

Consumer Attitudes toward the Purchase of Organic Products in China

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Abstract

This study investigates Chinese consumers' levels of awareness of and attitudes toward organically produced food products. We focused specifically on the characteristics of safety, health value, concern for environmental degradation, taste and price. We then tested how these covariates contribute to purchase decisions for organic foods.

Key words: organic products; food safety; environment; price

JEL classification: D11; D12

1. Introduction

A concern for food quality drives many consumers to products where quality and safety attributes are guaranteed through third-party certification. For some, organic products have enhanced value and are seen as safer than conventional products. Organic foods are thought to be free of the questionable ingredients and chemical residues that non-certified products may include. Issues such as environmental sustainability, health, food quality, support for farmers and local businesses, and a concern for animal rights contribute to the value placed on organic foods (e.g., Basha et al., 2015; Magnusson et al., 2001).

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Recently, the media has focused on the food industry in China. Several high-profile tainted food scandals have shaken confidence in food production and distribution. These incidents have included infant formula contaminated with the industrial chemical melamine, meat containing the banned steroid clenbuterol, cadmium contaminated rice, and cooking oil recycled from street gutters (e.g., Huang, 2012). These have had significant consequences for consumers, who are consequently paying increased attention to food safety. This has provided an increasing opportunity for the marketing of organic food products. Further, with rising affluence and growing disposable incomes, Chinese consumers are becoming more demanding. As a consequence, the issue of food safety has increased in importance. Consumers now tend to purchase healthier and more nutritious foods and are willing to pay for quality.

However, there has been inadequate study of attitudes toward organic products in China, with no empirical research focused on purchasing behavior. Chan (2001) and Yin et al. (2010) addressed intentions to purchase organic products, while Chan and Lau (2001) conducted a cross-national study of American and Chinese consumers' intentions to purchase organic products. The Yin et al. (2010) study showed that these intentions were strongly affected by individual factors such as income, degree of trust in organic foods and certifications, acceptance of organic food prices, and self-health behaviors. Xu and Wu (2009) investigated Chinese consumers' perception of food safety and their willingness to pay for certified, traceable food. They demonstrated consumer dissatisfaction with food safety conditions and found most are unwilling to pay higher prices for certified, traceable food.

The consumer market for such products in China is at an early stage of development, with many barriers to overcome. These influence supply as well as demand for organic produce and are likely to have an impact on the domestic organic food market. Thus, an understanding of the factors motivating consumers to purchase organic products may help consumers interested in organics, along with producers and marketers of organics. It may also help government design educational strategies for consumers on the benefits of organic consumption. The present study examines the hypothesis that a range of consumer variables—attitudes, lifestyles, socioeconomic status, and knowledge of organic products and issues related to organic production—will have differential impacts on consumers' purchase behaviors.

This project measured consumer attitudes toward organically produced food products in Kunming, Yunnan Province, China. Our analysis employed a logistic regression model to identify sociodemographic and attitudinal factors related to consumers' organic food purchase decisions. These included perceptions of food safety, the impact of organic consumption on health, effects of food production on the environment, purchase convenience, consumption ethics, lifestyle, food labels, and price expectations.

The study is organized as follows. After an introduction to the literature focused on the factors that influence consumers in their decision-making process, we

describe the data collection methods and the shape of the analysis. Our use of factor analysis is then described. We then present our analytic model, followed by the results of our analysis. The results section is separated into respondents' demographic characteristics, attitudes toward organic products, and behavioral subsections. Analytic results are then presented and discussed. We then end the report with conclusions, recognition of limitations, and implications.

2. Factors Affecting Consumers' Decisions to Purchase Organic Products

Organic food products may be significantly more expensive than conventional products. Consumers may be willing to pay a premium for organic foods if they believe them to possess desirable qualities that conventional alternatives cannot deliver. The most important characteristics are likely to be credence attributes such as healthfulness, environmental friendliness, and enhanced sensory values (e.g., taste). While consumers can test the sensory values through appearance, aroma and taste, credence is not easy to ascertain. Even so, Yiridoe et al. (2005) postulated that organic purchase decisions are based on the belief in such credence attributes. Credence-related health values are often primary motives for organic food purchases (e.g., Hughner et al., 2007). Thus many people prefer to buy organic food when they believe it to be free from chemical residues and artificial ingredients (e.g., Lim et al., 2014; Sangkumchaliang and Huang, 2012; Yin et al., 2010).

Concerned consumers show preference for organic foods via purchase (e.g., Gracia and Magistris, 2007). Buyers valuing convenience are less likely to buy organic produce (e.g., Chen, 2007; Zakowska-Biemans, 2011). Ahmad and Juhdi (2010) documented an inclination to purchase organic foods when a family member suffers chronic illness. In addition, concern over safety motivates some organic food purchases (e.g., Huang et al., 1999; McEachern and McClean, 2002). Few studies, however, have found a significant relationship between health-related factors and organic food purchase intention (e.g., Chen, 2007; Lockie et al., 2004). Pino et al. (2012) suggested that safety concerns and health consciousness only occasionally affect attitudes, while regular consumers purchase for other reasons. There is a high degree of consistency across studies of organic food consumption in China; health-related factors are strong motivators (e.g., Chen and Lobo, 2012; Sirieix et al., 2011; Thøgersen and Zhou, 2012; Yin et al., 2010).

Environmental values and animal welfare concerns also motivate organic food purchase. Consumers engaged with environmental issues and involved in "green practices" are more likely to buy organic products, as these are believed to be environmentally friendly (e.g., Lockie et al., 2004; Voona et al., 2011). Similarly, those concerned with ethical treatment of animals tend to purchase organic animal-derived food, since they believe organic production processes are better for animal welfare (e.g., Chen, 2007; Millock et al., 2004; Zanolini et al., 2013). Nevertheless, animal welfare has received modest research attention.

Sensory values also influence the decision to buy organic (e.g., Lockie et al., 2004; Zakowska-Biemans, 2011). Apart from credence value, consumers' attitudes

toward organic food may come from sensory attributes such as taste and visual appeal (e.g., Ahmad and Juhdi, 2010; Ghorbani and Hamraz, 2009; Torjusen, et al., 2001; Wier et al., 2008). Hughner et al. (2007) argued that people practicing a hedonistic lifestyle include sensory characteristics in the purchase decision.

Product knowledge has an important role in forming attitudes toward organic food. Consumers who possess good knowledge of organic foods and production methods are thus more likely to choose organic products (e.g., Gracia and Magistris, 2007; Saleki et al., 2012). Further, a lack of knowledge about organic production is a barrier to organic purchasing, especially in developing countries (e.g., Gracia and Magistris, 2007; Roitner-Schobesberger et al., 2008; Yin et al., 2010). Zander and Hamm (2010) indicated that organic food purchasers tend to search more for information, while non-organic consumers are likely to have less information about organics. Further, consumers' past experiences with organic products affect their subsequent purchases (e.g., Hughner et al., 2007; Suh et al., 2012; Thøgersen and Zhou, 2012).

Sociodemographic characteristics have a somewhat weaker influence on intentions to buy organic products (e.g., Gracia and Magistris, 2007). Studies examining the effects of gender, age, marital status, presence of children, education, and income on consumers' behaviors toward organic foods have failed to provide a clear profile of organic buyers, with only small relationships emerging (e.g., Pearson et al., 2011).

There is general consensus that women are more likely to buy organic food, since they are most often the main food shopper in the family and pay attention to health and environmental issues (e.g., McEachern and McClean, 2002; Pearson et al., 2011; Ureña et al., 2008). Married consumers have also been found to have a preference for organic products (e.g., Dimitri and Dettmann, 2012; Ward et al., 2012). However, the effect of age on the decision to buy organic food is equivocal. Findings from Thompson (1998) and Onyango et al. (2007) show that young consumers express more interest in organic food. In contrast, older buyers were more likely to buy organic products in the studies by Magnusson et al. (2001) and Ghorbani and Hamraz (2009). This difference may be due to a more open-minded attitude of young people and their interest in trendy products (such as organics). It is also likely that their purchase intentions are limited by low disposable incomes (e.g., Magnusson et al., 2001; Żakowska-Biemans, 2009). Other studies have documented a minor relationship between age and organic food purchase intention (e.g., Paul and Rana, 2012; Yin et al., 2010). Having children in a household is one of the primary reasons consumers choose organic foods (e.g., Sangkumchaliang and Huang, 2012; Thompson and Kidwell, 1998; Ward et al., 2012). However, this has been found to have an insignificant effect on intention to purchase organically produced food (e.g., Millock et al., 2004; Yin et al., 2010).

Educated consumers are likely to have more knowledge of organic products and higher incomes with which to afford any price premium associated with them. They are therefore more likely to purchase organics. The effect of this factor was significant in studies by Thøgersen and Zhou (2012) and Zepeda and Li (2007).

However, education was an insignificant influence on purchase in the Yin et al. (2010) study.

As with education, studies of the impact of income on organic product purchases are mixed. The contention that consumers with high incomes are more likely to purchase organic foods is supported by the findings of Millock et al. (2004) and Dimitri and Dettmann (2012). However, studies by Onyango et al. (2007), Paul and Rana (2012), and Zepeda and Li (2007) did not find a significant relationship between income and organic food purchase.

The literature focused on organic foods has also found impediments to organic food purchases. Several studies have identified price as the primary deterrent in both developed and developing markets (e.g., Suh et al., 2012; Yadav and Pathak, 2016; Yin et al., 2010; Zagata, 2012). This was followed by a lack of availability (e.g., Paul and Rana, 2012; Sangkumchaliang and Huang, 2012; Żakowska-Biemans, 2009) and lack of information about the product (e.g., Sangkumchaliang and Huang, 2012; Żakowska-Biemans, 2009). Other studies (e.g., Chen, 2007; Dimitri and Dettmann, 2012; Zagata, 2012) reveal that the inconvenience associated with purchasing organic products is another obstacle. Yin et al. (2010) found only a weak effect for inconvenience. Trust has also been shown to mediate the relationships among information, knowledge about organic foods, and the intention to purchase organic products (e.g., Nuttavuthisit and Thøgersen, 2015; Teng and Wang, 2015).

Whether foods are conventionally or organically produced is indeterminate without an organic label at the point of purchase, suggesting that organic labels might promote more frequent purchases (Bauer et al., 2013). However, organic food mislabeling, ambiguous labeling, and the failure of organic labels to differentiate organic food from alternatives may have a negative effect on a purchase decision (e.g., Giannakas, 2002; Roitner-Schobesberger et al., 2008; Żakowska-Biemans, 2009). Furthermore, a lack of trust in organic certification may contribute to consumer reluctance to buy organic food products (e.g., Suh et al., 2012; Voona et al., 2011; Yin et al., 2010).

In sum, the preference for organic food appears to depend upon the perception of and knowledge about the attributes claimed for organic products. These include impact on health, on the environment, animal welfare, and greater sensory appeal. Beyond these, organic food purchase behavior may be influenced by trust in organic certification and the products' labels, consumer experience with organic food, and the availability of the products where they reside. Purchasers are more likely to be women, in families with young children, have higher levels of education, higher incomes, and who actively pursue healthy lifestyles. Studies have recognised that high price, limited information, confusing labels, and purchase inconvenience are hindrances to more wide-spread purchases of organic foods.

3. Data and Methods

Data were obtained by a structured questionnaire. The questionnaire was derived from the literature on organic food consumers and the activities of

businesses servicing the organic foods marketplace. The questionnaire was translated into Chinese before administration via face-to-face interviews to minimize misunderstanding of the questions. Pretesting of the questionnaire was conducted with a sample of 30 shoppers in Kunming City. The pre-test was also used to assess the internal reliability of the device and the constructs thus measured.

Organic food product consumers' data were obtained through a survey conducted by postgraduate students from Yunnan Normal University at retail food stores where organic and/or conventional products were sold during the month of October 2015. Stores were chosen to ensure the variability of household characteristics of those participating in the study. These sites were situated in neighborhoods that were homogeneous in terms of neighborhood household incomes, education levels, and occupations, but which all varied between neighborhoods. The stores chosen to participate included hypermarkets, supermarkets, convenience stores, health food stores, and traditional retail markets known as "fresh markets."

The survey contained measures of general information about organic food products, consumers' purchasing behavior and attitudes toward organic food products, organic food product buyers, non-organic food product buyers, and demographic characteristics of the consumers. The survey instrument employed open-ended and close-ended questions with checklists and Likert and rating scales, where the open-ended items allowed respondents to comment on the subjects of organic food production, distribution, and purchasing. In all, 700 questionnaires were distributed.

Respondents were recruited by the intercept method, approached while shopping in one of the food stores offering a broad range of organic products with a variety of brands. To avoid sample selection bias, an equal sampling of consumers who appeared to be organic and conventional produce purchasers were approached. A total of 680 people agreed to be interviewed. From these, 675 transcripts were complete and useable—the remaining 5 questionnaires were discarded as the interviewers' handwriting was illegible.

3.1 Factor Analysis

Exploratory factor analysis was used to condense the large number of items measuring consumers' attitudes. These were related to price, health, environment, convenience, label, ethics, lifestyle, food safety, and their perceptions about organic food product features. The latent root criterion (eigenvalue) was used to determine the number of factors to be retained. As is common practice, an eigenvalue greater than 1 was adopted for the present study.

Twenty-eight items were extracted into a 10-factor solution. These were named Price, Health benefit, Environmental benefit, Convenience, Label, Health concern, Ethical concern, Environmental concern, Lifestyle, and Food safety. The items used to measure each construct were tested for reliability using Cronbach's alpha, with 0.30 as the cut-off, following the suggestions of Hair et al. (2006) and Raubenheimer (2004) for exploratory studies. This criterion is justified in that we

have a large sample size and a large number of variables being analyzed. This yielded acceptable alphas for all 10 constructs. The scores of the items comprising each factor were calculated by averaging over the number of the items that loaded on the factor (see Table 1). Factor scores were then used in the subsequent analysis, which included the test of the empirical model examining consumers' purchases of organic food products.

Table 1. Rotated Component Matrix for the Respondents' Attitudes toward Price, Health, Environmental Benefit, Convenience, Label, Health Concern, Ethical Concern, Environmental Concern, Lifestyle, and Food Safety Factors

	VARIMAX Rotated Loading				Commonalities
	F1	F2	F3	F4	
Factor 1: Price					
Organic products are more expensive than conventional products.	0.654				0.577
Price of organic products is a barrier to decision to buy.	0.767				0.632
Factor 2: Health benefit					
There are no preservatives in organic foods.		0.801			0.724
Organic production does not use chemical pesticides or fertilizers.		0.748			0.696
Factor 3: Environmental benefit					
Organic products are more ecologically sound than conventional products.			0.739		0.690
Products grown "organic" are obtained from sustainable resources and less polluted discharges into air, water, and soil than that grown conventionally.			0.789		0.741
I believe organic food consumption contributes to protecting the environment.			0.786		0.718
Factor 4: Convenience					
Organic products are not easily found in grocery stores compared with conventional products.				0.689	0.643
There is a small variety of organic products compared with conventional products.				0.732	0.659
Eigenvalues	1.090	1.312	2.933	1.446	
Variance explained (%)	1.730	2.083	4.656	2.296	
Cumulative variance (%)	1.730	3.813	8.469	10.765	
Number of items	2	2	3	2	
Cronbach's alpha	0.514	0.724	0.862	0.713	
Inter-item correlation	0.348	0.568	0.676	0.555	

Table 1. Rotated Component Matrix for the Respondents' Attitudes toward Price, Health, Environmental Benefit, Convenience, Label, Health Concern, Ethical Concern, Environmental Concern, Lifestyle, and Food Safety Factors (Continued)

	VARIMAX Rotated Loading			Commonalties
	F5	F6	F7	
Factor 5: Label				
Organic food labels are confusing.	0.767			0.618
Organic food labels can easily be imitated.	0.626			0.539
I don't know what organic food labels look like.	0.485			0.433
Factor 6: Health concern				
I worry that there are harmful chemicals in my food.		0.397		0.505
I do not eat foods with additives and preservatives.		0.383		0.511
I am concerned about drinking water quality.		0.471		0.501
I usually read the ingredients labels on the foods I consider purchasing.		0.727		0.617
I read health-related articles in newspaper, magazines, and books.		0.693		0.598
Factor 7: Ethical concern				
Buying organic food product shows that I believe in the fair treatment of animals.			0.789	0.698
I buy meat and eggs produced in a way that does not cause the animals pain or suffering.			0.706	0.567
Eigenvalues	1.645	1.702	2.365	
Variance explained (%)	2.611	2.701	3.755	
Cumulative variance (%)	13.376	16.077	19.832	
Number of items	3	5	2	
Cronbach's alpha	0.594	0.692	0.661	
Inter-item correlation	0.333	0.318	0.495	
	VARIMAX Rotated Loading			Commonalties
	F8	F9	F10	
Factor 8: Environmental concern				
Saving energy is an important goal for me.	0.578			0.540
I recycle (e.g., plastic bottles, newspapers).	0.544			0.505
I take my own shopping bag when I go to the market.	0.504			0.515
Climate change is a serious issue to me.	0.630			0.573
Factor 9: Lifestyle				
I avoid eating snacks.		0.559		0.518
I exercise regularly.		0.758		0.664
I am generally in good health.		0.602		0.636

Table 1. Rotated Component Matrix for the Respondents' Attitudes toward Price, Health, Environmental Benefit, Convenience, Label, Health Concern, Ethical Concern, Environmental Concern, Lifestyle, and Food Safety Factors (Continued)

	VARIMAX Rotated Loading			Commonalties
	F8	F9	F10	
Factor 10: Food safety				
All restaurants should be inspected for cleanliness.			0.655	0.545
I don't think the government is doing enough to prevent food contamination.			0.778	0.666
I always carefully wash my hands before I prepare something to eat.			0.421	0.448
Food manufacturers are not doing enough to prevent food contamination.			0.674	0.620
Pesticide residues in food cause illnesses in humans.			0.621	0.638
Eigenvalues	3.486	1.584	10.996	
Variance explained (%)	5.533	2.514	17.454	
Cumulative variance (%)	25.365	27.879	45.333	
Number of items	4	3	5	
Cronbach's alpha	0.652	0.590	0.801	
Inter-item correlation	0.325	0.331	0.449	

3.2 Empirical Model of Consumers' Purchase of Organic Products

For many commodities and services, choice is discrete; traditional demand theory has to be modified to analyze such a choice (e.g., Ben-Akiva and Lerman, 1985; Gracia and Magistris, 2008). Models for determining discrete choice, such as the purchase of organic products or not, is known as a qualitative choice model. The decision to buy or not buy organic foodstuffs falls into the qualitative choice framework. Assuming the random term has a logistic distribution, then the decision represents a standard binary logit model. However, if it is assumed that the random term is normal, the model becomes the binary probit model (Maddala, 1993; Greene, 2000). We choose the logit model because it better describes the purchase decision. Given the mixed results of previous studies that have included the variables of interest here and the exploratory nature of the project, the simplicity of the logit procedure is a more suitable fit. The logit model is estimated by the maximum likelihood method used in STATA software.

Purchase behavior toward organic food is hypothesized to be influenced by a set of demographic and attitudinal factors known to be relevant to organic food purchase decisions. These include household size and structure, age, gender, income, marital status, and education. Following the theoretical model developed from the S-O-R model by Lee and Yun (2015) and the findings of Yadav and Pathak (2016), which indicate that utilitarian and hedonic attitude are the major motivators of organic purchase intention, health-related behaviors, degree of concern for food safety, and the environment and taste were added as explanatory variables in the

model. In addition, as suggested by the literature, we also tested the influence of convenience, ethical values, lifestyle, label, knowledge, and prices on consumers' decision to buy organic produce.

The impact of these factors on the purchase decision can be implicitly written under the general form:

$$\begin{aligned}
 PURCHASE = & B_HEALTH + B_ENVIRONMENT \\
 & + CONVENIENCE + LABEL + C_HEALTH \\
 & + C_ETHICS + C_ENVIRONMENT + LIFESTYLE \\
 & + SAFETY + PRICE + HH_SIZE + TASTE \\
 & + INCOME + KNOWLEDGE + GENDER \\
 & + AGE(Dummy) + HH_STRUCTURE(Dummy)_i \\
 & + MARITAL(Dummy) + EDU(Dummy) + \varepsilon
 \end{aligned} \tag{1}$$

Table 2. Model Variable Definitions

Variable Name	Description	Priori Sign
<i>B_HEALTH</i>	Perceived benefit to health	+
<i>B_ENVIRONMENT</i>	Perceived impact on the environment	+
<i>CONVENIENCE</i>	Convenience in purchasing and preparing	-
<i>LABEL</i>	Presence of informative label	-
<i>C_HEALTH</i>	Degree of concern for health	+
<i>C_ETHICS</i>	Degree of concern over ethics of production	+
<i>C_ENVIRONMENT</i>	Degree of concern for environmental impact	+
<i>LIFESTYLE</i>	Type of consumer's lifestyle	+
<i>SAFETY</i>	Degree of concern for product safety	+
<i>PRICE</i>	Perception of price of organic products	-
<i>HH_SIZE</i>	Number of members of household	+
<i>TASTE</i>	1 if respondent perceives organic products taste better than conventional products, 0 otherwise	+
<i>INCOME</i>	1 if respondent has income higher than RMB6000 ¹ , 0 otherwise	+
<i>KNOWLEDGE</i>	1 if respondent has some knowledge of organic products, 0 otherwise	+
<i>GENDER</i>	1 if respondent is female, 0 male	+
<i>AGE (Dummy)</i>	1 if respondent is younger than 36 years of age ² , 0 otherwise	+/-
<i>HH_STRUCTURE (Dummy)</i>	1 if respondent has no child, 0 otherwise	-
<i>MARITAL (Dummy)</i>	1 if respondent is married/engaged/in de facto relationship, 0 otherwise	+
<i>EDU (Dummy)</i>	1 if respondent has completed bachelor degree or higher	+
ε	Error term	

¹ Previous studies have utilized this figure.

² Thirty-six years of age is the median value for the sample.

The discrete dependent variable, *PURCHASE*, measures whether an individual *i* has or has not purchased organic products for home consumption. The dependent variable is based on the question: “Did you buy any organic products in the past year?” The definitions of the model variables are presented in Table 2.

4. Results

4.1 Survey Respondents Profile

Table 3 presents the profile of the respondents. A total of 446 (66.1%) respondents claimed they had purchased organic products, with the remaining 229 (33.9%) claiming they had not. Of those who purchased organic products, 67.2% were female, while 63.2% of the total non-purchasers were female. The largest group of organic product purchasers (36.3%) fell in the 18-to-25 years of age category. The 26-to-35 years category captured 31.5%. In contrast, most of the non-purchasers were in the 18-to-25 years category (39.0%), followed by those in the 26-to-35 years group (36.3%). The results also showed that 36.8% of the respondents had completed a bachelor’s degree, with 22.5% having a 3-year college diploma. In addition, 37.3% of the respondents who purchased organic products held a bachelor’s degree, compared to 35.9% of the non-purchasers. For occupation, 21.4% of the respondents were business employees, followed by normal company staff (16.4%) and the self-employed (14.3%). More than half of the organic purchasers (58.7%) were married or in de facto relationships. Similarly, the majority of non-purchasers of organic products were married or in de facto relationships (50.2%).

Table 3 also shows the proportion of households with children, either couples or single-parent households (46.2%) versus those without, which includes singles, couples without children, extended families, and the other classification (53.8%). The modal household income category was RMB 4,001-to-6,000 (24.8%), followed by the RMB 2,001-to-4,000 category (20.8%). From the table, one can see that the households with higher income are more likely to purchase organic products. For example, 13.8% of the households with the highest monthly income (over RMB 10,000) were purchasers of organic products, compared to 7.7% non-purchasers.

4.2 Respondents’ Attitudes toward Price, Health, Environmental, Convenience, Label, Ethics, Lifestyle, and Food Safety Factors

Table 4 presents respondents’ general attitudes toward price, health, environmental impact, convenience, label, ethics, lifestyle, and food safety. These were calculated using the mean scores and standard deviations of the Likert-scaled statements. Food safety tops the list of consumers’ perceptions. When asked to identify the most important issues, most of the respondents strongly agreed that “all restaurants should be inspected for cleanliness” followed by “the government is not doing enough to prevent food contamination,” “food manufacturers are doing

enough to prevent food contamination,” and they “wash their hands before preparing something to eat.”

Table 3. Profile of the Survey Respondents

	Organic Product Purchasers (n = 446)	Organic Product Non-Purchasers (n = 229)	Total: Purchasers + Non-Purchasers (n = 675)
Gender			
Male	32.81	36.77	34.13
Female	67.19	63.23	65.87
Age			
18 ¹ -25	36.26	39.01	37.18
26-35	31.53	36.32	33.13
36-45	21.62	14.35	19.19
46-55	6.98	8.97	7.65
Older than 55	3.60	1.35	2.85
Marital status			
Single	40.22	47.09	42.51
Married/de facto/engaged	58.66	50.22	55.84
Divorced/separated/widowed	1.12	2.69	1.65
Education			
No formal education	1.12	0.90	1.05
Primary school	3.60	3.59	3.59
Middle school	10.11	6.73	8.98
Some high school	7.19	4.93	6.44
High school graduate	13.71	14.35	13.92
Three year college diploma	20.67	26.01	22.46
Bachelor	37.30	35.87	36.83
Postgraduate	6.29	7.62	6.74
Occupation			
Business employee	21.90	20.27	21.35
Civil servant	4.51	4.95	4.66
Company manager	5.42	5.41	5.41
Normal company staff	16.70	15.77	16.39
Owner of private business	5.87	4.05	5.26
Professional	12.64	10.36	11.88
Self-employed	14.00	14.86	14.29
Retired	2.93	3.15	3.01
Unemployed	4.06	4.95	4.36
Other	11.96	16.22	13.38
Household structure			
Single adult	18.92	24.89	20.90
Couple without children	5.41	9.05	6.62
Couple with a child/children	47.30	37.56	44.06
Single parent with a child/children	1.80	2.71	2.11
Extended family	25.23	24.43	24.96
Other	1.35	1.36	1.35
Household income			
RMB 2,000 or less	7.67	12.16	9.17
RMB 2,001-to-4,000	18.74	24.77	20.75
RMB 4,001-to-6,000	23.70	27.03	24.81
RMB 6,001-to-8,000	21.22	18.02	20.15
RMB 8,001-to-10,000	14.90	10.36	13.38
More than RMB 10,000	13.77	7.66	11.73

¹ Eighteen is the age of majority in China.

Concerns about well-being were also strongly expressed. Respondents were “concerned about drinking water quality.” Similarly, most respondents agreed that they “worry that there are harmful chemicals in their food,” “read health-related articles in newspaper, magazines, and books,” “read the ingredients labels on the foods they consider buying,” and “do not eat foods with additives and preservatives.”

In addition, most of the respondents were sensitive to environmental issues, strongly agreeing that the “saving energy is an important goal” and that “climate change is a serious issue.” They also “use their own shopping bag when going to the market,” and practice “recycling” (e.g., newspapers). These results implied that respondents understood the importance of protecting the environment and were proactive by engaging in environmentally sound behaviors.

Further, most respondents agreed that organic products are “produced from sustainable resources and discharges less pollution into the air, water, and soil compared to conventionally grown products.” They also thought that “organic food consumption contributes to protecting the environment” and “organic products are more ecologically sound than conventional products.” These results document that respondents think organic products yield environmental benefits.

However, most of the respondents showed neutral attitudes toward organic food price, health benefit of organic food, convenience, and labeling. Our analysis suggested that in general, price, convenience, and labeling were not obstacles for most consumers in purchasing organic foods. In addition, respondents were also not strongly convinced of the health benefits of organic products. For example, they only slightly agreed with the statements “there are no preservatives in organic foods” and “organic production does not use chemical pesticides or fertilizers.”

Respondents expressed slightly weaker attitudes toward ethical concerns and relevant lifestyle issues. This is not surprising since the mean differences between the two groups of respondents with regard to the two factors were insignificant. The mean differences displayed greater variation in attitudes between the two groups of respondents with regard to price, health, environmental, convenience, label, ethics, lifestyle, and food safety attributes. Purchasers of organic products had higher mean scores for food safety, health, and environmental attitudes than non-purchasers. There is a significant difference between purchasers and non-purchasers of organic products, except for the items “all restaurants should be inspected for cleanliness,” “the government is not doing enough to prevent food contamination,” “food manufacturers are not doing enough to prevent food contamination,” “they worry that there are harmful chemicals in their food,” “recycling (e.g., plastic bottles and newspapers),” and “climate change is a serious issue.” In contrast, non-purchasers of organic products had higher mean scores in the convenience and price attributes, except for the items “there is a small variety of organic products compared with conventional products,” and “organic products are more expensive than conventional products.”

Table 4. Organic Product Purchasers and Non-Purchasers' Perception of Organic Products

	Purchasers		Non-purchasers		Total		Significance of difference ^b
	Mean ^a	SD	Mean ^a	SD	Mean ^a	SD	
Factor 1: Price							
Organic products are more expensive than conventional products.	3.80	1.20	3.95	1.21	3.85	1.21	-1.37 ^{NS}
Price of organic products is a barrier to decision to buy.	3.44	1.32	3.65	1.27	3.50	1.31	-1.91*
Factor 2: Health benefit							
There are no preservatives in organic foods.	3.57	1.25	3.32	1.28	3.49	1.26	2.19**
Organic production does not use chemical pesticides or fertilizers.	3.53	1.27	3.40	1.34	3.49	1.29	1.19 ^{NS}
Factor 3: Environmental benefit							
Organic products are more ecologically sound than conventional products.	4.15	1.05	3.92	1.13	4.08	1.08	2.57***
Products grown "organic" are obtained from sustainable resources and less polluted discharges into air, water, and soil than that grown conventionally.	4.22	1.05	3.97	1.15	4.14	1.09	2.80***
I believe organic food consumption contributes to protecting the environment.	4.20	1.05	4.03	1.05	4.14	1.05	1.81*

Notes: ^aMean score is calculated with values of 5 for "strongly agree" to 1 for "strongly disagree"; responses "don't know" or "not answered" were excluded. ^b *t*-statistic from unpaired *t*-test to evaluate mean differences between the groups. *, **, and *** indicate the significance at the 10%, 5%, and 1% levels, respectively. ^{NS} indicates non-significant.

Table 4. Organic Product Purchasers and Non-Purchasers' Perceptions of Organic Products (Continued)

	Purchasers		Non-purchasers		Total		Significance of difference ^b
	Mean ^a	SD	Mean ^a	SD	Mean ^a	SD	
Factor 4: Convenience							
Organic products are not easily found in grocery stores compared with conventional products.	3.80	1.25	3.97	1.28	3.86	1.26	-1.65*
There is a small variety of organic products compared with conventional products	3.90	1.23	3.95	1.15	3.91	1.21	-0.56 ^{NS}
Factor 5: Label							
Organic food labels are confusing.	3.59	1.27	3.63	1.21	3.61	1.25	-0.38 ^{NS}
Organic food labels can easily be imitated.	3.60	1.29	3.68	1.20	3.62	1.26	-0.75 ^{NS}
I don't know what organic food labels look like.	3.13	1.38	3.55	1.47	3.27	1.42	-3.37***
Factor 6: Health concern							
I worry that there are harmful chemicals in my food.	4.40	0.97	4.29	1.01	4.36	0.99	1.35 ^{NS}
I do not eat foods with additives and preservatives.	3.46	1.18	3.29	1.26	3.41	1.21	1.68*
I am concerned about drinking water quality.	4.47	0.89	4.3	0.92	4.42	0.90	2.29**
I usually read the ingredients labels on the foods I consider purchasing.	3.80	1.17	3.40	1.29	3.67	1.23	3.40***
I read health-related articles in newspaper, magazines, and books.	4.01	1.09	3.59	1.21	3.87	1.15	4.36***
Factor 7: Ethical concern							
Buying organic food product shows that I believe in the fair treatment of animals.	2.52	1.22	2.50	1.18	2.51	1.21	0.19 ^{NS}
I buy meat and eggs produced in a way that does not cause the animals pain or suffering.	3.05	1.32	2.95	1.31	3.01	1.32	0.85 ^{NS}

Notes: ^aMean score is calculated with values of 5 for "strongly agree" to 1 for "strongly disagree"; responses "don't know" or "not answered" were excluded. ^b *t*-statistic from unpaired *t*-test to evaluate mean differences between the groups. *, **, and *** indicate the significance at the 10%, 5%, and 1% levels, respectively. ^{NS} indicates non-significant.

Table 4. Organic Product Purchasers and Non-Purchasers' Perception of Organic Products (Continued)

	Purchasers		Non-purchasers		Total	Significance of difference ^b	
	Mean ^a	SD	Mean ^a	SD	Mean ^a	SD	
Factor 8: Environmental concern							
Saving energy is an important goal for me.	4.34	0.94	4.06	0.99	4.25	0.96	3.59***
I recycle (e.g., plastic bottles, newspapers).	3.82	1.22	3.79	1.16	3.81	1.20	0.29 ^{NS}
I take my own shopping bag when I go to the market.	4.04	1.17	3.74	1.34	3.94	1.24	2.88***
Climate change is a serious issue to me.	4.24	1.07	4.11	1.04	4.20	1.064	1.39 ^{NS}
Factor 9: Lifestyle							
I avoid eating snacks.	2.73	1.27	2.67	1.30	2.71	1.29	0.55 ^{NS}
I exercise regularly.	2.48	1.24	2.47	1.20	2.48	1.23	0.06 ^{NS}
I am generally in good health.	1.92	1.00	1.87	1.04	1.90	1.02	0.61 ^{NS}
Factor 10: Food safety							
All restaurants should be inspected for cleanliness.	4.54	0.94	4.47	0.94	4.52	0.94	0.81 ^{NS}
I don't think the government is doing enough to prevent food contamination.	4.42	0.98	4.51	0.85	4.45	0.94	-1.13 ^{NS}
I always carefully wash my hands before I prepare something to eat.	4.27	0.96	4.03	1.05	4.19	1.00	2.90***
Food manufacturers are not doing enough to prevent food contamination.	4.43	0.93	4.32	1.03	4.39	0.96	1.23 ^{NS}

Notes: ^aMean score is calculated with values of 5 for "strongly agree" to 1 for "strongly disagree"; responses "don't know" or "not answered" were excluded. ^b*t*-statistic from unpaired *t*-test to evaluate mean differences between the groups. *, **, and *** indicate the significance at the 10%, 5%, and 1% levels, respectively. ^{NS} indicates non-significant.

4.3 Respondents' Purchasing Behavior toward Organic Products

Table 5 displays the proportions of respondents with regard to characteristics of purchases. About two-thirds (68.3%) of the respondents occasionally purchased organic products. Somewhat less than a third (29.0%) were frequent purchasers. However, a very small proportion (2.5%) of the respondents always purchased

organics. The main factors encouraging purchasing organic products were health consciousness and environmental concerns. Respondents purchased organic products because these were thought to be “healthier for me and my family” (68.3%), “free from pesticides/growth hormones” (58.0%), “contain more nutrients/vitamins” (55.3%), and were “GMO free” (36.4%).

Supermarkets (55.3%) and fresh food markets (42.9%) dominate the outlets for purchases in domestic organic markets, where products were more available but sold at premium prices. They were also purchased in wet markets (32.4%) and convenience stores (22.0%).

Table 5. Respondents’ Purchasing Behavior toward Organic Products

Statement	Organic Food Purchasers (%) (n = 446)
Frequency in purchasing organic product	
Always	2.47
Frequently	28.99
Occasionally	68.31
Main reason(s) for buying organic products	
Contain more nutrients/vitamins	55.28
Do not trust conventional products	6.29
Environmental friendly production method	35.73
Free from pesticides/growth hormones	57.98
GMO free	36.40
Healthier for me and my family	68.31
High quality	24.94
Support of smaller/local producers	15.28
Taste better	17.98
Places to buy organic products	
Convenience store	22.02
Fresh food market	42.92
Health food shop	19.10
Supermarket	55.28
Wet market	32.36
Other	2.25
Sources of Organic Product information	
Billboard/bus advertisement	37.08
Health convention	11.01
Internet	42.92
Magazine	30.56
My doctor	7.19
My parents/other relatives	20.67
Newspaper	26.52
Nutrition expert	23.15
Radio	21.80
Television	9.44
Word of mouth	2.25
Other	1.12

The internet was the most frequent source of information about organic products (42.9%), followed by billboard/bus advertising (37.1%). Other sources of information included magazines (30.6%) and newspapers (26.5%).

The respondents who did not purchase organic products were asked why they did not. These results are presented in Table 6. As barriers to purchase, the largest number reported insufficient information (56.1%), a lack of availability (45.3%), and confusion with terminology and certification (41.3%). High prices (37.2%) and a lack of difference in taste from conventional products (35.4%) were also identified as the main purchase barriers. The factors that could persuade non-purchasers to buy organic products were “easier to find” (61.4%), “greater variety of organic products” (49.3%), “trust in organic certificates” (48.9%), and “cheaper prices” (44.8%). However, an increase in the income of respondents (35.9%) was the least important factor contributing to persuade non-purchasers to buy organic products.

Table 6. Respondents' Reasons for not Purchasing Organic Products

Statement	Organic Product Non-Purchaser (%) (n = 229)
Reasons for not purchasing organic products	
Confused (about terminology, certification bodies, etc.)	41.26
Do not see any benefits in organic products	17.94
Do not taste any different from conventional products	35.43
High price	37.22
Insufficient information about the products	56.05
Lack of variety	21.97
Not available where I shop	45.29
Organic products are not high enough quality	10.76
Other	1.79
Factors which would persuade me to buy organic products	
Cheaper prices	44.84
Easier to find (better distribution)	61.43
Greater variety of products	49.33
Increase in my income	35.87
More information on the labels	36.32
Trustworthy organic certification on packages	48.88

4.4 Empirical Results

Table 7 presents the logit analysis results. The VIF test (mean VIF=1.34) demonstrates the absence of multicollinearity in the data. A high p-value (p=0.42) obtained from Hosmer-Lemeshow's goodness-of-fit test indicates the model fits the data to an appropriate degree (e.g., Hosmer et al., 1997). The percentage of observations that are correctly predicted by the model is PCP=74.4. The likelihood ratio test generated a $\chi^2(19) = 111.3$, indicating the model as a whole is significant at the 1% level.

Our analysis indicates the significant effect of taste, knowledge, income, convenience, health concern, and ethical concern on the consumer's likelihood of purchasing organic products. The literature suggests that concern for health and the health benefits of consuming organic products influence purchase decisions. In this study, we found that although the effect of health benefit perceptions is negligible, the impact of health concern on organic product purchase is significant at the 5% level. Thus, households that are more concerned about health issues tend to buy organic products. The finding is similar to the results obtained by other scholars (e.g., Voona, 2011; Gracia and Magistris, 2007). Voona et al. (2011) have shown that a concern for health contributes to forming positive attitudes toward organic food in Malaysia. Similarly, utilizing qualitative methods, Sirieix et al. (2011) discovered that concern for health is the main motive behind consumers in Shanghai choosing to purchase organic food.

Ethical concerns are also found to have an influence on consumers' purchase behavior. Households concerned about animal welfare and believing that organic products are animal welfare friendly are inclined to buy organic products. Chen (2007) and Millock et al. (2004) concluded that a belief that animal welfare was taken into consideration in food production is a significant motivation for buying organic food. Zanolini et al. (2013) also found a strong relationship between concern for animal welfare and organic beef purchase in Italy. Other factors, such as environmental benefit, environmental concern, food safety concern, and lifestyle, appear to have a positive effect on organic product purchases. However, these influences have not been shown to be significant.

Our results confirm the importance of sensory value to consumers' purchasing behavior. The significant contribution of *TASTE* to the decision to buy organic products implies that consumers who think organic foods taste better are more likely to buy them. This supports studies by Thøgersen and Zhou (2012) and Yin et al. (2010), who postulated that sensory attributes such as taste and appearance influence the decision to buy organic products in China.

Similar to Gracia and Magistris (2007) and Saleki et al. (2012), our study finds that customers' knowledge of organic products is associated with the decision to buy them. The significant positive effect of *KNOWLEDGE* confirms that customers who have some understanding of organic products are more likely to consume them. The literature suggests that such knowledge is critical in the purchase decision because they are credence goods. If consumers cannot differentiate between products produced using organic methods and conventionally produced products, a price premium for the organic products can deter consumption (e.g., Giannakas, 2002). This result also suggests that inadequate knowledge is an obstacle to organic food purchase in China, a finding consistent with that of Yin et al. (2010) in their investigation of organic food purchases, and Roitner-Schobesberger et al. (2008) in their study of Thailand.

Convenience also affects organic product purchases. The negative effect of this on purchase, though significant at the 10% level, suggests that consumers who have difficulties in finding organic products in their usual shopping places are less likely

to buy organic products. Similarly, Chen (2007) and Dimitri and Dettmann (2012) also found that inconvenience is a main reason for customers who chose to not purchase organic products in Taiwan and the United States, respectively.

As expected from the findings of previous studies, income influences the purchase likelihood for organic products. In general, however, demographic characteristics were not influential; gender, marital status, age, household structure, and education did not contribute to purchase decisions. As organic products are generally more expensive, they are more affordable for higher income earners. In this study, households with monthly incomes higher than RMB 6000 were more likely to buy organic products than those earning less. In addition, these households were more likely to form positive attitudes and purchase more organic products (e.g., Grunert and Kristensen, 1991; Magnusson et al., 2001). Higher earners were thus more likely to continue purchasing organic products.

Marginal effects coefficients reflect the impact magnitude on consumers' decisions to buy organic products. Thus, Table 7 shows that knowledge has the strongest effect on the organic purchase decision, followed by taste and income; improving consumer knowledge of organic products can increase the likelihood to purchase by 39.7%. Health concern, ethical concern, and convenience have lowest marginal effects, at 8.4%, 5.0% and 4.5%, respectively.

Table 7. Logit Result (Consumers' Purchase Decisions toward Organic Products)

Variable	Logit Coefficient	t-statistic	Marginal Effect
<i>HH_SIZE</i>	0.053	0.640	0.011
<i>TASTE</i>	0.884***	4.074	0.187
<i>INCOME</i>	0.506**	2.285	0.105
<i>KNOWLEDGE</i>	1.696***	4.949	0.397
<i>GENDER</i>	0.148	0.653	0.031
<i>AGE (Dummy)</i>	-0.458	-1.624	-0.093
<i>HH_STRUCTURE (Dummy)</i>	-0.046	-0.184	-0.010
<i>MARRIED (Dummy)</i>	0.005	0.020	0.001
<i>EDU (Dummy)</i>	0.091	0.388	0.019
<i>PRICE</i>	-0.133	-1.205	-0.028
<i>B_HEALTH</i>	0.034	0.315	0.007
<i>B_ENVIRONMENT</i>	0.133	0.996	0.028
<i>CONVENIENCE</i>	-0.216*	-1.783	-0.045
<i>LABEL</i>	-0.095	-0.845	-0.020
<i>C_HEALTH</i>	0.400**	2.128	0.084
<i>C_ETHICS</i>	0.238**	2.326	0.050
<i>C_ENVIRONMENT</i>	0.125	0.774	0.026
<i>LIFESTYLE</i>	0.176	1.262	0.037
<i>SAFETY</i>	0.066	0.331	0.014
<i>CONSTANT</i>	-3.815***	-2.873	

Table 7. Logit Result (Consumers' Purchase Decisions toward Organic Products) (Continued)

Number of observations	531 ¹
Likelihood ratio	111.31***
Pseudo R^2	0.17
PCP	74.4%
EPCP	64.9%
VIF	1.34
Hosmer-Lemeshow's goodness-of-fit: $p = 0.42$	

¹ Questionnaires missing one or more essential data points were excluded from the analysis.

5. Conclusions

The sociodemographic analysis reveals that women are more likely to buy organic products than men. Consumers aged 18-to-25 years show the highest frequency of organic product purchases, followed by the 26-to-35 years age group. Households with children are also more likely to purchase organic products. This particular finding might stem from the perception that organic products are safer than conventional products. Recent food scandals in China, coupled with children in the household, appears to enhance the likelihood of organic product purchases, thus providing evidence of concern for food safety.

More than 60% of our respondents purchased organic products, yet only a small proportion (2.5%) always purchased them. The main factors encouraging the respondents to purchase organic products were health consciousness and environmental concerns, mirroring the orientation of people in other countries (e.g., Thøgersen et al., 2015). Conversely, insufficient information was identified most frequently by non-purchasers as the major deterrent to purchasing them. The factors that could persuade non-purchasers to buy organic products were "easy to find," "greater variety," and "trust in organic certificates." The majority of purchasers reported that organic products are mostly found in the organic sections of supermarkets and fresh food markets. The first two of these attributes are easy to build into production and distribution strategies, though the question of trust in certification may be more demanding.

Factor analysis extracted 10 components influencing consumers' attitudes toward organic products: Price, Health benefit, Environmental benefit, Convenience, Label, Health concern, Ethical concern, Environmental concern, Lifestyle, and Food safety. This indicates that interest in organic food is influenced by the belief that organically produced food is safe and better for health, the environment, and animal welfare. Logistic analysis indicates that taste, knowledge, income, convenience, health concern, and ethical concern appear to have a strong impact on the respondents' likelihood to purchase organic products. In contrast, environmental benefit, environmental concern, food safety concern, and lifestyle appear to have less or little impact on the decision to purchase organic products. We thus suggest that organic product purchase decisions in Kunming City are not necessarily affected by environmental values relating to organic food products, food safety

concern, and lifestyle. Further, because our sample was relatively large, our estimates are relatively precise. However, because respondents were sampled from a single location, these results may not generalize to other large Chinese cities.

Suggestively, our sample reacted in a similar manner to those in other countries. For example, Giannakas (2002) and Groves (1998) reported that many potential organic consumers in Western industrialised countries mistrust organic product labels and believe that conventionally produced foods are often misrepresented as organic. Thus, although Chinese consumers are concerned about food safety and they intend to purchase organic products, incomplete or inadequate understanding of the word “organic” may be a barrier to organic food consumption.

Furthermore, our results show that demographic characteristics have a weak influence on the purchase of organic products. Only income substantially influences respondents’ decisions to purchase organic products, since these products are more expensive than conventional products. Our results also document that households with monthly incomes higher than RMB 6000 are more likely to buy organic products. This further supports the findings of Gracia and Magistris (2007), who reported that consumers with high incomes often buy organic food, perhaps indicating their awareness of these products and the status associated with purchasing them. However, like consumers everywhere, the Chinese in general appear to be price sensitive and look for value for money when buying food products.

This study of attitudes and purchase behavior is not without limitations. For example, there may have been interviewer effects, such as inaccuracies in the recording of answers to open-ended questions. As with any questionnaire-based effort, respondents might not have been accurate or consistent in their reports of behaviors. There might also have been some degree of misreporting as a consequence of social desirability bias. This form of bias may be more problematic in our research, as data collection was carried out in a society with a highly communal orientation. In addition, though we varied our data collection locations to include the widest range of market types, our reliance on the intercept technique may not have sampled equally from all socioeconomic status groups. Our large sample size and high response rate, however, may partially mitigate these potential distortions.

6. Implications

Females and households with children are more likely to consume organic products. Since the recent high-profile scandals involving tainted food products in China, there has been an increase in demand for information about the possible benefits of organic products. These two groups are thus likely to develop into a major consumption group for organic products. Marketing strategy could be designed to specifically target them. For example, when designing advertising and packaging of products, words such as “safe,” “healthy,” and “environmentally friendly” could be emphasized, presenting a positive image for organic products.

Clearly, health and safety are key motivators for purchasing organic products. These should therefore be the foundation for programmes designed to increase organic consumption in China. This conclusion is further strengthened by the fact that, when asked about what would persuade them to buy more organic products, consumers identified stringent, consistently enforced regulations and trustworthy quality assurance for purchasers of organic products. Given that people with higher incomes are more likely to be organic product consumers, it is surprising that price does not appear to be a major factor influencing either purchasers or non-purchasers of organic products.

A major reason for non-purchasers avoiding organic products is the lack of sufficient information about them. Our survey reveals that those who do not purchase organic products may have general knowledge about these products, but do not have enough detailed information to clearly differentiate the unique attributes of organic from conventional alternatives. This supports the results reported by Xu and Wu (2009), who concluded that consumers' knowledge of the food safety problem is limited, though this may have changed in the 6 years since that study. There still appears to be limited media coverage focused on food safety in China. Therefore, the government can cooperate with public and private organizations to produce brochures, campaigns and TV programmes on the benefits of organic products to attract non-buyers. Meaningful minimum certification standards can be put in place. Such standards and the organisations responsible for enforcing them can then be communicated to the public. In addition, schools can educate students about nutrition and the benefits of healthy food choices.

Recent food security failures have increased Chinese consumers' concern for the safety of the foods they purchase and consume. This, coupled with the immature development of the organic product market, presents an opportunity for the marketplace. Promotion of the attributes of organic products and building trust in this product category would likely increase consumption of organic products. Emphasising the positive health benefits of organically produced products, the environmental advantages they provide, and above all the enhanced safety of certified and enforced standards may help provide solutions to Chinese consumers' search for food products that are both trustworthy and have positive benefits.

We suggest that future research efforts include longitudinal studies, so that changes in attitudes and purchase behaviors can be documented and more fully explored. Research should also focus on influences over purchase decisions that might emerge as the availability, variety, and volume of organic products increase. Government efforts to improve production and encourage consumption of organic products will likely exert downward pressure on prices, further enhancing their attractiveness to consumers. The impact of such changes should be incorporated into future projects. Finally, the outcomes of these processes, for example, an improvement in public health as a result of increased consumption of organic foods, should be recognized and included in future research efforts.

References

- Ahmad, S. N. B. and N. Juhdi, (2010), "Organic Food: A Study on Demographic Characteristics and Factors Influencing Purchase Intentions among Consumers in Klang Valley, Malaysia," *International Journal of Business and Management*, 5(2), 105-118.
- Basha, M. B., C. Mason, M. F. Shamsudin, H. I. Hussain, and M. A. Salem, (2015), "Consumers Attitude towards Organic Food," *Procedia Economics and Finance*, 31, 444-452.
- Bauer, H. H., D. Heinrich, and D. B. Schäfer, (2013), "The Effects of Organic Labels on Global, Local, and Private Brands: More Hype than Substance?" *Journal of Business Research*, 66(8), 1035-1043.
- Ben-Akiva, M. and S. R. Lerman, (1985), *Discrete Choice Analysis – Theory and Application to Travel Demand*, Cambridge, MA: MIT Press.
- Chan, R., (2001), "Determinants of Chinese Consumers' Green Purchase Behavior," *Psychology and Marketing*, 18(4), 389-413.
- Chan, R. and L. Lau, (2001), "Explaining Green Purchasing Behavior: A Cross-Cultural Study on American and Chinese Consumers," *Journal of International Consumer Marketing*, 14(2/3), 9-40.
- Chen, J. and A. Lobo, (2012), "Organic Food Products in China: Determinants of Consumers' Purchase Intentions," *The International Review of Retail, Distribution and Consumer Research*, 22(3), 293-314.
- Chen, M. F., (2007), "Consumer Attitudes and Purchase Intentions in Relation to Organic Foods in Taiwan: Moderating Effects of Food-related Personality Traits," *Food Quality and Preference*, 18(7), 1008-1021.
- Dimitri, C. and R. L. Dettmann, (2012), "Organic Food Consumers: What Do We Really Know about Them?" *British Food Journal*, 114(8), 1157-1183.
- Ghorbani, M. and S. Hamraz, (2009), "A Survey on Factors Affecting on Consumer's Potential Willingness to Pay for Organic Products in Iran (A Case Study)," *Trends in Agricultural Economics*, 2(1), 10-16.
- Giannakas, K., (2002), "Information Asymmetries and Consumption Decisions in Organic Food Product Markets," *Canadian Journal of Agricultural Economics*, 50(1), 35-50.
- Gracia, A. and T. de Magistris, (2008), "The Demand for Organic Foods in the South of Italy: A Discrete Choice Model," *Food Policy*, 33(5), 386-396.
- Gracia, A. and T. de Magistris, (2007), "Organic Food Product Purchase Behaviour: A Pilot Study for Urban Consumers in the South of Italy," *Spanish Journal of Agricultural Research*, 5(4), 439-451.
- Greene, W. H., (2000), *Econometric Analysis*, 4th edition, Upper Saddle River, NJ: Prentice Hall.
- Groves, M., (1998), "Firm Enters Plea in False Labeling Case," *Los Angeles Times*, May 15, 117(166).

- Grunert, K. G. and K. Kristensen, (1991), "On Some Factors Influencing Consumers' Demand for Organically Grown Foods," in *Enhancing Consumer Choice*, American Council on Consumer Interests, R. N. Mayer, ed., Columbia, MI, 37-48.
- Hair, Jr., J. F., W. C. Black, B. J. Babin, R. E. Anderson, and R. L. Tatham, (2006), *Multivariate Data Analysis*, 6th edition, Upper Saddle River, NJ: Pearson Prentice Hall.
- Hosmer, D. W., T. Hosmer, S. Le Cessie, and S. Lemeshow, (1997), "A Comparison of Goodness-of-Fit Tests for the Logistic Regression Model," *Statistics in Medicine*, 16(9), 965-980.
- Huang, Y., (2012), "China's Corrupt Food Chain," The Opinion Pages, *The New York Times*, August 17, 2012. Retrieved from http://www.nytimes.com/2012/08/18/opinion/chinas-corrupt-food-chain.html?ref=foodsafety&_r=0.
- Huang, C. L., K. Kan, and T. T. FU, (1999), "Consumer Willingness-to-Pay for Food Safety in Taiwan: A Binary-Ordinal Probit Model of Analysis," *Journal of Consumer Affairs*, 33(1), 76-91.
- Hughner, R. S., P. McDonagh, A. Prothero, C. J. Shultz, and J. Stanton, (2007), "Who Are Organic Food Consumers? A Compilation and Review of Why People Purchase Organic Food," *Journal of Consumer Behaviour*, 6(2-3), 94-110.
- Lee, H.-J. and Z.-S. Yun, (2015), "Consumers' Perceptions of Organic Food Attributes and Cognitive and Affective Attitudes as Determinants of Their Purchase Intentions toward Organic Food," *Food Quality and Preference*, 39, 259-267.
- Lim, W. M., J. L. S. Yong, and K. Suryadi, (2014), "Consumers' Perceived Value and Willingness to Purchase Organic Food," *Journal of Global Marketing*, 27(5), 298-307.
- Lockie, S., K. Lyons, G. Lawrence, and J. Grice, (2004), "Choosing Organics: A Path Analysis of Factors underlying the Selection of Organic food among Australian Consumers," *Appetite*, 43(2), 135-146.
- McEachern, M. G. and P. McClean, (2002), "Organic Purchasing Motivations and Attitudes: Are they Ethical?" *International Journal of Consumer Studies*, 26(2), 85-92.
- Maddala, G. S., (1993), *The Econometrics of Panel Data*, Aldershot and Brookfield, VT: Elgar.
- Magnusson, M. K., A. Arvola, U.-K. K. Hursti, L. Aberg, and P.-O. Sjoden, (2001), "Attitudes towards Organic Foods among Swedish Consumers," *British Food Journal*, 103(3), 209-227.
- Millock, K., M. Wier, and L. M. Andersen, (2004), "Consumer Demand for Organic Foods—Attitudes, Values and Purchasing Behaviour," *Paper Presented at the XIII Annual Conference of European Association of Environment and Resource Economics*.

- Nuttavuthisit, K. and J. Thøgersen, (2015), "The Importance of Consumer Trust for the Emergence of a Market for Green Products: The Case of Organic Food," *Journal of Business Ethics*, 84(May), 1-15.
- Onyango, B. M., W. K. Hallman, and A. C. Bellows, (2007), "Purchasing Organic Food in US Food Systems: A Study of Attitudes and Practice," *British Food Journal*, 109(5), 399-411.
- Paul, J. and J. Rana, (2012), "Consumer Behavior and Purchase Intention for Organic Food," *Journal of Consumer Marketing*, 29(6), 412-422.
- Pearson, D., J. Henryks, and H. Jones, (2011), "Organic Food: What We Know (and Do Not Know) about Consumers," *Renewable Agriculture and Food Systems*, 26(2), 171-177.
- Pino, G., A. M. Peluso, and G. Guido, (2012), "Determinants of Regular and Occasional Consumers' Intentions to Buy Organic Food," *The Journal of Consumer Affairs*, 46(1), 157-169.
- Roitner-Schobesberger, B., I. Darnhofer, S. Somsook, and C. R. Vogl, (2008), "Consumer Perceptions of Organic Foods in Bangkok, Thailand," *Food Policy*, 33(2), 112-121.
- Raubenheimer, J. E., (2004), "An Item Selection Procedure to Maximize Scale Reliability and Validity," *South African Journal of Industrial Psychology*, 30(4), 59-64.
- Saleki, Z. S., S. M. Seyedsaleki, and M. R. Rahimi, (2012), "Organic Food Purchasing Behavior in Iran," *International Journal of Business and Social Science*, 3(13), 278-285.
- Sangkumchaliang, P. and W.-C. Huang, (2012), "Consumers' Perceptions and Attitudes of Organic Food Products in Northern Thailand," *International Food and Agribusiness Management Review*, 15(1), 87-102.
- Sirieux, L., P. R. Kledal, and T. Sulitang, (2011), "Organic Food Consumers' Trade-Offs between Local or Imported, Conventional or Organic Products: A Qualitative Study in Shanghai," *International Journal of Consumer Studies*, 35(6), 670-678.
- Suh, B. W., A. Eves, and M. Lumbers, (2012), "Consumers' Attitude and Understanding of Organic Food: The Case of South Korea," *Journal of Foodservice Business Research*, 15(1), 49-63.
- Teng, C.-C. and Y.-M. Wang, (2015), "Decisional Factors Driving Organic Food Consumption: Generation of Consumer Purchase Intentions," *British Food Journal*, 117(3), 1066-1081.
- Thøgersen, J., (2009), "The Motivational Roots of Norms for Environmentally Responsible Behavior," *Basic and Applied Social Psychology*, 31(4), 348-362.
- Thøgersen, J., M. D. de Barcellos, M. G. Perin, and Y. Zhou, (2015), "Consumer Buying Motives and Attitudes towards Organic Food in Two Emerging Markets: China and Brazil," *International Marketing Review*, 32(3/4), 389-413.
- Thøgersen, J. and Y. Zhou, (2012), "Chinese Consumers' Adoption of a 'Green' Innovation—The Case of Organic Food," *Journal of Marketing Management*, 28(3-4), 313-333.

- Thompson, G. D., (1998), "Consumer Demand for Organic Foods: What We Know and What We Need to Know," *American Journal of Agricultural Economics*, 80(5), 1113-1118.
- Thompson, G. D. and J. Kidwell, (1998), "Explaining the Choice of Organic Produce: Cosmetic Defects, Prices, and Consumer Preferences," *American Journal of Agricultural Economics*, 80(2), 277-287.
- Torjusen, H., G. Lieblein, M. Wandel, and C. A. Francis, (2001), "Food System Orientation and Quality Perception among Consumers and Producers of Organic Food in Hedmark County, Norway," *Food Quality and Preference*, 12(3), 207-216.
- Ureña, F., R. Bernabéu, and M. Olmeda, (2008), "Women, Men and Organic Food: Differences in their Attitudes and Willingness to Pay: A Spanish Case Study," *International Journal of Consumer Studies*, 32(1), 18-26.
- Voona, J. P., K. S. Nguib, and A. Agrawal, (2011), "Determinants of Willingness to Purchase Organic Food: An Exploratory Study Using Structural Equation Modeling," *Supporters and Partners*, 14(2), 103-120.
- Ward, P., L. Mamerow, J. Henderson, A. W. Taylor, S. B. Meyer, and J. Coveney, (2012), "The Social Determinants of Food Purchasing Practices: Who Chooses Price-before-Health, Taste-before-Price or Organic Foods in Australia?" *Food and Nutrition Sciences*, 3(4), 461-470.
- Wier, M., J. K. O'Doherty, L. M. Andersen, and K. Millock, (2008), "The Character of Demand in Mature Organic Food Markets: Great Britain and Denmark Compared," *Food Policy*, 33(5), 406-421.
- Xu, L. and L. Wu, (2009), "Food Safety and Consumer Willingness to Pay for Certified Traceable Food in China," *Journal of the Science of Food and Agriculture*, 90(8), 1368-1373.
- Yadav, R. and G. S. Pathak, (2016), "Intention to Purchase Organic Food Among Young Consumers: Evidences From a Developing Nation," *Appetite*, 96, 122-128.
- Yin, S., L. Wu, L. Du, and M. Chen, (2010), "Consumers' Purchase Intention of Organic Food in China," *Journal of the Science of Food and Agriculture*, 90(8), 1361-1367.
- Yiridoe, E. K., S. Bonti-Ankomah, and R. C. Martin, (2005), "Comparison of Consumer Perceptions and Preference toward Organic Versus Conventionally Produced Foods: A Review and Update of the Literature," *Renewable Agriculture and Food Systems*, 20(4), 193-205.
- Zagata, L., (2012), "Consumers' Beliefs and Behavioural Intentions towards Organic Food. Evidence from the Czech Republic," *Appetite*, 59(1), 81-89.
- Zakowska-Biemans, S., (2011), "Polish Consumer Food Choices and Beliefs about Organic Food," *British Food Journal*, 113(1), 122-137.
- Żakowska-Biemans, S., (2009), "Factors Underlying Consumption of Organic Food in the Opinion of Polish Consumers," *Agronomy Research*, 7(2), 768-782.
- Zanoli, R., R. Scarpa, F. Napolitano, E. Piasentier, S. Naspetti, and V. Bruschi, (2013), "Organic Label as an Identifier of Environmentally Related Quality: A

Consumer Choice Experiment on Beef in Italy,” *Renewable Agriculture and Food Systems*, 28(1), 70-79.

Zander, K. and U. Hamm, (2010), “Consumer Preferences for Additional Ethical Attributes of Organic Food,” *Food Quality and Preference*, 21(5), 495-503.

Zepeda, L. and J. Li, (2007), “Characteristics of Organic Food Shoppers,” *Journal of Agricultural and Applied Economics*, 39(1), 17-28.