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Willingness to Pay More for Organic Foods by Tennessee Consumers

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Willingness to Pay More for Organic Foods by Tennessee

Consumers

Abstract

This paper examines the general knowledge of consumers regarding organic food and determines

their willingness to pay more for it. Data was collected on a random sample of grocery shoppers

in the state of Tennessee. The study reveals most of the respondents had a fair knowledge of what

organic food was. The number of respondents who had never purchased organic food was found

to be only slightly higher than the number who purchase it. A binary logistic regression found

income and Environmental concern to be factors that effectively determine willingness to pay more

for organic food.

Key Words: Organic food, Willingness to pay, Tennessee consumers

Introduction

U.S. consumer demand for organically produced goods has grown continuously since the USDA established national standards for organic production and processing in 2002 (USDA.gov). Organic food sales have also increased from approximately \$11 billion in 2004 to an estimated \$27 billion in 2012 (USDA.gov). Organic sales accounted for more than 3.5 percent of total U.S. food sales in 2012 (Osteen et al., 2012).

According to new ERS estimates, the U.S. had 3.1 million acres of certified organic cropland in 2011 and 2.3 million acres of certified organic pasture and rangeland, continuing the long-term growth trend in the sector (Green, 2013). The growth in organic agriculture is being experienced globally. This has increased the competition among producers and retailers for consumers. U.S. producers and retailers have been challenged to increase their output as well as the variety of organic food offering in an effort to meet rising demand. There has been significant attention paid to the industry due to diseases caused by the consumption of food with pesticide residue (Andreia & Eloisa, 2012).

The increase in consumers' concern about food quality is fueled in part by recent report of food contamination and the overuse of antibiotics in animal production. A number of food scandals have led to illness and in a lot of cases death. Consumers are also increasingly more conscious about their health since the health effects of the use of pesticides and fertilizers in conventional food production has been established to be detrimental.

Food Safety

Food consumption patterns are rapidly changing as a result of consumers' concern about the nutritional value of food as well as their health. Environmental and health concerns seem to be very strong motives for consumers when purchasing organic food (Tsakiridou, E. et al., 2008). The

concern for the choice of food consumers purchase and consume has been made prominent partly due to some recent food scares as well as the claim that organically grown food is healthier than conventionally grown food. Conventional food production is characterized by the use of heavy doses of synthetic pesticides and fertilizers which often leave residues in the edible portion of the crop. Consumers see organic food products to be healthier than non-organic food products because of the low levels of pesticide and medicine residues (Saba & Messina, 2003; Wier et al., 2008). They also view it as a safer option since they believe consuming it reduces their chances of being exposed to illnesses associated with pesticide residues. According to literature, these health concerns are addressed by organic farming and the employment of safer food processing methods (Furnham, 2007; Petrie et al., 2001).

The U.S. Organic food Industry

U.S. consumer demand for organically produced food has grown considerably since USDA established national standards for organic production and processing in 2002 (USDA.gov). Organic production in the various sectors of the U.S. agricultural industry has seen tremendous increase. Certified organic farmland doubled between 2002 and 2005 (Constance & Choi, 2010). Growing at a rate of between 12% and 21% percent annually, Organic food accounts for 3% of the total U.S. food sales and is expected to grow at a similar rate for the next few years (USDA, 2009). The United States is the leading producer and consumer of organic food followed by Europe and Japan (Helga & Kilcher, 2009). Despite the fact that the organic market share and growth rate differ substantially across countries (Organic Monitor, 2010; Thøgersen, 2010), it is obvious that organic food is rapidly becoming an important sector in the food industry. Simultaneously the organic food chain has been transformed from a local network of producers and consumers to a highly coordinated and formally regulated supply system (Raynolds, 2004).

Consumption of Organic Food

Among the fastest growing food trends in the US is the consumption of local and organic foods (Nie & Zepeda, 2011). This can be attributed to concerns among consumers about their health resulting in the demand for food perceived to be healthy. Consumers are ever more concerned about their nutrition, health and the quality of the food they eat (Gil et al., 2000). Consumer awareness of health related issues according to Phuah et al., (2011) has increased the organic food demand. Mohamad et al., (2014) stated that an increase in consumer awareness of their health and nutritional value of food has contributed to the increased demand for functional food, organic food, green food and natural food; thus increasing consumer willingness to pay more for organic food. Consumers are willing to pay more for food they believe will prevent them from getting sick.

Even though the market share for organic food continue to grow there are still a small section of the population who do not necessarily support the organic movement. These opponents believe that organic farming is far from being a perfect solution to unhealthy eating and that the claims made about organic agriculture and food cannot be scientifically supported (Huber et al., 2012; Pacnoski, 2009; Søltoft et al., 2011; Velimirov et al., 2010)

Willingness to Pay

The organic food market in the U.S. and some European countries such as France and the United Kingdom is characterized by particularly low market shares, although Switzerland, Denmark, and Austria report better shares (Biomonitor, 2009). Thus there is the need to understand why these market shares are low. Most literature attribute this to the fact that Organic foods are generally more expensive than non-organic food. ACNielsen (2005) reported that higher monetary

cost was perceived as the main barrier to organic food consumption for one third of respondents in the Asia Pacific region and over 40% of European and North American consumers.

Although consumers are concerned about their health and prefer to consume health foods and functional foods, there is the issue of the price tag that these so called healthy food attract. Organic food attract a higher price due to the labor intensity of organic food production. Organic food is also more prone to pest and diseases due to the lack of herbicides and pesticides usage in the production process.

A number of studies such as Owusu & Anifori, 2013; Dipeolu, 2009; Maguire et al., 2004; Govindasamy et al., 2006; Govindasamy and Italia, 1999; Obayelu, 2014; Aguilar and Vlosky 2007; De Pelsmacker, et al, 2005; Saphores et al., 2007 all found consumers to be willing to pay more for organic food to some degree.

However a small number of studies have reported WTP premiums closer to zero and in some cases to be negative. A study by Hu, (2009) found consumer preference and willingness to pay strongest for products identified as local, as opposed to products identified as organic. Loureiro and Hine (2002) also came to a similar conclusion when they detected a willingness to pay a higher premium for Colorado grown than for potatoes identified as organic. Krystallis and Chryssohoidis (2005), are of the view that consumption of organic food has not caught on with the general public due to the relatively higher prices, lack of availability, lack of awareness of the organic concept and uncertainty over the truthfulness of organic food claims. Pacnoski, (2009) also stress organic farming may satisfy more affluent consumers, but extending it to the poverty stricken communities would be disastrous since such areas are characterized by low income per capita. He implies those with higher levels of disposable income will be more willing to pay for organic food than those with lower levels of disposable income.

Methods and Data

A structured questionnaire was administered to a random sample of 81 grocery shoppers through the Survey Monkey platform. The survey was divided into four sections. The first section consisted of questions on consumer awareness of organic food and factors that determine their food purchasing behavior. After the first section respondents who indicated they purchased organic food were skipped to the third section while those who indicated they did not, moved to the second section. This section was aimed at finding out why non purchasers chose not to purchase organic food. The third section consisted of questions on respondents' organic food purchasing behavior. The last section was related to the respondents' demographic profile information.

The study employed descriptive analysis to assess the knowledge of consumers regarding organic food and employed the Binary logistic regression to determine factors that influence consumer's willingness to pay more for organic food.

A binary logistic regression was employed to determine the willingness of consumers to pay more for organic food.

The empirical model of the effect of a set of explanatory variables on organic food purchase behavior is specified using the following linear relationship:

$$Y = \beta_0 + \beta_1 income + \beta_2 env + \beta_3 foodsafety + \varepsilon_I$$

With Y taking on values of (1) where the respondent is willing to pay more for organic food and (0) where respondent indicates otherwise.

Table 1 shows a description of the independent variables used in the model

Results and Discussion

Demographics:

Approximately 55% of the total respondents were females while approximately 44% were males. The 2013 population estimate of the state of Tennessee show females constituted 51.2% of the population (Cencus.gov).

The household income of respondents were almost evenly distributed among the \$50,000.00 - \$75,000.00, \$76,000.00 - \$100,000.00 and >\$100,000.00 categories. Each of these categories had approximately 22% of the respondents falling within. Most of the respondents were highly educated. Approximately 80% had either attempted college, completed college and or completed a graduate degree. A greater percentage of respondents had a graduate degree.

Knowledge of Organic food:

Most of the respondents claimed they had a fare knowledge of what organic food was. This was expected considering the level of promotion the organic industry enjoy on mainstream media outlets in the U.S. Figure 1 shows a greater number of the respondents claimed they knew something about organic food.

A cross tabulation of respondents knowledge of organic food and their purchasing behavior in Table 2 reveal that most of the respondents who claim to know nothing about organic food fall in the category of non-purchasers. This shows that some knowledge of organic food to a large extent affects its purchase and subsequent consumption.

Respondents were asked whether they were familiar with the USDA organic certification standard. Table 3 reveal most of the respondents indicated they were unfamiliar with the USDA standards. Only 32.10% claimed they were familiar with the standards. Most of those who claimed they were familiar with the standards were purchasers of organic food. This result is expected since according to Shafie, F. A., & Rennie, D., (2012) familiarity with organic food practices influence

purchasing behavior. Literature stress that the more familiar an individual is about organic food practices, the greater the chances of said individual purchasing it.

More than half of the respondents claimed they could recognize the USDA organic food label however they were not presented with the label so these claims could not be verified.

Willingness to pay:

Table 4 shows the results of a binary logistic regression which was conducted with willingness to pay more as the dependent variable. The resulting model has a Nagelkerke R² statistic of .497 satisfactorily and explaining approximately 50% of the variance of the dependent variable however one of the variables was not significant. Two of the variables were significant. This indicates that willingness to pay according to our model is determined by consumers' income and their concerns for the environment. Both income and environment variables were significant at the 5% level.

The '< \$29,000.00' category was not significant whereas '\$30,000.00 - \$75,000.00' was significant at the 5% level. The '\$30,000.00 - \$75,000.00' category had an odds ratio of 12.061. This means respondents who fall in the '\$30,000.00 - \$75,000.00' income category had odds of being willing to pay more for organic food that are 12.061 the odds of respondents who fall in the \$76,000.00 - >\$100,000.00 category. In other words they are approximately 12 times more likely to be willing to pay more for organic food. Respondents in the < \$29,000.00 category were also more willing to pay more for organic food than respondents in the reference group (though not as much as '\$30,000.00 - \$75,000.00') even though it was not significant. This result was not expected since consumers with higher incomes were expected to be more willing to pay more for organic food considering it is more expensive. It can be argued that beyond a certain income level, income ceases to be a major factor in determining the willingness to pay more for some products. The

results show household income influence consumers' willingness to pay more for organic food at levels below \$75,000.00. Above \$75,000.00 it becomes irrelevant. Respondents who indicated they were concerned about the environment had odds of being willing to pay more for organic food that are 20.082 the odds of those who reported no concern for environmental issues such as biodiversity, deforestation, pollution etc. This was expected since organic produce and other ingredients are grown without the use of pesticides, synthetic fertilizers, sewage sludge, genetically modified organisms, or ionizing radiation. Organic food production also employs sustainable practices such as mechanical weed control, biological pest control etc.

Future plan for Organic food consumption

The study tried to find out the future plan of organic food purchasers since their continued patronage is very critical to the continued success of the industry. Even though the number of people who consume organic food has been increasing over the past decade it still remains a very minute portion of the total food purchasing population. It is essential that consumers who do not purchase organic food are enticed to start purchasing it. However it is more critical that those who already purchase it either maintain their current consumption or increase it. This creates an opportunity for actors along the value chain of organic products to expand their operations in order to meet this rise in demand. Figure 2 reveals 57% of purchasers of organic food indicated they are willing to increase their consumption while 43% indicated they would rather maintain their consumption.

Conclusion

An analysis of consumers knowledge of organic food revealed even though most of the respondents were not familiar with the USDA organic food standards, more than 60% of them could recognize the USDA organic food label, were familiar with organic food production practice

and were familiar with the makeup of organic food. This is encouraging since the knowledge of a product is critical in making the decision to purchase or not to purchase. Proponents of organic food need to educate the public on the benefits of consuming organic food over non-organic food so as to increase the organic food share in Tennessee.

The study reveals through a binary logistic regression that a higher income is not the sole factor that determine willingness to pay for organic food. Food retailers should find out the other factors that simulate consumers' organic food purchasing behavior so they are able to effectively market their products to the right consumer segment. The logistic regression also revealed consumers who are environmentally conscious are more willing to pay more for organic food. This group of consumers associate organic food with environmental protection and animal welfare. Therefore grocery retailers should encourage consumers in their advertising campaigns to perceive the benefits of buying organic fresh fruits and vegetables by stressing how patronizing it contributes to environment protection and animal welfare rather than concentrating solely on the health benefits aspect. Marketers should emphasize on communicating the environmental benefits related to the production and consumption of organic food.

None of the respondents who purchase organic food gave any indication of either reducing or stopping their consumption. All of them indicated they were willing to either increase or maintain their consumption. This scenario is encouraging since it indicates the level of organic food purchase and consumption will not reduce in the future.

Results of this study indicate consumer knowledge regarding organic food affects their purchasing. It also shows Tennessee consumers have a fair knowledge about what constitute organic food. Lastly higher income consumers are more willing to patronize organic food than consumers who have low income.

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Table 1: Description of independent variables used in the model.

Parameter	Label	Unit of Measurement	
Income (Categorical)	Inc	1 - <\$29,000.00 2 - \$30,000.00 - \$75,000.00	
Environmental Concerns (Dummy variable)	Env	3 - \$76,000.00 - \$100,000.00 1 - Important 0 - Unimportant	
Food safety Concerns (Dummy variable)	FoodSafety	1 – Important 0 - Unimportant	

Table 2: Cross tabulation of knowledge of Organic food and purchasing behavior.

		Organic food Purchasing Behavior		— Total
	Non-purchasers Pur		Purchasers	Total
Know nothing	Count	10	1	11
	% of total	90.90%	9.1%	100.0%
Know something	Count	30	29	59
	% of total	50.8%	49.2%	100.0%
Know a lot	Count	4	7	11
	% of total	36.4%	63.6%	100.0%
Total	Count	44	37	81
	% of total	54.30%	45.70%	100.0%
	70 01 total	2 1120 70	10.70 / 0	100.070

Table 3: Familiarity with USDA organic certification standards.

	Frequency	%	Non-Purchasers	Purchasers
Familiar	26	32.10%	9	17
Unfamiliar	55	67.90%	35	20

Table 4: Results of Logit Analysis on Willingness to pay more for organic food.

-2 log Likelihood		57.590	_			
Cox & Snell R Square		.334	_			
Nagelkerke R Squared		.497				
	В	S.E	Wald	df	Sig.	Exp(B)
Income			9.162	2	.010**	
< \$29,000.00	.279	.794	.124	1	.725	1.322
\$30,000.00 - \$75,000.00	2.490	.897	7.704	1	.006**	12.061
FoodSafety	062	.810	.006	1	.939	.940
Env.	3.000	.827	13.145	1	.000**	20.082
Constant	-1.036	.806	1.653	1	.199	.355

Source: Author's Computation,**, represents, 5% level of significance.

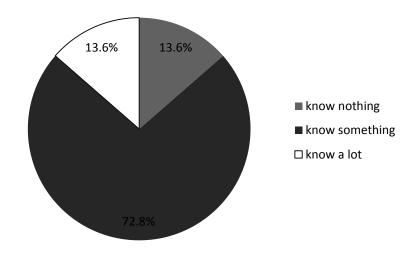


Figure 1: Respondent's knowledge of organic food

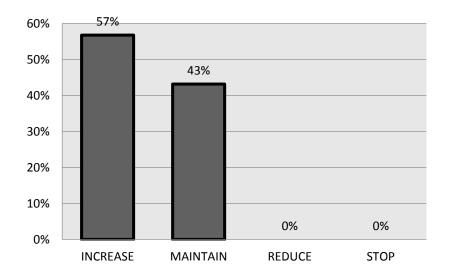


Figure 2: Future consumption plan