes in the premium level. Using the estimated demand equations we found that the "premium" elasticity for the local attribute at equal prices (0% premium) was -0.90 in produce, which indicates that at equal prices a 1% increase in the premium for SC produce relative to out-of-state produce will decrease the share of the market by 0.90%. At the mean willingness to pay premium of 27.5%, the

price elasticity for produce was -1.80. South Carolina consumers are more sensitive to changes in the premiums for local attribute in animal products relative to those in produce. The "premium" elasticity for animal products is about -1.2 at zero price premium and about -2.5 at the mean willingness to pay premium of 23%.[4] This finding does not necessarily imply a higher potential for a promotion program in fresh fruit and vegetables. Since our survey revealed that South Carolinians spend about twice as much on animal products as they do on produce, a smaller premium on animal products may result in a greater overall market value of the "SC grown" attribute.

To investigate the importance of factors that are likely to affect consumer WTP for South Carolina grown attribute in agricultural products, the WTP functions (equation 2) were estimated using the explanatory variables described in table 3. Results of the full WTP model estimations are presented in Table 5.[5] The marginal effects of the continuous variables represent the change in the willingness to pay for SC grown products given a one unit change in the variable. Thus, each additional year of age increases the willingness to pay for the local attribute by 0.3% for produce and 0.2% for animal products. Income was a statistically significant driver of consumer willingness to pay a premium for local attribute in produce, but, interestingly, not in animal products. A $10,000 increase in income was estimated to raise the willingness to pay premium for SC produce and animal products by 0.6% and 0.2%, respectively. However, the income effect in the WTP model for animal products was not statistically different from zero. The effects of the other continuous variables included in the model (number of years living in the state, number of members in the household) were not statistically significant for either set of products.

The marginal effects of the dummy explanatory variables are interpreted relative to the dummy variables not included in the model (a male consumer who lives in the Coastal area of SC, who did not visit farmers' markets in the previous year, does not work in the agricultural sector, perceives SC produce as equal in quality to out of state produce, whose main motivation to buy SC produce is based on quality/price). The results suggest that consumer perception about the quality of SC products have a strong impact on WTP for the local attribute. Individuals who perceive SC products being of better quality than out-of-state products are willing to pay an 11% higher premium for produce and a 6.5% higher premium for animal products than individuals who perceive quality to be the same. On the other hand, relative to individuals who perceive local and out state products to be the same, individuals who perceive SC products as being of lower quality than out-of-state products are willing to pay a 5.6% and 2% lower premiums for produce and animal products, respectively. This finding has several implications. First, a special emphasis on the quality of the products may be an effective advertising tool.[6] Another implication is that the campaign should direct efforts to assure that the agricultural products using the SC grown logo or the advertising materials are of the best possible quality.

The results also indicate that consumers whose main motivation for buying SC products is to support SC farmers or the SC economy are willing to pay an additional 4.2% premium in produce and 3.3% premium in animal products relative to consumers whose decision to buy SC grown products is driven by quality and price. This finding suggests that promotional messages that encourage "hometown pride" may increase campaign effectiveness.

Female consumers are willing to pay an additional 4.4% premium for local characteristic in animal products relative to male consumers. No statistically significant difference in premiums was detected between males and females for local attribute in produce. This finding is important because traditionally females do the lion's share of household grocery shopping. As a result, their perceptions should carry greater weight in actual markets. Accordingly, females should be a primary target of buy local campaigns in general.

Individuals who visited farmers' markets at least once during the previous year are willing to pay an additional 6.1% premium for the local attribute in produce and a 4.2% premium in animal products. This result is consistent with the findings of Darby et al. (2008) and it was expected since visiting farmers' markets is associated with consumer preference for locally produced fruits and vegetables. This finding suggests that part of the campaign efforts should be focused on advertising SC products at farmers' markets, especially since 82% of the respondents reported visiting farmers' markets at least once during the last twelve months. Furthermore, farmers' markets have the additional bonus of contributing directly to farm income and local economies (Hughes et al., 2008).

Finally, individuals who work in the agricultural sector are willing to pay an additional 8.2% premium in produce and an 8.5% premium in animal products for the South Carolina grown attribute. This result may imply a greater "hometown pride" in individuals employed in agricultural sector. However, it should be interpreted with care, since the response bias based on the link with subsequent market prices in this case may

cause these individuals to overstate their preferences (producers willing to enhance their own income).

Summary and Conclusions

The purpose of this study was to evaluate South Carolina consumers' preferences for South Carolina grown products. Specifically, the analysis focused on the estimation of South Carolina consumers' willingness to pay for the "SC grown" attribute in produce and animal products and factors that affect these preferences. The data on consumer preferences was collected via a telephone survey conducted on March 7 and 8, 2007.

The findings of this study suggest that South Carolinians have strong preferences for South Carolina grown products. South Carolinians are willing to pay an average premium of about 27% for state-grown produce and about 23% for state-grown animal products relative to out-of-state grown products. This finding suggests good prospects for the agricultural branding and promotion campaign in South Carolina if marketers are able to differentiate and consumers are able to identify local products. Currently only 32% of consumers can identify SC products. It also indicates that South Carolina producers can add value to their locally grown products by labeling and identifying them as "SC grown."

South Carolinians are more sensitive to changes in the premium for local attribute in animal products than in produce, as the "premium" elasticity at the mean willingness to pay is -2.5 for the former and -1.80 for the latter. However, this finding does not imply that the biggest potential in a market labeling program is in the produce market. Our survey revealed that South Carolinians spend about twice as much on animal products as

they do on produce. Therefore, a smaller premium on animal products may result in greater overall market value of "SC grown" attribute.

Perceived product quality had a significant impact on the premiums consumers are willing to pay for SC grown products. Thus, individuals who perceive SC products being of better quality than out-of-state products are willing to pay 11% higher premium for produce products and 6.5% higher premium for animal products than individuals who perceive quality to be the same. This suggests that a campaign that puts an emphasis on the quality of the South Carolina grown products may be effective. To protect the premium consumers are willing to pay for South Carolina products the SC grown logo should only be attached to products that achieve a specific quality standard. The fact that the primary motivation for choosing SC grown produce is to support local farmers and local economy (71% of respondents) rather than price and quality factors (29% of respondents) suggests that South Carolina branding campaign may be successful despite the fact that many SC consumers may be unable to detect differences in product quality.

Higher premium levels associated with the individuals who visit farmers markets suggest that part of the campaign efforts should be focused on advertising SC products at Farmers' Markets, especially since 82% of the respondents reported visiting a Farmers' Market at least once during the last twelve months. Farmers' markets have the added benefits of directly enhancing farm income and local economic activity. The fact that willingness to pay for SC grown products increases with age and income (produce) and is influence by gender (female for animal products) suggest additional promotion and pricing opportunities at high-end grocery stores with programs and publications targeting females.

The results of this study highlight the importance of monitoring changes in consumer preferences in general and for local food systems in particular. For example, a study examining consumer willingness to pay for selected local versus non-Tennessee grown by Eastwood, Brooker and Orr (1987) found that consumers do not have strong preferences for locally grown fresh produce. In contrast, our results indicate that in 2007 South Carolinians have strong preferences for locally grown products. Together, results from the two studies imply that the local foods movement is starting to markedly change consumer preferences. Hence, a major area of future research could be to determine when this change began, how advanced is it, and to what degree can consumers be expected to have stronger preferences for local foods in the future. Such an effort would require investigating possible determining factors including but not limited to the association between organic production and local food systems, news items touting the benefits of local foods, and concerns about the food mile and energy consumption.

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Table 1. Socio-Demographic Characteristics of Survey Respondents versus State Population

Socio-demographic characteristics	Sample	State Population
Median age for population 18 years and older	45-60	40-44
Female	51.5%	51.3%
Median household income	$50,000-$75,000	$41,100
Persons per household	2.47	2.52
High school degree	92.0%	81.3%

Note: State population data was obtained from the U.S. Census Bureau 2006 American Community Survey (available at http://www.census.gov/acs/www/).

Table 2. Consumer Choice of "State-Grown" Products Relative to Out-of-State Products

	Produce		Animal Products	
	State-Grown	Out-of-State	State-Grown	Out-of-State
Premium	Percent	Percent	Percent	Percent
0%	95	5	94	6
5%	78	22	75	25
10%	65	35	70	30
20%	57	43	55	45
30%	46	54	33	67
50%	30	70	14	86

Table 3. Description and Summary Statistics for the Explanatory Variables Used in the Willingness to Pay Models

Variable Name	Category	Category Proportion	Mean	Standard Deviation
Age	1=18 to 25 years	1.69%	57.70	13.01
	2=25 to 45 years	16.91%		
	3=45 to 60 years	34.78%		
	4=Over 60 years	46.62%		
Income	<$25K	15.22%	57.34	29.49
	$25K to $50K	29.23%		
	$50K to $75K	30.19%		
	$75K to $100K	13.53%		
	>$100K	11.84%		
Gender	1=Female	51.45%	0.51	0.50
	0=Male	48.55%		
Number of members in the household	1	15.46%	2.47	1.16
	2	49.28%		
	3	17.39%		
	4	11.84%		
	>4	6.03%		
Number of years living in SC	0=≤10 years	10.39%	0.90	0.31
	1=>10 years	89.61%		
Working in agriculture	1=yes	8.21%	0.08	0.27
	0=no	91.79%		
Motivations to buy SC products	0=quality or price	28.99%	0.29	0.45
	1=support SC or SC farmers	71.01%		
Perception about quality of SC produce	Better (1=yes, 0=no)	28.5%		
	Same (1=yes, 0=no)	49.5%		
	Worse (1=yes, 0=no)	22.0%		
Visited farmers' markets	1=yes	82.13%	0.82	0.38
	0=no	17.87%		
Upstate residence	1=yes	29.47%	0.30	0.46
	0=no	70.53%		
Midland residence	1=yes	35.75%	0.36	0.48
	0=no	64.25%		
Coastal residence	1=yes	34.78%	0.35	0.48
	0=no	65.22%		

Table 4. Mean Willingness to Pay Premiums (%) for South Carolina Grown Products

Product	Normal Model	Lognormal Model
Produce	27.5 [24.7, 30.2]	26.4 [23.5, 29.2]
Animal Products	23 [20.4, 25.5]	22 [19.4, 24.6]

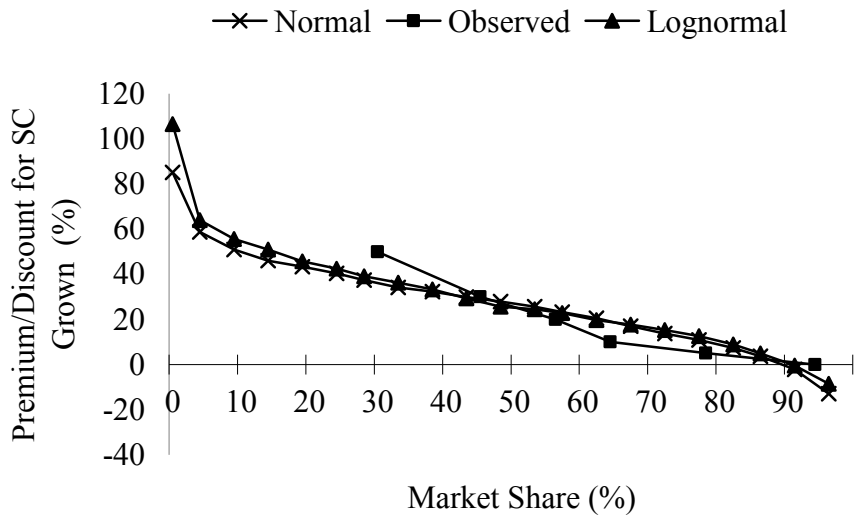
Note: Estimates calculated using equation (2) with only an intercept. Numbers in brackets are the lower and upper bounds of a 95% confidence interval

Table 5. Estimation Results of the Willingness to Pay Model for South Carolina Grown Products

Variable	Produce	Animal Products
Intercept	0.956*** (0.092)	1.069*** (0.087)
Age	0.003*** (0.001)	0.002** (0.001)
Income	0.006* (0.004)	0.002 (0.004)
Gender	0.016 (0.025)	0.044** (0.024)
Size of household	-0.004 (0.012)	-0.005 (0.011)
Number of years living in SC	0.013 (0.040)	-0.028 (0.043)
Working in agriculture	0.082** (0.048)	0.085** (0.045)
Reasons for buying SC prod.	0.043* (0.027)	0.033* (0.025)
Perceive higher local quality	0.111*** (0.031)	0.065*** (0.028)
Perceive lower local quality	-0.056** (0.030)	-0.020 (0.030)
Visited farmers' markets	0.061** (0.031)	0.042* (0.031)
Upstate region	0.014 (0.031)	-0.021 (0.029)
Midland region	0.012 (0.030)	0.006 (0.028)
σ_2	0.196*** (0.012)	0.167*** (0.011)
Log-likelihood	-342.0	-272.1

Note: Numbers in parenthesis are asymptotic standard errors. One asterisk indicates significance at the 10% level, two asterisks indicate significance at the 5% level, and three asterisks indicate significance at the 1% level.

Panel A: Produce



Panel B: Animal Products

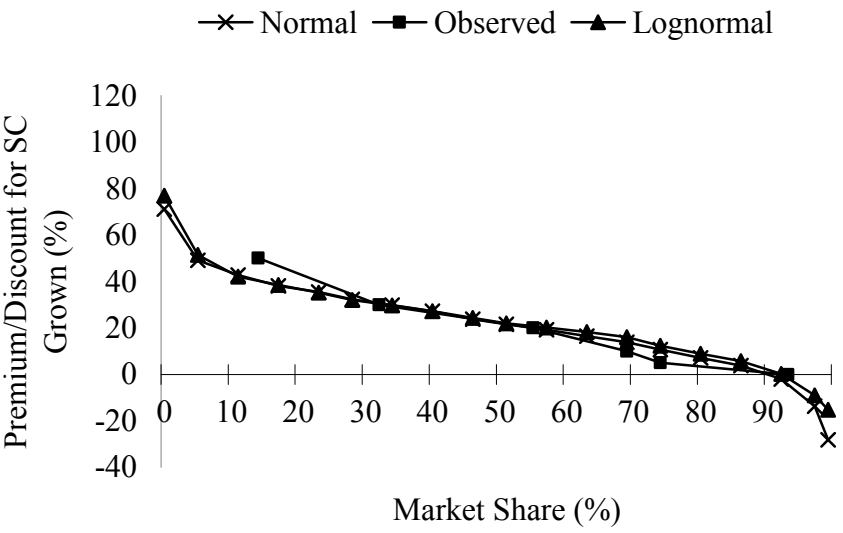


Figure 1. Demand for South Carolina (SC) Grown Products at Different Premium/Discount Levels

Appendix

Contingent Valuation Questions Used in the Consumer Survey

1. If you were buying vegetables or fruit from the market, and you could choose ***at equal prices*** between produce grown in South Carolina and out-of-state produce, which one would you choose? [Categorize based on response]

Produce grown in SC [if chosen go to a]	1
Out-of-state produce	2

If the person takes more than a few seconds, ask: are you

Not sure?	3
Makes no difference?	4
Don't know?	5

a. [If produce marked as grown in SC was the respondent's first choice then ask] Okay, what if the price of SC grown produce was [5%, 10%, 20%, 30%, 50%] more expensive than out of state products, which one would you choose?

Produce marked as grown in SC	1
Out-of-state produce	2

If the person takes more than a few seconds, ask: are you

Not sure?	3
Makes no difference?	4
Don't know?	5

2. How about meat, fish, poultry and diary products? If you were buying animal products, and you could choose ***at equal prices*** between products grown in South Carolina and out-of-state products, which one would you choose? [Categorize based on response]

Produce grown in SC [if chosen go to a]	1
Out-of-state produce	2

If the person takes more than a few seconds, ask: are you

Not sure?	3
Makes no difference?	4
Don't know?	5

a. [If SC produced animal products was the respondent's first choice then ask] Okay, what if the price of SC produced animal products was [5%, 10%, 20%, 30%, 50%] more expensive than out of state products, which one would you choose?

SC produced animal products	1
Out-of-state animal products	2

If the person takes more than a few seconds, ask: are you

Not sure?	3
Makes no difference?	4
Don't know?	5

Endnotes

[1] Part of the motivation for this study was to provide feedback to the SC Department of Agriculture regarding the potential consumer response to the state branding campaign prior to its implementation. The agricultural marketing and branding campaign in South Carolina was launched on May 22, 2007 (subsequent to when our dated was collected). The agricultural marketing and branding campaign was initially funded with a $500,000 grant from the South Carolina Department of Agriculture.

[2] Statistically, ignoring the follow up question to a "no" answer to the first question does not allow us to estimate the left side of the distribution more precisely. However, given the small number of respondents that answer "no" to the first question, it will not likely have a major impact on the final results.

[3] If needed, re-scaled WTP values can be restricted to be higher than zero.

[4] Given the differences between some of the socioeconomic characteristics of the population and the sample, the mean willingness to pay was also estimated using a sub-sample constructed by eliminating survey respondents that were older than 60 years. The estimated mean willingness to pay value was very close to that obtained using the entire sample.

[5] In the interest of space results are only presented for the models that assume a normal distribution. Results were very similar between the normal cdf WTP models the lognormal cdf models. These results for lognormal cdf models are available from the authors upon request.

[6] Interestingly, campaign's slogan is "Nothing's fresher, nothing's finer."