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# How Do Restaurants Benefit from Various Components of a Regional Promotion Campaign?

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## Abstract

This study analyses the economic value of various components of the *Certified South Carolina Grown* Campaign from the perspective of participating restaurants. A stated-preference choice experiment was conducted as part of the restaurant survey to estimate the willingness to pay (WTP) for each campaign component using a mixed logit model. Individual level WTP was calculated in order to explore the relationship between WTP and characteristics of restaurants. Results indicate that three existing components—Labeling, Multimedia Advertising, and "Fresh on the Menu" have significant positive economic value.

## Introduction

Government funded advertising campaigns play an important role in agricultural and food policy around the world. In the United States, regional promotion programs have been growing rapidly since the mid-1990s. Previous studies are limited by their exclusive focus on the benefits received by farmers. Other potential campaign beneficiaries such as consumers, local restaurants and farmers markets have been overlooked. Furthermore, regional promotion campaigns are typically analyzed as a whole providing little guidance to policy makers about relative benefits of various campaign components. The *Certified SC Grown* campaign was launched on May 22, 2007. The goal is to increase consumer demand for the state produced food products and increase agribusiness profitability. Original campaign components included the design and distribution of labels and signage for "Certified SC Grown" products at the point of purchase and the advertisement of SC food products on television, radio, magazines, newspapers and billboards. The "Fresh on the Menu" component, focusing on restaurants serving foods prepared from locally grown ingredients, was launched in February 2008. Initially, 180 restaurants participated in the program, and 108 more restaurants became members of this campaign over the past four years.

## Objectives of this study are to:

- Examine how various components of the SC locally grown campaign are valued by a generally overlooked segment of local restaurants.
- Explore the relationship between campaign valuation and restaurant characteristics.

## Data

Table 1. Summary statistics describing the characteristics of restaurants participating in the SC campaign.

Variable	Description	Category	Percentage
Motivation	Which of the following reasons was the most important motivation for you to join the SC Fresh on the Menu Campaign?	1=Improve the quality of ingredients since SC produces the better quality products	20.60%
		2=Decrease the costs of ingredients since SC products are less expensive	1.60%
		3=Strong SC pride	14.30%
		4=Increase the sales of my restaurant by attracting customers interested in SC products	25.40%
		5=Support SC economy	34.90%
Satisfaction	How would you rate your overall satisfaction with the campaign?	1=Very dissatisfied	16.40%
		2=Dissatisfied	13.10%
		3=Neutral	27.90%
		4=Satisfied	19.60%
		5=Very satisfied	22.90%
Image	How would you best describe the focus/image of your restaurant?	1=Fine-dining	30.90%
		2=Fast-Food	1.70%
		3=Family-oriented	11.70%
		4=Bar and Restaurant	5.00%
		5=International Cuisine	3.40%
		6=American Cuisine	23.30%
		7=Health-Conscious	6.60%
		8=Other, please specify	18.40%
Size	Please describe the size of your restaurant business in 2009.	1=\$0-\$49	47.30%
		2=\$50-\$99	52.50%

The data used for estimation in this study resulted from a survey of managers of 288 restaurants that participated in the S.C. "Fresh on the Menu" in July 2010.

The survey was administered through a combination of internet and mail and yielded 71 observations for a response rate of 25%.

## Value of Campaign Components

A stated-preference choice experiment was conducted to elicit restaurant managers' WTP which reflects the monetary value restaurant managers place on various campaign components.

Table 2. Attributes and Attribute Levels in Choice Experiment

Attributes	Levels
Labeling (LABEL)	1=Included, 0 otherwise
Point of Purchase Signage (SIGNAGE)	1=Included, 0 otherwise
Multimedia Advertising (MULTI)	1=Included, 0 otherwise
"Fresh on the Menu" (FOTM)	1=Included, 0 otherwise
Payment Method (MEM)	1= Membership, 0=Donation
Amount of Payment (PAY)	\$20 \$50 \$100 \$150 \$200

Figure 1. Example of One Scenario from the Restaurant Survey

Scenario 1		
Campaign A	Components/Costs	Campaign B
Not included	Labeling	Included
Not included	Point of Purchase Signage	Not included
Not included	Multimedia Advertising	Not included
Included	"Fresh on the Menu"	Not included
Annual membership fee of \$20	Paid	Annual donation of \$100

Given these choices, which campaign would you prefer? (Please choose one campaign.)  
 Campaign A Campaign B

If you were given three choices: Campaign A, Campaign B, or not having a campaign at all, which would you choose?  
 Campaign A Campaign B No campaign at all

## Mixed Logit Model

Based on the Random Utility theory, the true but unobservable indirect utility that person  $n$  obtains from alternative  $i$  in choice situation  $t$  is assumed to be linear-in-parameters:

$$U_{nit} = \beta_n' x_{nit} + \varepsilon_{nit}$$

where coefficient vector  $\beta_n$  is unobserved for each  $n$  and varies in the population with density  $f(\beta_n|\theta)$ , in which  $\theta$  are the true parameters of each distribution and  $\theta_{un}$  is an unobserved random term that is independent and identically distributed extreme value (Revelt and Train, 1998).

Table 3. Mixed Logit Estimates of Mean WTP

Attributes	Categories	Coefficient	Std. Err.
LABEL	Mean Coefficient	0.9892	-0.406
	Standard Dev. Coefficient	1.8018	-0.4796
	Willingness to Pay	\$125.22	
SIGNAGE	Mean Coefficient	0.4284	-0.2868
	Standard Dev. Coefficient	0.8068	-0.3717
	Willingness to Pay	\$54.23	
MULTI	Mean Coefficient	1.5423	-0.4203
	Standard Dev. Coefficient	2.2822	-0.5163
	Willingness to Pay	\$195.23	
FOTM	Mean Coefficient	1.679	-0.465
	Standard Dev. Coefficient	2.5249	-0.5514
	Willingness to Pay	\$212.53	
MEM	Mean Coefficient	-0.6571	-0.3012
	Standard Dev. Coefficient	0.9471	-0.393
PAY	Mean Coefficient	-0.0079	-0.0024
	Log Likelihood	-269.7988	-269.7988
	Notes: The number in red is not significant at 10% level.		

## Results

The results of mixed logit estimation indicate that three existing components—Labeling, Multimedia Advertising, and "Fresh on the Menu" have a significant positive economic value for restaurants participating in the program, while Signage does not. The participating restaurants would be willing to pay on average \$125.22, \$195.23, and \$212.53 per year for having these three components, respectively. We also find that restaurants prefer to participate in the Certified SC Grown campaign by donating annually instead of paying a membership fee. These results suggest that participating restaurants would be willing to donate on average \$532.98 annually to support a campaign that includes all three components.

## Factors Affecting Campaign Valuation

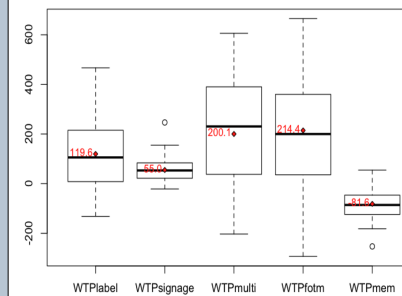
### Mixed Logit Model: Individual-Level

Individual preferences parameter vector can be estimated as (Train, 2003):

$$\hat{E}(\beta_n | x_n, \theta_n) = \frac{\sum \beta_n \cdot P_n(i, 1 | \beta)}{\sum P_n(i, 1 | \beta)}$$

which can be used to calculate individual's WTP values.

Figure 2. Box Plot of Individual WTP



## SUR Model

WTPLabel, WTPMulti, and WTPFOTM were then entered as dependent variables in a SUR.

The explanatory variables of the SUR model were: image of the restaurant, size of the restaurant, motivation to join the Certified South Carolina Grown campaign, indirect cost of participation, and satisfaction about the campaign (as shown in Table 1).

Motivation, Image, and Size of restaurant were entered in the model as dummy variables, where motivation5 (supporting SC economy) in motivation, image1 (fine-dining) in Image, and big size restaurant in Size were treated as the base category. The variable Cost for each respondent was recoded by using the mean of category they selected so that it was treated as numerical variable in the SUR model.

The specification of the SUR model

$$WTPLabel_i = \alpha_{Label} + \beta_{Label,1} Motivation_i + \beta_{Label,2} Cost_i + \beta_{Label,3} Satisfaction_i + \beta_{Label,4} Image_i + \beta_{Label,5} Size_i + \varepsilon_{Label,i}$$

$$WTPMulti_i = \alpha_{Multi} + \beta_{Multi,1} Motivation_i + \beta_{Multi,2} Cost_i + \beta_{Multi,3} Satisfaction_i + \beta_{Multi,4} Image_i + \beta_{Multi,5} Size_i + \varepsilon_{Multi,i}$$

$$WTPFOTM_i = \alpha_{FOTM} + \beta_{FOTM,1} Motivation_i + \beta_{FOTM,2} Cost_i + \beta_{FOTM,3} Satisfaction_i + \beta_{FOTM,4} Image_i + \beta_{FOTM,5} Size_i + \varepsilon_{FOTM,i}$$

Table 4. SUR Estimates of Factors Affecting Campaign Valuation

	WTPLabel		WTPMulti		WTPFOTM	
	Coeff.	StdErr.	Sig.	Coeff.	StdErr.	Sig.
intercept	-50.69	73.38		126.37	125.6	
motivation1	98.19	55.65*		-75.22	95.25	
motivation2	472.13	180**		-106.53	308.1	
motivation3	187.64	60.3***		96.77	103.2	
motivation4	163.73	50.48***		46.48	86.41	
motivation6	26.98	112.4		226.76	192.5	
cost	0.06	0.12		0.19	0.2	
satisfaction	3.32	16.73		15.75	28.64	
image2	-12.56	144.4		-154.23	247.2	
image3	-27.38	69.07		-31.14	118.2	
image4	75.77	95.08		-87.63	162.7	
image5	153.26	106.1		200.43	181.5	
image6	106.49	55.5*		-39.23	94.99	
image7	148.7	80.61*		84.59	138	
image8	42.6	57.06		-183.15	97.66*	
size	18.95	40.13		34.09	68.68	

## Results

- There is no significant difference in WTP for any of the components between big and small restaurants. In addition, how much restaurants have paid indirectly to participate the campaign is not significantly related to their willingness to pay for having different components of the campaign either.
- Relative to fine-dining restaurants, American-cuisine restaurants are willing to pay \$219 less for the "Fresh on the Menu" component. Different motivations make a significant difference in the WTP for Labeling. For instance, restaurants are willing to pay \$472 more if they are motivated by decreasing costs of ingredients instead of supporting the SC economy. Besides, restaurants are willing to pay \$217 more for "Fresh on the Menu" if their motivation is to improve the quality of ingredients since most believe SC produces better quality products. We also find satisfaction only affects the WTP for "Fresh on the Menu".

## Conclusions

- This study estimated the monetary value of various components of the *Certified SC Grown* campaign as reflected in the WTP by local restaurants. The participating restaurants would be willing to pay on average \$125.22, \$195.23, and \$212.53 per year for having Labeling, Multimedia Advertising, and "Fresh on the Menu" components, respectively.
- Restaurant image, satisfaction with the campaign, and motivation for participation are the main determinants of the WTP for "Fresh on the menu" and Labeling components. Restaurant size and indirect costs of participation in the campaign are not significantly related to the WTP for its components.
- Although, our findings reflect the view of participating restaurants only, the framework and survey instruments developed in this study can be applied to other program participants and beneficiaries (i.e., farmers, farmer's market vendors, grocery stores, etc.) in order to draw more general conclusions.

## References

- Revelt, D. and Train, K. (1998). Mixed logit with repeated choices: households' choices of appliance efficiency level. *Review of Economics and Statistics*, 80(4):647-657.
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