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Factors Affecting Consumers' Willingness to Pay for Certified Organic Food Products in United Arab Emirates

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Abstract

Organic food consumption is increasing among United Arab Emirates (UAE) consumers in the last few years. This increase is due to high per capita income, more awareness on healthy food and the diverse population. Consumers are willing to pay higher prices for the certified organic food products. The objective of this paper is to examine consumers' Willingness to Pay (WTP) for the organic food in UAE. Data was collected in UAE from 300 respondents. Regression model was used to identify major determinants of consumers WTP for the organic food. The results showed that majority of consumers responded positively when asked if they are willing to pay more for the organic food products. The age, nationality, education; household size and income were deciding factors for consumers to pay higher price for the organic food. These results will provide key information to organic food industry that will help to promote organic food markets in the UAE.

Keywords: organic food, willingness to pay, consumers' preferences, price premium

Introduction

According to the definition of the Codex Alimentarius (2007), "organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity. The cost of organic farming is higher than traditional farming due to state and private certifiers' fees, pesticides residue testing and other services. Studies also show that lower yield and higher cost per acre indicate a need for higher break-even prices, organic price premium, and new markets for organic production compared to conventional production (Wyman and Diercks 2003, Klonsky and Livingston 1994; Batte et al. 1993; Assadian et al. 1999). Organic farming has been suggested by many as an alternative enterprise to enhance farm profitability and survivability.

According to Global Survey on Organic Agriculture (2008), the global market for organic products reached a value of $71 billion in 2008 ($38.6 billion in 2006), with the vast majority of products being consumed in North America and Europe. Using 1997 sales data and annual growth rates from the International Trade Center ITC (2002), and assuming a linear trend, projected market size in 2012 will be at least $46 billion in the European Union, $45 billion in the United States, and $11 billion in Japan. A survey in Europe, North America, and Japan indicated that 20 to 30 percent of consumers purchase organic foods regularly. Healthy annual growth rates of 15 to 30 percent are expected to continue in the coming years. It is suggested that the ever-growing demand for organic products offers attractive opportunities for producers especially those in developing countries (Lohr 1998).

Some of the benefits associated with organic farming are improved soil tillage and productivity along with lower energy use and reduced use of pesticides (USDA 1980; Smolik et al. 1993). Organic farming is also used by several states to capture environmental benefits by subsidizing conversion to organic farming systems (Greene and Kremen 2003). Some of the management-intensive practices for organic systems and environmental benefits justify financial or other assistance to farmers who adopt these practices. Specialized production practices, high price premiums and new markets for organic products pose different types and sources of risks than conventional production. A few studies that have examined the yield, costs and profits, managerial requirements and other economic characteristics of organic farming have reported mixed results when comparing most features. However, it is important to identify and analyze factors that affect adoption of organic farming. These factors include assessing demand and consumption trends, factors affecting consumption, marketing strategies, identifying sources of risk in organic production and educating consumers and producers on key issues.

The alternative to conventional farming, known as organic farming, is based on the idea of responsible environmental behavior and tries to minimize the social costs associated with the conventional farming. It is an agricultural production system based on respect for natural cycles that sustain the health of soils, ecosystems, and people (Koocheki 2004). Organic farming is defined as "a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity. Organic production systems are based on specific and precise standards of production which aim at achieving optimal agro-ecosystems which are socially, ecologically and economically

sustainable (Haas 2006, FAO 1999)". Organic products, on the other hand, are the products that come from organic production processes or from organic farming (Alvares et al. 1999).

The practice of organic farming involves the maintenance of soil health, conservation of resources, and nature-driven management of weeds and disease. Techniques and concepts utilized to this end include crop rotation, cover crops, green manures, biological controls, and incorporation of biodiversity (Guthman 2000). It avoids the use of synthetic pesticides, herbicides, chemical fertilizers, growth hormones, antibiotics or gene manipulation. Instead, organic farmers use a range of techniques that help sustain ecosystems and reduce pollution. It dramatically reduces external inputs by refraining from the use of chemo-synthetic fertilizers, pesticides and pharmaceuticals. Instead, it allows the powerful laws of nature to increase both agricultural yields and disease resistance (Adeoye 2005).

As opposed to conventional farming, organic farming is known for its friendly environmental and human practices. A study carried out by FAO (1998) has shown that an adequate management of organic farming generates a positive impact on the environment (e.g., reduction of water "contamination", increased soil fertility due to crop rotation). On the demand side, consumers have positive attitudes towards organic products as they perceive them as healthier than conventional alternatives (Beharrel and MacFie 1991).

The natural question then arises that why not the farmers abandon the conventional farming techniques, known for so much of undesirable consequences, and adopt with the more environmental and human friendly organic farming. The answer, to a greater extent, is provided by the relative price differentials in the organic and conventionally produced products (Gil et al. 2001). There is abundance of research showing that the cost of producing organic products is higher than that of conventionally produced products (Barkley 2002, Belicka and Bleidere 2005). This is so because organic products must meet the criteria of being organic, must be distinguishable from the conventional products and must be certified by a recognized agency. All these activities are costly (Haghjou et al. 2013) and hence are reflected in the private cost and prices of the organic products. The certification process in particular is very troublesome for the farmer which requires farmers not to use any synthetic substances on their fields for a specified period, usually in years, before they are registered as organic producers. Note that the private cost benefit analysis is based on market valuation and if we include the indirect costs and benefits, which are not considered by the market, organic products might have net benefits as compared to conventionally produced products.

However, despite higher prices, consumer around the world are increasingly becoming aware of the negative consequences of the conventional farming and are consuming organic products (Aryal et al. 2009, Pinna et al. 2014, Van Elzakker et al. 2007, Ghorbani et al. 2007). It means that consumer would not compromise on their health and environment and would pay a price premium instead to protect the two. In this regard, we needs to understand the two inter-related terms, consumers' awareness and their Willingness to Pay (WTP hereafter), which governs whether or not the consumer will consume a particular product.

Willingness to Pay (WTP) is measured using either the stated preference methods or the revealed preference method (Sanchez et al. 2001, Umberger et al. 2002, Nakaweesa 2006). The revealed

preference method involves observing the actual expenditure made by the consumers in the market place to obtain goods. The stated preference methods, i.e. the conjoint analysis and contingent valuation among others (Kroes & Sheldon 1988), are based on asking the consumers about their WTP for a particular good (King et al. 2000). The stated preference methods are good in case where there are no established markets for the product under consideration but are subject to much criticism (Diamond and Hausman 1994, Nalley 2004, Lusk and Hudson 2004).

The WTP for organic food can be divided into two categories; i.e. product related factors and consumers related factors. The product related factors that influences consumers' WTP are product price (Bhatta et al. 2009, Aryal et al. 2009), product quality (Bhatta et al. 2009), product type (perishable or non-perishable) and origin of production (Gil et al. 2001), knowledge of the product (Piyasiri et al. 2002, Coulibaly et al. 2011, Haghjou et al. 2013), labeling (Pinna et al. 2014) and regularity in supply (Coulibaly et al. 2011). Consumer related factors are income, age, education, gender, occupation, family size and type of the consumers (Piyasiri et al. 2002, Pinna et al. 2014, Bhatta et al. 2009, Govindasamy & Italia 1998, haghjou et al. 2013). Additionally, consumers' WTP is also affected by peers opinion, awareness (i.e. awareness about the harmful effects of consuming traditionally produced food products), habits and socio-cultural factors (Straughan & Roberts 1999, Janssen & Jager 2002, Piyasiri et al. 2002, Govindasamy & Italia 1998; Haghjou et al. 2013). Note that the current study focus on only consumers related factors and their influence on WTP.

Data and Methodology

The study is based on a sample survey of 300 randomly selected respondents from United Arab Emirates. The data is collected through a questionnaire containing questions on awareness about organic food, WTP for organic food and on various socio-demographics of the respondents. The analytics, in order to know what determines consumers' WTP for organic food. The regression model could be specified as;

$$WTP_i = \alpha_0 + \alpha_1 AW_i + \alpha_2 AG_i + \alpha_3 GR_i + \alpha_4 NY_i + \alpha_5 ED_i + \alpha_6 MI_i + \alpha_7 ES_i + \alpha_8 HS_i + \epsilon_i$$

A consumer's willingness to pay (WTP) is best represented by his demand (and if we assume zero consumer surplus, then the two identities are actually the same because the only difference between the two is consumer surplus). Therefore, the dependent variable in the above specification, WTP, is represented by consumer's expenditure on organic food as a percentage of total food expenditure. The independent variables include Awareness, Age, Gender, Nationality, Education, Monthly Income, Employment Status, and Household Size.

Since the dependent variable in the regression model is a continuous variable, the appropriate estimation method is the ordinary least squares (OLS), provided that the basic Guass Markov properties are satisfied.

Results and Discussion

The regression results for WTP are presented in Table 1. The model is estimated using the OLS method and the model is tested against Multicollinearity (using Variance Inflating Factor criteria), Heteroskedasticity (using White's heteroskedasticty test) and misspecification errors (using Ramsey's RESET test).

Table 1. WTP for Organic Food

Variable	Coefficient		Std. Error	t-Statistics	p- Value
Awareness	2.075		4.749	0.437	0.663
Age	55.768	**	27.998	1.992	0.048
Gender	12.263		24.593	0.499	0.619
Nationality	55.090	***	32.504	1/695	0.092
Education	70.241	***	40.223	1.746	0.082
Monthly Income	64.218	**	28.181	2.279	0.024
Employment Status	-31.689		28.182	-1/124	0.262
Household Size	15.145	*	2.916	5.195	0.000
Constant	-138.050	**	65.684	-2.102	0.037

Note. *, **, *** represents significant at 99%, 95% and 90% level of confidence respectively.

The Table 1 reports the regression results of WTP of the consumers. Considering only variables that has statistical significance, consumers' WTP for organic food is influenced by their age, nationality, education, monthly income and household size. Age has a positive and significant influence on consumers' WTP for organic food, i.e. the result implies that WTP for organic food increases with the age. This finding is slightly different from the findings of other researchers who claim that WTP for organic food is the highest at the middle age (25-40) but our finding has more than one logical reason in its support. First, education and income usually increases with age which also has a positive and significant impact on consumers' WTP for organic food. Second, young people's health consciousness is a rare phenomenon but as the people gets older and the diseases of aging caught up their minds, they become more and more health conscious. Thus as their age increases, more threat is posed by various diseases and hence their WTP for healthier food also increases. The other reason could be a large young expat population working in the low paid jobs and older population represents different ethnic population (local origin) with high income, education and more resources.

Nationality, education and monthly income are the other important factors that influence consumer's WTP for organic food positively and significantly. Education and monthly income has often been sighted as the important factors to influence WTP but nationality, in our findings, is a new variable that turn out to influence consumers' WTP for organic food. As mentioned earlier, this implies that people from Emirates origin are more willing to pay for organic food than non-emirates and the reasons are clear; the immigrants are usually low paid workers and lack the necessary knowledge and resources to consume organic food.

Household size is usually reported as having negative influence on consumers' WTP for organic food, as feeding more people out of limited resources becomes increasingly difficult. But our findings reveals the polar opposite case, i.e. larger is the household size-the more is their WTP for organic food. The obvious reason for such finding is that majority of Emirates population

have traditionally a large household size and more resources compared to others. The results will help organic industry to identify and target certain population segments that are willing to pay for the organic food products. The finding will play a vital role in promoting organic food in UAE.

Conclusions and Recommendations

Conventional farming, to a greater degree, achieved the goals of providing food for the majority but at the cost of damaging the environment and human health. Organic farming, on the other hand, is environment and human friendly farming which avoids the use of synthetic chemicals and other residues considered harmful for the human planet. However, organic farming and organic food is a relatively new phenomenon and very few people around the world are aware of its beneficial impacts on the environment and human health. Besides, organic food is relatively expensive as compared to conventionally produced food and hence WTP for the two types of food differs amongst individuals. In order to encourage organic farming and the production of organic food, market for the organic food will have to be established so that organic farmers gets an outlet for their products. But the establishment of a market for organic food depends on knowing what factors influence consumers' awareness and their WTP for organic food. Once such factors are ascertained, then the farmers will be better equipped to market their organic products. The current study is an attempt to achieve these two objectives for those who want to market their organic food products in the United Arab Emirates.

The study utilizes sample data and contemporary econometric techniques to investigate factors that influence WTP for organic food. Our findings regarding consumers' WTP for organic food imply that aged people from emirates origin having more education and income are willing to pay a price premium for organic food products. The results will help organic food industry in UAE to understand and identify factors that are affecting consumers WTPs. These results will provide key information to organic food industry that will help to promote organic food markets in the UAE.

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