

## Article

# Mediating Influences of Attitude on Internal and External Factors Influencing Consumers' Intention to Purchase Organic Foods in China

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**Abstract:** As with environment and sustainable development, there has been a rapid rise in the worldwide consumption of organic foods over the last years, as well as the quickly growing potential of organic markets in China, and their direct influence on consumer health awareness and social opinion. This study provides insights into Chinese consumers' attitudes toward organic foods and evaluates purchase intention's impact as a mediator in the relationship between external and internal factors on purchase intention. This empirical study is based on an online questionnaire using a sample of 1421 Chinese consumers. Structural equation modeling (SEM) was used as the main practical approach for data analysis, and six hypotheses were examined. The results show that a more positive attitude on the part of consumers toward organic foods will further reinforce their purchasing intentions, whereas, there was no significant impact of marketing price and communication on consumers' attitudes toward organic foods. Furthermore, the results show that intention was a full or a whole mediator among the three exogenous constructs of environment awareness, health consciousness, and subjective norms. Based on the findings, marketing communication strategies should concentrate on offering more value to consumers regarding the features of nutritional value. Long-term environment friendliness, health benefits, and social status symbols should be assumed to enhance consumers' purchase intention in the organic foods industry.

**Keywords:** organic foods; environmental awareness; health consciousness; subjective norms; consumer behavior

## 1. Introduction

Currently, people worldwide are becoming more aware of the levels of chemical residues and pesticide contamination in foods, and their influence on humans, the environment, and society as a whole. Local farmers have been promoted to invest in organic agricultural farming and, in the future, they will be expected to only grow organic produce. The issue of unsafe food affecting consumers is experiencing increased public awareness, and consumers are demanding better food safety, higher quality, and sustainability. In 2018, the Research Institute of Organic Agriculture (FiBL) and IFOAM report found that there were 57.8 million hectares of organic agricultural land, which is up 15% from 2016; especially in China, this is significant growth, and contributed to the worldwide increase. Nielsen's research has shown that almost 70% of Asian consumers have a strong awareness of health, and consider it as the key priority in their food-purchasing decisions. Wellness and health signify a new lifestyle status for Asian consumers, who have become increasingly health conscious, interested in organic foods, and the decrease of chemical fertilizer usage, which is unlike past studies that discovered the scarcity of organic food consumption by consumers. China and India are two of the fastest-growing markets for organic food [1], and the massive increase in population has led to the growing demands

of consumers. Following Monk [2], the Australian Organic Market Report of 2017 showed that 14% of organic households state that they expend 40% or more of their food budget on organics, while 38% of organic retailers pointed out that consumers have raised their household food expenditures on organics more than in past years. Grand View Research predicts that the Asia-Pacific region will become the fastest-growing global market for organic food, with an estimated compound annual growth rate of 28.5% from 2014 to 2020, with China leading the pack [3]. Due to the fast-developing economies and populations in the Asian area, this region has become an important manufacturer and exporter of organic foods [4].

Most consumers are convinced that organic products have more value (e.g., humanism, environmentalism, hedonism, universalism, and benevolence) than non-organic products [5]. In a consumer research survey on Chinese organic consumers in Shanghai and Beijing, 71% of consumers accepted paying a premium of 20% to 50% for organic foods [6]. That is, Chinese consumers are willing to pay extra for health foods, in order to quell their apprehensions about domestic food safety. Moreover, organic agriculture and farming use a sustainable system that can preserve the environment. In the same way, livestock breeding does not make use of chemicals, hormones, or antibiotics. Chemical fertilizer usage led by the Green Revolution in the sector of agriculture-raised production without worrying about the environmental impact. Consequently, organic agriculture was founded as a sustainable agricultural yield system for dealing with the social, ecological, and economic influences of industrialized agriculture. Currently, it is challenging to ensure environmental sustainability, even if it is the ultimate requirement for our future generations. Many people are interested in organic foods due to concerns about intensive agricultural practices, as well as their potential impacts on the environment and human health. Notwithstanding, organic foods are influenced by numerous factors, including the geographical position of the farm, local earth properties, climatic statuses that can differ from one growing season to another, the storage of harvests, and the time of testing after a harvest [7,8]. To understand consumer behavior with regard to products, concepts, or services, a significant requirement is to examine the attitudes of customers [9,10].

In recent years, organic foods have captured public attention because they are regarded as a means of directly enhancing the population's health [8,11]; however, there are limited studies on intentions as mediating influences on the factors affecting Chinese organic food expenditures. Despite the prevailing difficulties, interesting elements that could substantially affect the prospects for the organic food market, in the future, have been revealed by the conducted survey. Examining the mediating effects of intention on the factors that affect organic foods consumption among Chinese consumers has consequently become an important topic that could close the gap in the relevant knowledge. The developed model in the current research could help marketing managers create suitable strategies to improve food to meet public demands; this study could help health policy makers adjust their resources in reaction to the new demands for green consumption in China.

## 2. Theoretical Framework and Development of Hypotheses

While the prevailing consumers of organic foods are varied, most researchers characterize the average organic consumer as Caucasian, wealthy, and knowledgeable [8]. Modern scientific methods are being employed to seek a sustainable food solution [12]. According to Nielsen's Wellness Survey and Global Health, natural, organic, and sustainable food is chosen by 40–50% of Chinese consumers; in addition, sales of organic food in China reached €4.7 billion in 2015 [13]. Therefore, studies regarding attitudes towards organic products in China are rare, and no empirical researches have focused on purchasing behavior. Gan et al. [14] and Leong & Paim [15] published studies that addressed intentions to purchase organic foods, while Yen [16] conducted a study regarding the effects of gender on self-congruity behavioral intention relationships in Chinese consumers to purchase organic products. Chung [17] investigated Chinese consumers as the main drivers of purchasing behavior that could predict heavy vs. light consumers of organic foods. However, there are few studies that are relevant to organic foods in China, with most in the nutrition domain and on the quality of organic

foods. Based on the analysis and research of consumers, the aim of this study is to evaluate Chinese consumers' consciousness and attitudes toward organic foods, and to determine the effect of intention as a mediator in the relationships among the factors of consumption, especially in the comparison of former findings that came from mature markets.

### *2.1. Influence of Attitude on Purchase Intention toward Organic Foods*

Consumers suppose that organic food is beneficial, and this positive attitude has considerably affected the purchase intention toward organic food [18,19]. Drawing on the planned behavior theory, this research posits that attitude shows an individual's unfavorable or favorable appraisal of a behavior, that has been carried out on a regular basis, will be utilized in the food choice domain and, also, to model the selection of organic foods [20,21]. Intention has been deemed as "attitude's conative component", whereas behavioral intention involves a person's subjective probability of engaging in certain behavior in the future [9]. In other words, attitude is significant as a critical predicator for understanding behavior.

Preceding studies have concluded that consumer attitudes toward the purchase of organic foods have a positive impact on their intention to purchase organic foods [22,23]. More specifically, a positive attitude toward purchasing organic foods is associated with higher levels of education and income, as well as believing that organic foods are healthier, taste better, and are better for the environment. To be capable of serving consumers' needs, an appreciation of the perception and attitudes of consumers is a significant requirement. Therefore, the following hypothesis was generated:

**Hypothesis 1 (H1).** *The more positive Chinese consumers' attitude toward organic foods, the more probable they will be to purchase organic foods.*

According to Biel and Thøgersen [24], attitude is regarded as a central predictor of consumers' intention to buy organic foods, which is due to significant factors, such as environmental friendliness, animal health, and personal wellbeing. While many external factors (e.g., subjective norms and marketing communications) influence organic food consumption [9], internal factors mainly concern environmental awareness, health consciousness, and price perception [25,26]. Based on a review of former studies, these studies deliberated particular factors that are likely to influence attitudes, and proposed hypothesis based on each concept.

### *2.2. Environmental Awareness*

Environmental awareness plays an important role regarding the intention to purchase organic foods [5]. Environmental awareness relates to individuals' emotional viewpoint of the environment, such as their dislike of others' not placing emphasis on the environment [15]. Environmentally friendly matters are applied to organic foods during production and processing, and consumers' environmental consciousness encourages their positive attitude toward organic food purchasing. Recent research has shown that purchasing organic foods relies on the three essential principles of health consciousness, economic equilibrium, and protection of the environment [27]. However, a surprising result was that environmental concerns have no significant impact on purchasing organic foods in Sri Lanka or India [22,28]. Furthermore, studies on the mediating effect of intention on the relationship between organic food consumption and environmental awareness, among Chinese consumers, are deficient. The need for more studies was reinforced by this result in the China market; therefore, this study puts forth the following null hypotheses:

**Hypothesis 2a (H2a).** *Environmental awareness positively affects consumer attitude.*

**Hypothesis 2b (H2b).** *Environmental awareness positively affects purchase intention toward organic foods.*

**Hypothesis 2c (H2c).** *There is a full mediating effect of attitude on the relationship between environmental awareness and intention to purchase organic foods among Chinese consumers.*

### 2.3. Health Consciousness

Health consciousness is defined as “readiness to undertake health actions”. Therefore, consumers are now buying organic foods as an investment, which depicts the level of individuals’ awareness and concern about their health [1]. Health consciousness and taking actions to promote good health are recognized as motivating factors to purchase organic foods [10,29]. Previous studies have disclosed that health consciousness shows up as the most significant reason for purchasing and consuming organic foods, as people apparently believe that organic foods can benefit their health better than conventional foods [30]. Individuals’ perceptions that organic foods are healthier, have greater nutritional value in comparison with conventional food, and are produced naturally without utilizing harmful chemicals, results in positive attitudes toward organic foods [30,31]. Furthermore, organic farming is perceived as safer compared to conventional or industrial farming [31]. At the same time, this factor may lead to a positive attitude toward organic foods. Health consciousness can be used to study the attitude of consumers toward organic foods because it represents the level of concern of individuals about their health. This study observed that attitude toward health is an important predictor of consumer intention in respect to organic foods and, therefore, hypothesized the following:

**Hypothesis 3a (H3a).** *Health consciousness positively affects consumer attitude.*

**Hypothesis 3b (H3b).** *Health consciousness positively affects purchase intention toward organic foods.*

**Hypothesis 3c (H3c).** *There is a full mediating effect of attitude on the relationship between health consciousness and intention to purchase organic foods among Chinese consumers.*

### 2.4. Price Perception

According to Oroian et al. [26], consumer price perception comprises price consciousness, value consciousness, and price-quality perception variables in consumers’ buying processes. Previous studies have highlighted the important barriers or incentives of price perception in determining consumers’ attitudes and purchase intentions toward organic foods [30,32,33]. The premium price of organic foods can be related to an investment in human health. Consumers not only recognize that organic foods command a price premium but, also, that it reveals the status of a person. Numerous studies have investigated the willingness of consumers to pay more for organic foods [26], and discovered a willingness to pay a price premium of over 50% for chemical-free vegetables. Not surprisingly, due to the perceived price premium requested by organic produce, those with more disposable revenue are more likely to be in a position to purchase organic food. Following Pearson, Henryks, & Sultan [33], to some consumers, organic food’s high prices suggest a high-ranking quality, which is attractive to them, while others are discouraged by the higher cost, due to priorities set in their budgets. Therefore, the following hypotheses are presented:

**Hypothesis 4a (H4a).** *Price perception positively affects consumer attitude.*

**Hypothesis 4b (H4b).** *Price perception positively affects purchase intention toward organic foods.*

**Hypothesis 4c (H4c).** *There is a full mediating effect of attitude on the relationship between price perception and intention to purchase organic foods among Chinese consumers.*

## 2.5. Subjective Norm

Subjective norms result from the perceived social stress of others, such as friends and family, causing individual motivation to engage or abide by the group behavior. Ajzen and Fishbein [9], and Ha [34] indicated that subjective norm is a critical factor that impacts social influences on behavioral intentions. Prior analyses have also revealed a significant relationship between attitude and subjective norms [35]. If people who are meaningful to consumers offer opinions and positive attitudes toward organic foods, consumers will be more likely to have a positive intention to purchase organic foods [36]. This result is aligned with the research of Krueger, Reilly, and Carsrud [37], and Bamberg and Möser [38], who declared that subjective norms are not correlated with individuals' intention to create their own businesses; therefore, there was a need for further improvement and research on the measures used. Based on the reviews from former studies, the following hypotheses are made:

**Hypothesis 5a (H5a).** *Subjective norm positively affects consumer attitude.*

**Hypothesis 5b (H5b).** *Subjective norm positively affects purchase intention toward organic foods.*

**Hypothesis 5c (H5c).** *There is a full mediating effect of attitude on the relationship between subjective norm and intention to purchase organic foods among Chinese consumers.*

## 2.6. Marketing Communications

Leveraging advertising for product promotion is an immensely popular marketing strategy; consumers can acquire information that is relevant to organic foods via information campaigns and promotions, e.g., through instant messages or text, TV, magazines, newspapers, blogs, Facebook, or the Internet [15]. Consumer knowledge and awareness will be increased by adequate information communicated to consumers regarding the benefits of organic foods. Furthermore, the central idea behind advertising is to make use of the endorsers' fame to attract prospective customers and affect their awareness, knowledge, and purchasing behavior [39]. Leong and Paim [15], found that advertisements are one of the driving factors that influence purchase intentions, and the higher the scale to which it raises, the higher the positive advertising and brand attitudes. Advertisements are treated as an independent variable in this study, in order to discover the mediating effect of intention on the relationship between organic food consumption and advertisements among Chinese consumers. An exploration in this area was, therefore, needed to ensure that the results could contribute novel knowledge to literature. Consequently, the following hypothesis was constructed to test the relationship between marketing communication and consumer attitude:

**Hypothesis 6a (H6a).** *Marketing communication positively affects consumer attitude.*

**Hypothesis 6b (H6b).** *Marketing communication positively affects purchase intention toward organic foods.*

**Hypothesis 6c (H6c).** *There is a full mediating effect of attitude on the relationship between marketing communication and intention to purchase organic foods among Chinese consumers.*

The above reviews illustrate the inconclusive or blended findings in organic food research; therefore, this study aimed to increase the knowledge of attitudes toward organic foods, especially in China.

### 3. Research Methodology

#### 3.1. Conceptual Framework

According to Ajzen and Fishbein [9], Mohiuddin et al. [25], and Oroian et al. [26], consumers' behavior concerning organic foods is driven by external factors (e.g., subjective norms and marketing communications) and internal factors (environmental awareness, health consciousness, and price perception), thus, this study formulated a conceptual framework. The main intention of this research is to explore whether or not the mediation of internal factors (environmental awareness, health consciousness, and price perception) and external factors (subjective norm and marketing communications) could impact consumer intention to purchase organic foods. The research framework of this study is depicted in Figure 1. The principal factors that can influence organic food purchase behaviors among Chinese consumers will be discovered.

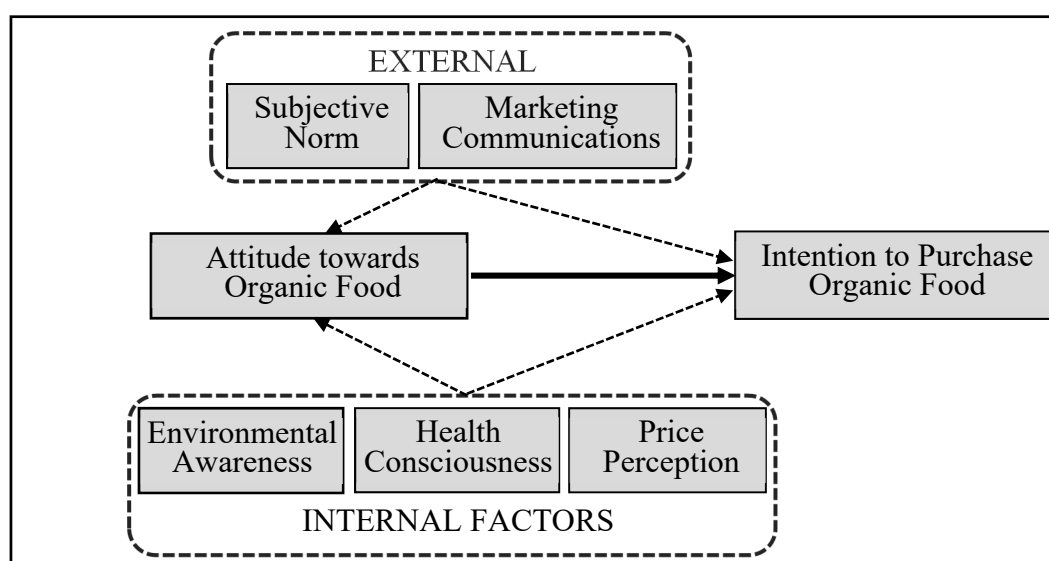


Figure 1. Conceptual Framework.

#### 3.2. Research Instrument

This study used closed-ended questions that were prepared by adopting products from related literature. The questions used to measure environmental awareness were adapted from Mainardes, et al. [5], with minor modifications. Questions that were employed to evaluate health consciousness were adapted from Petrescu, Oncioiu & Petrescu [8], with minor modifications. Similarly, the questions used to measure attitudes toward subjective norms, marketing communication, and intentions toward organic foods were adapted from Lim, Yong, and Suryadi [40]; Leong & Paim [15] and Kumar [41]; with minor modifications. Scoring was based on a five-point Likert scale, with answers indicating 'strongly agree', 'agree', 'normal', 'slightly agree', and 'strongly disagree'.

#### 3.3. Subjects and Procedure

The survey was carried out in three urban cities (Shanghai, Beijing, and Suzhou), where the population is highly wealthy and educated, rather than a rural area, as organic foods are comparatively new to the Chinese market. The growth potential of the domestic market suggests that Chinese consumers' awareness of organic foods has been rising. Therefore, exploring the motives underlying Chinese consumers' organic food consumption could provide an understanding of the growing organic food market in China to researchers, organic food producers, and marketers. This study was carried out using a web-based questionnaire (more information about the sample can be found at the sample provider's website, <http://www.diaoyanbao.com/>). In addition, the subjects were familiar



with discussing or replying to others by texting, posting links, and sharing photos. As our study was conducted online, the public was invited to participate via e-mail, and the survey was also spread using social networks (WeChat, Youku, Qzone, Weibo, online forums, etc.), and was computer-compatible, particularly in groups that were linked to organic foods consumption. As a quality check, two control questions were included in the survey: one in the middle before the lists' show, and one at the end, to ensure that participants were not choosing replies simply at random. Data collection occurred over a five-month period from January 2018 to May 2018. With the assistance and cooperation of local universities, a total of approximately 1900 questionnaires were issued; however, 479 were excluded, as they had no intention of consuming organic products; inappropriate responses were not considered (e.g., answers that were all the same). Thus, the final sample contained 1421 questionnaires, with a valid completion rate of 74.8%. The survey's response rate is, therefore, unknowable, as non-participants among invitees' full sample represent both those choosing not to finish the survey and those that were slower in responding to the email invitation.

A web-based sample is naturally unrepresentative of the universal population, with a higher proportion of young, educated, wealthy, and urban individuals, particularly in a developing country, where far from all can afford access to the Internet. In spite of limitations with respect to generalizing the larger population, assessments of crowd-sourced and web-based samples have discovered that participant pools are much more varied than other samples of convenience, such as university students [42].

### 3.4. Data collection and Demographic Classification

Table 1 shows the demographic information, which indicates the percentage of male and female respondents were 37.16% and 62.84%, respectively. In addition, 31.74% were between 18 and 25 years of age, and the majority had an undergraduate degree as the highest education level. The majority of the respondents were students and employees (30.54% and 30.89%, respectively). Respondents with a yearly income of less than 100,000 RMB were the majority, at 41.66%.

**Table 1.** Demographic Information of the Target Respondents.

Demographic		No.	%	Demographic		No.	%
Gender	Male	528	37.16%	Education Level	Primary school	152	10.70%
	Female	893	62.84%		Highschool	368	25.90%
Age	18–25	451	31.74%		Undergraduate	659	46.38%
	26–35	367	25.83%		Graduate	224	15.76%
	36–45	274	19.28%		Ph.D.	18	1.27%
	46–55	184	12.95%	Occupation	Student	434	30.54%
	Over 56	145	10.20%		Employee	439	30.89%
Income per year (RMB)	No income	114	8.02%		Business owner	368	25.90%
	≤50,000	429	30.19%		Unemployed	128	9.01%
	50,001–100,000	592	41.66%		Others	52	3.66%
	100,001–200,000	226	15.90%	Number of children in household	1 or 0	942	66.29%
	≥200,001	60	4.22%		≥2	479	33.71%

## 4. Research Results

### 4.1. Reliability and Validity Test

Statistical Package for Social Sciences (SPSS) version 23.0 was used to execute validity, reliability analysis, and descriptive analysis. SPSS AMOS version 21 was subsequently used to execute structural equation modeling (SEM) analysis to examine the hypotheses. The theoretical framework of this study was examined using partial least square structural equation modeling (PLS-SEM) to evaluate the reliability, unidimensionality, and validity of the scales used in the measurement model. The validity and reliability were estimated in the measurement model. The internal consistency and reliability were

tested utilizing composite reliability. In PLS, composite reliability depends on the actual loadings to compute the factor scores, and is a better indicator of internal consistency reliability than Cronbach's alpha coefficient ( $\alpha$ ). The composite reliability values for the sub-constructs in the model are all over the proposed threshold of 0.7 and, therefore, support the measurements' reliability, as shown in Table 2.

**Table 2.** Analysis of Measurement Model.

		Standardized Factor Loading	Composite Reliability	Average Variance Extracted
Environmental Awareness (EA, Mean = 2.942; SD = 0.854)				
1.	I believe that using environmentally sustainable products will help in conserving natural resources.	0.792 ***	0.851	0.718
2.	I feel good when I utilize environmentally sustainable products.	0.804 ***		
3.	I am very knowledgeable about environmental issues.	0.799 ***		
4.	Using environmentally sustainable products is one of the main means to diminish pollution.	0.776 ***		
Health Consciousness (HC, Mean = 2.391; SD = 0.856)				
1.	I feel that I sacrifice a lot for my health.	0.831 ***	0.861	0.734
2.	I am ready to abandon a lot, to eat as healthy as possible.	0.895 ***		
3.	I believe that I take health into consideration a lot in my life.	0.815 ***		
4.	I believe it is important to understand, well, how to eat healthy.	0.840 ***		
Price Perception (PP, Mean = 2.342; SD = 0.867)				
1.	Organic foods are not cheap.	0.751 ***	0.763	0.634
2.	I believe organic foods are more fit for high revenue groups.	0.730 ***		
3.	I am sure that I am ready to pay a premium for organic foods.	0.694 ***		
4.	Organic food is beyond my budget.	0.746 ***		
Subjective Norms (SN, Mean = 2.128; SD = 0.820)				
1.	Family and close friends think it is good idea for me to buy organic foods.	0.802 ***	0.781	0.679
2.	I listen to advertisements that could influence me to purchase organic foods.	0.734 ***		
3.	Mass media reports have influenced me to test organic foods.	0.797 ***		
4.	Important people in my life would expect me to buy organic foods.	0.803 ***		
Marketing Communications (MC, Mean = 2.821; SD = 0.869)				
1.	I can acquire organic foods information by advertisements (i.e., magazines, newspapers, TV channels, internet, etc.).	0.725 ***	0.734	0.615
2.	Word-of-mouth from friends, family members, referrals, or food blogs, has affected my knowledge of organic foods.	0.697 ***		
3.	I get information on organic foods by email/mail/phone calls from my favored organic foods retailer.	0.754 ***		
4.	Sales workers in the retail shops are always available to make suggestions for me about organic foods.	0.754 ***		
Attitude towards organic foods (AT, Mean = 2.621; SD = 0.869)				
1.	Organic foods make it simpler to pursue a wellbeing lifestyle.	0.835 ***	0.802	0.715
2.	I can avoid diseases by habitually consuming organic foods.	0.798 ***		
3.	I feel good about myself when I utilize environmentally sustainable foods.	0.865 ***		
4.	I like the idea of purchasing organic.	0.843 ***		
Purchase Intention (PI, Mean = 2.602; SD = 0.902)				
1.	I mean to purchase organic foods in the near future.	0.811 ***	0.811	0.719
2.	I recommend others to buy organic foods.	0.795 ***		
3.	Buying organic foods is the correct thing to do, even though they cost more.	0.843 ***		
4.	I don't mind spending more time searching for organic food.	0.834 ***		

Note: \*\*\*  $p < 0.01$ .

The findings of the goodness-of-fit indices are shown in Table 2. Some of the items in each of the construct were cut, as they were discovered to be designed in an unsuitable manner. The factor loadings of each item in the four constructs are all over 0.65. Moreover, some valid criteria were available to analyze the SEM path structure, namely, unidimensionality, validity, and reliability. The factor loadings and reliability are shown in Table 2, and the discriminant validity correlation between variables is shown in Table 3. At the construct degree, the square root of the AVEs in the diagonal cells for each construct are larger than any correlation between this construct and any other construct, as displayed in Table 3.



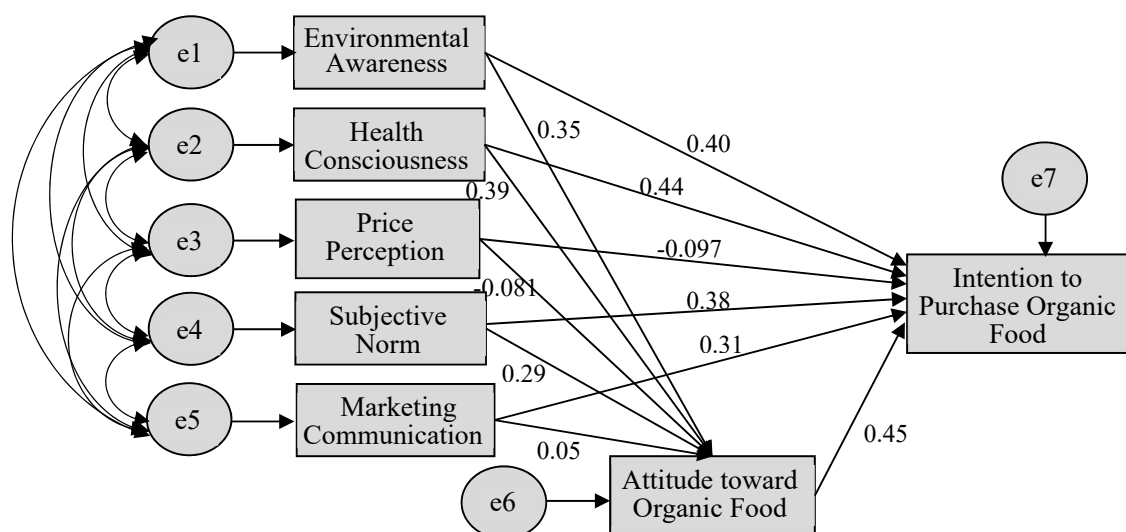
**Table 3.** Discriminant Validity Correlation between Variables.

Constructs	Environmental Awareness	Health Consciousness	Price Perception	Subjective Norms	Marketing Communications	Organic Attributes	Purchase Intention
Environmental Awareness	<b>0.724</b>						
Health Consciousness	0.592	<b>0.797</b>					
Price Perception	−0.293	−0.302	<b>−0.691</b>				
Subjective Norms	0.437	0.512	−0.275	<b>0.645</b>			
Marketing Communications	0.429	0.399	−0.2890	0.571	<b>0.617</b>		
Organic Attributes	0.632	0.485	−0.234	0.447	0.458	<b>0.844</b>	
Purchase Intention	0.619	0.594	−0.293	0.547	0.609	0.568	<b>0.811</b>

Note: The bold numbers of the diagonal are the square roots of average variance extracted (AVE). Off-diagonal elements are correlations among constructs.

#### 4.2. Path Analysis

In this study, the structural equation modeling (SEM) technique was used to check the theoretical model. These constructs were considered because of their strong theoretical connection with the intention to purchase organic foods. The RMSEA (root mean squared error approximation) value is 0.05, which is clearly within the satisfactory level. The value of the goodness-of-fit index (GFI) is 0.931, the value of the adjusted goodness-of-fit index (AGFI) is 0.918, the value of the comparative-fit index (CFI) is 0.943, and the normed-fit index (NFI) value is 0.947. These findings represent a suitable fit for the measurement model. The values of the correlation matrix of the analyzed constructs are reviewed in Figure 2 and Table 4.

**Figure 2.** Final Structural Model.

The path coefficient shows the direct effect of a variable that has a path relationship between constructs in a model (Chin, 2010). The path results of SEM are shown in Table 4, which shows that the *t*-value for the paths of H1 (5.752), H2a (2.934), H4a (5.857), H5a (6.013), H2b (4.264), H3b (3.612), H4b (3.496), and H5b (5.614) are higher than the standard value. The hypotheses, that environmental awareness, health consciousness, and subjective norm will have positive influence on the attitude of consumers, are supported, and the intention to purchase organic foods resulting from marketing communication is found to have positive impact on buying intention in this study. It was expected

that price perception would have negative impact on consumer attitude and the intention to purchase organic foods; however, this study found no significant relationships.

**Table 4.** Path Analysis of the Research Model.

Between Facets	Estimate ( $\beta$ )	t-Value	p-Value	Hypothesis	Results
Organic Attitude→Purchase Intention	0.450	5.752	0.000 ***	H1	Supported
Environmental Awareness→Organic Attitude	0.352	3.857	0.000 ***	H2a	Supported
Health Consciousness→Organic Attitude	0.397	4.813	0.000 ***	H3a	Supported
Price Perception→Organic Attitude	−0.081	1.199	0.137	H4a	Rejected
Subjective Norm→Organic Attitude	0.295	2.934	0.011 **	H5a	Supported
Marketing Communications→Organic Attitude	0.053	0.762	0.680	H6a	Rejected
Environmental Awareness→Purchase Intention	0.409	4.996	0.000 **	H2b	Supported
Health Consciousness→Purchase Intention	0.445	5.614	0.000 ***	H3b	Supported
Price Perception→Purchase Intention	−0.097	1.729	0.113	H4b	Rejected
Subjective Norm→Purchase Intention	0.386	4.264	0.000 ***	H5b	Supported
Marketing Communications→Purchase Intention	0.318	3.612	0.001 **	H6b	Supported

Note: \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$  (one-tailed test).

Multicollinearity was tested using VIF. The independent variables all show values less than 5.00, indicating that multicollinearity is not a critical problem in this study.

#### 4.3. Mediating Effects

The mediation effects are calculated using the procedures depicted by Baron and Kenny [43], to test the hypothesis that a change in multiple specific process variables over consumer attitudes toward organic foods would mediate the effects of subjective norm, environmental knowledge, and health consciousness on the intention of purchasing organic foods. Baron and Kenny's four-step mediation approach uses three regression equations to test the statistical significance of mediator effects. The steps taken follow the prerequisites for each step, and current statuses are shown in Table 5.

This study contributes to research by simultaneously examining various external and internal factors (i.e., subjective norm, marketing communication, environmental awareness, health consciousness, and price perception), attitude toward organic foods and purchase intention, in order to provide a clear picture of the interrelationships among external and internal factors, as well as attitude and intention, in the research model. In step one of the mediating effect of attitude toward organic foods on environmental awareness and purchase intention, the coefficient of environmental awareness on purchase intention is 0.409 with a  $p$ -value  $< 0.001$ , which satisfies the prerequisites for step one. Step two tests the effect of environmental awareness on attitude toward organic foods, and the coefficient value is 0.352 with a  $p$ -value  $< 0.05$ , which satisfies the prerequisites of Baron and Kenny's mediation approach for step two. In step three, the coefficient of attitude toward organic foods on purchase intention is 0.450 with a  $p$ -value  $< 0.001$ , which satisfies the prerequisites for step three. Step four tests the effect of environmental awareness and attitude toward organic foods on purchase intention, and the coefficient value for step four is 0.385 with a  $p$ -value  $< 0.001$ . The statistically significant  $p$ -value  $< 0.05$ , as displayed in the effects of environmental awareness on purchase intention in steps one through four, indicates the full mediation of attitude toward organic foods between environmental awareness and purchase intention. As a result, H2c null hypothesis is supported.

The steps, prerequisites for the following steps, and the status of the mediating effects of attitude toward organic foods, including health consciousness, subjective norm, and purchase intention among Chinese consumers, were similarly measured using Baron and Kenny's four-step mediation approach, as shown in Table 5. The statistically significant  $p$ -value  $< 0.05$ , as displayed in the effects of health consciousness and subjective norm on purchase intention in Steps 1 through 4, indicate the full mediation of attitude toward organic foods between health consciousness and subjective norm on purchase intention among Chinese consumers. Therefore, the H3c and H5c null hypotheses are accepted. Nevertheless, price perception and marketing communication do not show significant influence on purchase intention when the mediator (attitude toward organic foods) is included in the

model. As a result, it could be concluded that attitude toward organic foods is not a mediator between marketing communication, purchase intention, and price perception, thus, H4c and H6c are rejected.

**Table 5.** Testing Mediator Effects Using Multiple Regression.

Hypothesis	Mediation: EA→AT→PI	Estimate ( $\beta$ )	<i>p</i> -Value	Requirements for Next Step	Result
H2c	Step 1: EA→PI	0.409	0.000	Statistically Significant	Satisfied
	Step 2: EA→AT	0.352	0.000	Statistically Significant	Satisfied
	Step 3: AT→PI	0.450	0.000	Statistically Significant	Satisfied
	Step 4: EA × AT→PI	0.385	0.000	Step 1: <i>p</i> -value < 0.05 Step 4: <i>p</i> -value < 0.05	Full Mediation
Hypothesis	Mediation: HC→AT→PI				
H3c	Step 1: HC→PI	0.445	0.000	Statistically Significant	Satisfied
	Step 2: HC→AT	0.397	0.000	Statistically Significant	Satisfied
	Step 3: AT→PI	0.450	0.000	Statistically Significant	Satisfied
	Step 4: HC × AT→PI	0.459	0.000	Step 1: <i>p</i> -value < 0.05 Step 4: <i>p</i> -value < 0.05	Full Mediation
Hypothesis	Mediation: PP→AT→PI				
H4c	Step 1: PP→PI	-0.097	0.113	Statistically not Significant	Not Satisfied
	Step 2: PP→AT	-0.081	0.137	Statistically not Significant	Not Satisfied
	Step 3: AT→PI	0.450	0.000	Statistically Significant	Satisfied
	Step 4: HC × PP→PI	-0.067	0.186	Step 1: <i>p</i> -value > 0.05 Step 4: <i>p</i> -value > 0.05	No Mediation
Hypothesis	Mediation: SN→AT→PI				
H5c	Step 1: SN→PI	0.386	0.000	Statistically Significant	Satisfied
	Step 2: SN→AT	0.295	0.011	Statistically Significant	Satisfied
	Step 3: AT→PI	0.450	0.000	Statistically Significant	Satisfied
	Step 4: SN × AT→PI	0.311	0.001	Step 1: <i>p</i> -value < 0.05 Step 4: <i>p</i> -value < 0.05	Full Mediation
Hypothesis	Mediation: MC→AT→PI				
H6c	Step 1: MC→PI	0.318	0.001	Statistically Significant	Satisfied
	Step 2: MC→AT	0.053	0.680	Statistically not Significant	Not Satisfied
	Step 3: AT→PI	0.450	0.000	Statistically Significant	Satisfied
	Step 4: MC × AT→PI	0.132	0.094	Step 1: <i>p</i> -value < 0.05 Step 4: <i>p</i> -value > 0.05	No Mediation

Note: Attitude towards organic foods (AT), environmental awareness (EA), health consciousness (HC), price perception (PP), subjective norm (SN), marketing communications (MC), purchase intention (PI).

## 5. Discussion of Major Findings

This paper aimed to understand the most important factors that could affect organic food purchase behaviors among Chinese consumers, in order to provide suggestions and worthwhile information for Chinese organic retailers to expand their market. The questionnaire focused on the attitudes of consumers and purchase intention, as well as the impact of internal and external factors on consumer intention to buy organic foods. First, the results reveal that generating a positive attitude toward organic foods enables significant consideration for retailers aiming to raise the purchase intention of consumers toward organic foods. Namely, if Chinese consumers maintain a positive attitude to organic foods, they will be more willing to exercise their purchase intention. The findings of this study could be particularly helpful for practitioners desiring to elevate the positive evaluation of

consumers concerning organic food in general. Furthermore, based on the results, health consciousness, environment awareness, and the subjective norm are proven to influence consumer attitude and purchase intention toward organic foods in China. This finding corroborates the findings of Mohiuddin et al. [25], and Teng and Wang [36]. Retailers should pay close attention to the benefits of organic foods, in order to be successful in encouraging consumers to purchase organic foods. The more conscious consumers are of their environmental awareness and health, the more experiences or knowledge they acquire, and the more positive their individual beliefs regarding the value of using organic foods, the more positive their attitudes will become. The growing appreciation of the eco-friendliness and health consumption of organic foods in China provide a significant approach for designing interventions for shifting behavior.

Hypotheses H4a and H4b predict that price perception would have no significant negative effect on consumer attitude and purchase intention toward organic foods, which is inconsistent with former studies that stated that premium prices were the most important constraint in the purchasing of organic foods [30,33]. The organic food consumers in this survey accepted the more expensive prices of organic foods, as compared to non-organic foods. This result conforms to the outcome of other studies, which stated that a sufficiently large proportion of consumers were resistant to the premium prices of organic foods. Consumers frequently relate to sales promotion pricing to determine whether good value is achieved from an organic food purchase. Additionally, marketing communication is found to positively influence consumer attitude and intention regarding organic foods, and this result is consistent with those of Pearson et al. [33], and Lian, Safari and Mansori [44].

Lastly, the findings related to the mediating effects of attitude toward organic foods on the relationships, among internal and external factors and consumer intention to purchase organic foods, as well as environmental awareness, health consciousness, subjective norm, and purchase intention among Chinese consumers, are found to be statistically significant. This implies that, while consuming organic foods, Chinese consumers will assure themselves that they are behaving responsibly in regard to the environment and health consciousness, and these issues are significant in shifting the intention of consumers toward buying organic foods. This result is consistent with the empirical findings of Thøgersen et al. [22], Divya & Nakkeeran [10], who found that consumer knowledge of organic foods is the most commonly mentioned reason for purchasing organic foods.

## 6. Implications of Study

A model predicting the intention to purchase organic foods among Chinese consumers is confirmed in the present research. To conclude, this paper not only provides a theoretical approach, it also reveals opportunities in the new economic context for China's organic food producers, retailers, and distributors. Attitude toward the environment is also shown to have positive and important effect on the intentions of Chinese consumers to purchase organic food, showing that they emphasize healthy consumption and eco-friendliness. Based on the outcomes of this study, organic food producers and marketers in China are advised to communicate and advertise organic food features, the contributions of organic food consumption toward sustainable and moral consumption, health-related profits, and benefits to environmental protection to their potential customers to stimulate primary demand. It is, therefore, important for organic food product marketers to keep these values and objectives in mind when producing organic foods, setting prices, designing sales promotion activities and marketing communications, and making sure organic foods are conveniently available. Efforts should be made by businesses for cultivating the indirect and direct benefits of environmental preservation and human wellbeing through social media.

Regarding the managerial implications, organic foods in China have become popular for their health properties. Consumer intention to purchase organic foods in China can be raised by the proper motivation to consume healthy foods. Adequate marketing strategies and effective promotional campaigns that articulate the health value of organic foods are required. Regarding ingredients, the message should be explicit and as detail-oriented as possible, including the production process

and how it positively affects the health of consumers. Increasing the level of the subjective norms and positive attitudes will raise the likelihood of consumers to purchase organic foods; thus, it is significant for businesses to apply organic cause-related marketing in promotional activities and advertising.

The respondents demonstrated a negative reaction to price, which affects the attitude and purchase intention of consumers in regard to organic foods; this result validated the findings of other studies. Affordability and the cost of organic food production could, therefore, be better indicators for setting and adjusting prices. Providing more information about the production and control processes of organic foods may help in decreasing uncertainty, increasing trust and knowledge, and raising consumer purchase intention. Organic food marketing is still at the infant stage in China, thus, Chinese sellers are advised to raise consumers' knowledge of organic foods, and clarify the distinctions between conventional and organic foods in the marketplace, thereby, educating consumers about the reasons for charging a premium price, so they will be more willing to purchase organic foods, given the significant mediating effects of attitude, environmental awareness, health consciousness, and subjective norm in forecasting the behavioral intention of consumers. It is crucial to convince consumers that they can make a difference in the environment and their health by using organic foods.

## 7. Limitations and Future Studies

The major limitation of this research is that the respondents were geographically located in China's coastal cities; therefore, the results may not reflect the whole nation's intention to buy organic foods. In a broader context, the results of this study may have been influenced by some other factors. This study on consumers' purchasing behavior of organic foods was restricted to the five key marketing stimuli factors, thus, to deepen the understanding of the factors affecting organic food consumers' purchase decision, more variables could be embraced in future studies; e.g., brand loyalty, accepted prices, and country of origin. Finally, the mediation effects show that more variables must be included in the model to reinforce the explanatory power and validity, and further the generalizability of the findings of this study. This research could help organic food producers to better understand consumers. The trend is shifting to become healthier, while the aging population is increasing, thus, further research should follow market trends to determine what future consumers will need.

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## References

1. Charoenpanich, A.; Vongurai, R. The factors affecting healthy lifestyle and attitude towards organic foods: A case study of people living in Bangkok, Thailand. *ABAC ODI J. Vis. Act. Outcome* **2018**, *5*, 102–116.
2. Monk, A. Australian Organic Market Report 2017. 2018. Available online: [https://ausveg.com.au/app/uploads/2017/12/Monk\\_Bradley.pdf](https://ausveg.com.au/app/uploads/2017/12/Monk_Bradley.pdf) (accessed on 10 June 2018).
3. Singapore Economic Development Board (EDB). Growing Naturally and Organically. Available online: <https://www.edb.gov.sg/en/news-and-resources/insights/innovation/growing-naturally-and-organically.html> (accessed on 10 June 2018).
4. Willer, H.; Kilcher, L. (Eds.) *The World of Organic Agriculture. Statistics and Emerging Trends 2009*; Research IFOAM Organics International: Bonn, Germany; Institute of Organic Agriculture FiBL: Frick, NY, USA, 2009.
5. Mainardes, E.W.; Araujo, D.V.B.D.; Lasso, S.; Andrade, D.M. Influences on the intention to buy organic food in an emerging market. *Mark. Intell. Plan.* **2017**, *35*, 858–876. [CrossRef]
6. Sundar, A.; Kardes, F.R.; Wright, S.A. The influence of repetitive health messages and sensitivity to fluency on the truth effect in advertising. *J. Advert.* **2015**, *44*, 375–387. [CrossRef]
7. Seufert, V.; Ramankutty, N.; Foley, J.A. Comparing the yields of organic and conventional agriculture. *Nature* **2012**, *485*, 229–232. [CrossRef] [PubMed]
8. Petrescu, A.G.; Oncioiu, I.; Petrescu, M. Perception of organic food consumption in Romania. *Foods* **2017**, *6*, 42. [CrossRef] [PubMed]

9. Ajzen, I.; Fishbein, M. *Understanding Attitudes and Predicting Social Behavior*; Prentice-Hall: Englewood Cliffs, NJ, USA, 1980.
10. Divya, M.; Nakkeeran, S. The mediating effect of perceived knowledge, subjective norms, health consciousness on willingness to consume functional foods in India. *TAGA J. Graph. Technol.* **2018**, *14*, 1101–1120.
11. Michelsen, J. *Organic Agriculture: Sustainability, Market and Policies*; The Role of Research, Information and Communication; Cabi Publishing: Cambridge, MA, USA, 2003; pp. 287–314.
12. Lockie, S.; Lyons, K.; Lawrence, G.; Grice, J. Choosing organics: A path analysis of factors underlying the selection of organic food among Australian consumers. *Appetite* **2004**, *43*, 135–146. [[CrossRef](#)] [[PubMed](#)]
13. BioFach China. China's organic market growth and 12th BioFach in Shanghai. In Proceedings of the 2018 International Trade Show for Organic Products, Shanghai, China, 23–24 September 2018.
14. Gan, C.; Zhiyou, C.; Tran, M.C.; Cohen, D.A.; Xiangxiang, W. Consumer Attitudes toward the Purchase of Organic Products in China. *Int. J. Bus. Econ.* **2016**, *15*, 117–144.
15. Leong, T.P.; Paim, L. Mediating effects of intention on the factors affecting organic food products consumption among Chinese generation y in Malaysia. *Int. J. Bus. Res. Manag. (IJBRM)* **2015**, *6*, 1–19.
16. Yen, T.F. Managing self-congruity to influence behavioral intention in organic food contexts in Fujian province, China. In Proceedings of the MATEC Web of Conferences 2017 (ICPMMT 2017), Pingtung, Taiwan, 19–21 May 2017. [[CrossRef](#)]
17. Chung, L.M.Y. To revisit the effect of drivers of purchasing behavior on purchase frequencies of organic foods. *J. Food Nutr. Disord.* **2017**, *6*. [[CrossRef](#)]
18. Suprpto, B.; Wijaya, T. Model of consumer's buying intention towards organic food: A study among mothers in Indonesia. *Int. Proc. Econ. Dev. Res.* **2012**, *29*, 173–180.
19. Hassan, S.H.; Yee, L.W.; Ray, K.J. Purchasing intention towards organic food among generation Y in Malaysia. *J. Agribus. Mark.* **2015**, *7*, 16–32.
20. Gracia, A.; De Magistris, T. Organic food product purchase behavior: A pilot study for urban consumers in the south of Italy. *Span. J. Agric. Res.* **2007**, *5*, 439–451. [[CrossRef](#)]
21. Yang, M.; Al-Shaabani, S.; Nguyen, T.B. Consumer Attitude and Purchase Intention towards Organic Food: A Quantitative Study of China. Master's Thesis, Linnaeus University, Småland, Sweden, 2014.
22. Thøgersen, J.; Zhou, Y.; Huang, G. How stable is the value basis for organic food consumption in China? *J. Clean. Prod.* **2016**, *134*, 214–224. [[CrossRef](#)]
23. Smith-Spangler, C.; Brandeau, M.L.; Hunter, G.E. Are organic foods safer or healthier than conventional alternatives? A systematic review. *Ann. Intern. Med.* **2012**, *157*, 348–366. [[CrossRef](#)] [[PubMed](#)]
24. Biel, A.; Thøgersen, J. Activation of social norms in social dilemmas: A review of the evidence and reflections on the implications for environmental behavior. *J. Econ. Psychol.* **2007**, *28*, 93–112. [[CrossRef](#)]
25. Mohiuddin, M.; Mamun, A.A.; Syed, F.A.; Masud, M.M.; Su, Z. Environmental knowledge, awareness, and business school students' intentions to purchase green vehicles in emerging countries. *Sustainability* **2018**, *10*, 1534. [[CrossRef](#)]
26. Oroian, C.E.; Safirescu, C.O.; Harun, R.; Chiciudean, G.O.; Arion, F.H.; Muresan, I.C.; Bordeanu, B.M. Consumers' attitudes towards organic products and sustainable development: A case study of Romania. *Sustainability* **2017**, *9*, 1559. [[CrossRef](#)]
27. Kim, H.Y.; Chung, J.E. Consumer purchase intention for organic personal care products. *J. Consum. Mark.* **2011**, *28*, 40–47.
28. Kapuge, K.D.L.R. Determinants of organic food buying behavior: Special reference to organic food purchase intention of Sri Lankan customers. *Procedia Food Sci.* **2016**, *6*, 303–308. [[CrossRef](#)]
29. Hossain, M.T.B.; Lim, P.X. Consumers' Buying Behavior towards Organic Foods: Evidence from the Emerging Market. *Malays. Manag. Rev.* **2017**, *51*, 7–25.
30. Yilmaz, B.S.; Ilter, B. Motives underlying organic food consumption in Turkey: Impact of health, environment, and consumer values on purchase intentions. *Econ. World* **2017**, *5*, 333–345. [[CrossRef](#)]
31. Kareklas, I.; Carlson, J.R.; Muehling, D.D. I eat organic for my benefit and yours: Egoistic and altruistic considerations for purchasing organic food and their implications for advertising strategists. *J. Advert.* **2014**, *43*, 18–32. [[CrossRef](#)]
32. Díaz, F.J.M.; Pleite, F.M.C.; Paz, J.M.M.; García, P.G. Consumer knowledge, consumption, and willingness to pay for organic tomatoes. *Br. Food J.* **2012**, *114*, 318–334. [[CrossRef](#)]



33. Pearson, D.; Henryks, J.; Sultan, P.; Anisimova, T. Organic food: Exploring purchase frequency to explain consumer behavior. *J. Org. Syst.* **2013**, *8*, 50–63.
34. Ha, C.L. The theory of reasoned action applied to brand loyalty. *J. Prod. Brand Manag.* **1998**, *7*, 51–61.
35. Tarkiainen, A.; Sundqvist, S. Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. *Br. Food J.* **2005**, *107*, 808–822. [[CrossRef](#)]
36. Teng, C.; Wang, Y. Decisional factors driving organic food consumption. *Br. Food J.* **2015**, *117*, 1066–1081. [[CrossRef](#)]
37. Krueger, N.F., Jr.; Reilly, M.D.; Carsrud, A.L. Competing models of entrepreneurial intentions. *J. Bus. Ventur.* **2000**, *15*, 411–432. [[CrossRef](#)]
38. Bamberg, S.; Möser, G. Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behavior. *J. Environ. Psychol.* **2007**, *27*, 14–25. [[CrossRef](#)]
39. Pandey, S.; Srivastava, S. Antecedents of customer purchase intention. *IOSR J. Bus. Manag.* **2016**, *18*, 55–82. [[CrossRef](#)]
40. Lim, W.M.; Yong, J.L.S.; Suryadi, K. Consumers' perceived value and willingness to purchase organic food. *J. Glob. Mark.* **2014**, *27*, 298–307. [[CrossRef](#)]
41. Kumar, B. *Theory of Planned Behavior Approach to Understand the Purchasing Behavior for Environmentally Sustainable Products*; Working Paper; Indian Institute of Management: Ahmadabad, India, 2012.
42. Buhrmester, M.; Kwang, T.; Gosling, D.S. Amazon's Mechanical Turk a new source of inexpensive, yet high-quality, data? *Perspect. Psychol. Sci.* **2011**, *6*, 3–5.
43. Baron, R.M.; Kenny, D.A. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *J. Personality Social Psychol.* **1986**, *51*, 1173–1182. [[CrossRef](#)]
44. Lian, S.B.; Safari, M.; Mansori, S. The marketing stimuli factors influencing consumers' attitudes to purchase organic food. *Int. J. Bus. Manag.* **2016**, *11*, 109–119. [[CrossRef](#)]



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