

Article

Evaluating the Consumer Attitude and Behavioral Consumption of Green Products in Vietnam

Dat Duy Nguyen 

Faculty of Economics and International Business, Thuongmai University, Hanoi 122868, Vietnam; dat.nd@tmu.edu.vn

Abstract: For the past few years, environmental degradation has become increasingly worse. Most nations, particularly developing nations, are experiencing excessive economic expansion, which has decreased natural resources and increased environmental pollution. Numerous nations have created plans to safeguard the environment and lessen harmful human effects on its resources. Transforming to using green products is the most powerful strategy to protect the environment. This study aims to investigate Vietnamese consumers' decision to buy green products by assessing influencing factors, typically consumer consciousness. Data were collected from consumers across several major cities in Vietnam and analyzed using structural equation modeling (SEM). The primary factors include consumer awareness, consumption trends, reference groups, government policies, demand for green products, and economic factors. Research results show that most of the variables have a positive impact on the transition to green product consumption. Consumer awareness strongly impacts the transition to the consumption of green products and environmental responsibility on green purchase intention. The findings also reinforce the current view that pro-environmental factors override self-interest in buyer decision-making. Research results also show that government policies also affect green consumption behavior. Therefore, the government needs to develop policies to encourage green consumption.

Keywords: SEM; consumer awareness; consumption; green products; Vietnam



Citation: Nguyen, D.D. Evaluating the Consumer Attitude and Behavioral Consumption of Green Products in Vietnam. *Sustainability* **2023**, *15*, 7612. <https://doi.org/10.3390/su15097612>

Academic Editors: Abdullah Al Mamun, Naeem Hayat and Mohammad Enamul Hoque

Received: 26 February 2023

Revised: 1 April 2023

Accepted: 7 April 2023

Published: 5 May 2023



Copyright: © 2023 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Environmental pollution has become increasingly severe in recent years. Economic growth is too fast in many countries, especially developing countries, which have reduced natural resources, increased environmental pollution, and increased CO₂ emissions. Many countries have devised strategies to protect the environment and minimize negative human impacts on the environment and natural resources. One of the solutions is to use environmentally products.

Addressing environmental issues has attracted much research in recent times. Geng et al. [1] mentioned solutions from environmental management agencies and manufacturing enterprises with the use and management of waste. Much literature describes the important role of the consumer. Consumers play the role of buying and consuming products [2]. They are also subject to direct or indirect impacts on the environment. Therefore, consumers play an important role in all environmentally related issues.

Moreover, the trend of most countries in the world today is green consumption, circular economy development, and CO₂ neutralization toward environmental protection [3]. Therefore, the use of environmentally friendly products requires the participation of manufacturers and consumers. Consumers are increasingly giving preference to products that are both healthy and good for the environment [4].

Consumption of green products is a way to protect the environment and has received research attention from environmental management agencies, manufacturing enterprises,

and social organizations [5]. However, the consumer factor plays a key role in this transition. Consumers are the ones who play a direct role in the decision-making for green products. Consumers are also those who are directly affected by the environmental field [6]. Therefore, it is necessary to have consumers as participants in solving problems related to the environment [7,8].

Consumers also tend to buy products of good quality for health and good for the environment [9]. However, what factors influence the decision of the customer to transition to green consumption? Is consumer awareness one of the important factors that change consumption trends? Besides environmental awareness, what other factors influence the purchase of green products? This paper explores the basic factors under the theory of planned behavior (TPB) and customer behavior theory to assess the degree of influence on the transition to green products. The basic factors include economics, demand for green products, risks when buying products, government policies, reference groups, and consumption trends.

2. Literature Review

2.1. Green Consumption

Green products are defined as products that do not pollute the environment or deplete resources. Green products can be recycled or preserved. Green products can be packaged with environmentally friendly materials, reducing environmental impact [10]. Jassen and Jager [11] argued that green products are characterized by environmental friendliness. Tseng and Hung [12] also define green products as products that prevent, limit, minimize, and overcome harmful environmental, water, air, and land impacts. Green products can also be reused or used as recycled materials. In summary, green products are created based on non-toxic materials, do not affect the environment, save energy, and can be recycled [13].

In green consumption research, two antecedent factors, individualism and collectivism, also attract the attention of researchers. Collectivist often think independently and prioritize group/collective interests [14] and collectivists follow the majority and put the group's interests first. Wang [15] observed that individuals who tend to be collectivists would value green consumption intentions more than individualists. Research by Varsheya et al. [16] investigated the impact of green consumption values and social influence on the intention to buy organic clothing. The author proposed five hypothesis groups and used the SEM linear structure model to evaluate the research results. Research results show that attitude mediates the relationship between green consumption value and intention to buy organic clothing. The results also show that for products at an early stage of the product life cycle, such as organic clothing, social influence does not play an important role, even in collectivist cultures.

Research by Gifford and Nilsson [17] shows that many consumers find it difficult and confused to participate in environmental actions when they are not fully informed, have incorrect information, or have no knowledge when choosing green products. Johnstone [18] also suggest that consumers often underestimate their own energy consumption, leading to more energy consumption and emissions. Public ignorance can be a psychological barrier to the adoption of electrified vehicles [19].

2.2. Green Product Consumption Behavior

Green product consumption behavior is the willingness to buy green products within the consciousness of the environmental protection field [5]. Intention to purchase green products is considered a measure of future green consumption behavior [12]. The theory of planned behavior (TPB) is believed to influence consumption behavior toward green products. TPB suggests that attitude toward behavior, subjective norm, and perceived behavioral control are the three determinants of the behavioral intention [20]. To date, behavioral theory has been used to study consumer behavior in many fields. In the consumption of green products, there are many concepts related to attitudes, such as green attitudes, attitudes toward the environment, attitudes toward green consumption, and the

relationship between attitudes toward the environment [21]. Many previous studies have also used consumer attitudes related to green consumption to predict energy-saving use or purchase and use of eco-related products. Balderjahn [22] has suggested that a positive attitude toward life and being ecologically conscious leads consumers to express openly their concerns about the environment.

Chan et al. [23] has shown that green product consumption and consumer behavior is a global trend. Consumers are gradually turning to buying green products because of environmental protection awareness. Many “green consumption” movements have spread worldwide because of increasing awareness about healthy living environments.

Yahdavi and Pathak [24] have shown that most research on green consumption behavior is conducted in Western countries, while few studies are related to green consumption in developing countries. Vicente-Molina et al. [25] also showed that studies on green consumption behavior are popular in many different countries, but there are still few studies in emerging countries.

2.3. Factor Affecting the Green Consumption

From the consumer’s perspective, environmental knowledge can be understood as the consumer’s assessment of consumption-related issues that can positively or negatively affect the environment [24,26,27]. The literature shows that general environmental knowledge positively influences consumers’ beliefs and attitudes toward environmentally friendly products [28]. These positive changes will lead to consistent actions to protect the environment. Pothitou [29] believes that people knowledgeable about the environment can change their consumption habits. People with better environmental knowledge will protect the environment by taking actions such as using public transport and buying reusable goods. Levine and Strube [30] suggest that consumer knowledge and intentions significantly predict their environmental actions through different pathways.

The study of Shepherd et al. [31] provided a list of variables that directly affect green consumption behavior at commercial and non-commercial levels. Maréchal [32] analyzes the behaviors that directly affect the purchase of environmentally friendly goods and emphasizes the role of habits in consumer purchasing. The study by Wüstenhagen et al. [33–35] is based on the triad sequence of the TPB theory, and key influencing factors show that personal standards, perception of self-efficacy, and willingness to pay are the main factors affecting green consumption behavior. Factors that indirectly affect consumption behavior include awareness and benefits. In addition, many studies show that in the current context, beliefs play an important role in regulating the relationship between attitude, intention, and decision in the chain of consumer behavior [36–38].

Gifford and Chen [17] confirmed that factors such as environmental awareness and perceived performance are also factors that directly influence green consumption. Research reported in [39,40] used behavioral inference theory and showed that attitudes and intentions are both influenced by factors that promote green behavior.

Previous studies have shown that environmental knowledge positively influences consumer confidence in green products. In Vietnam, people are also becoming more conscious of green consumption to protect the environment. However, there have not been many empirical studies on the factors affecting the consumption of green products by consumers. Therefore, this paper describes research on the factors affecting the transition to green product consumption.

3. Research Methodology

3.1. Research Design

This study uses the survey method by questionnaire and a linear structural model (SEM) to analyze the data. SEM models use multivariate relationship analysis between observed and latent variables [41]. Observing latent variables is the most prominent advantage of the SEM model over other regression models. The SEM model also helps estimate conceptual values, allows for the concurrent implementation of many dependent

variables, provides goodness-of-fit indicators for test models, and can improve underfit models [42].

The author conducted an interview survey with 460 votes to implement the SEM model. The number of votes remaining after cleaning was 448 votes. The questionnaire is divided into two basic parts: basic information of respondents, including age, gender, income, and education level. Part 2 is the respondents' level of agreement on issues related to the consumption of green products. The Likert scale measures the level of agreement with levels from 1 to 5, where one strongly disagrees and five strongly agree.

Interviewees are consumers in some major cities and provinces in Vietnam. The questionnaire was conducted through Google Forms and collected through social networks and face-to-face interviews. Data collection was carried out for six months, from June 2022 to December 2022. The sample size was sufficient for use in the SEM model.

3.2. Research Model

This study uses behavioral psychology theories, such as the theory of planned action (TPB), to implement the questionnaire setup. The research model is designed as shown in Figure 1. The research hypotheses are as follows:

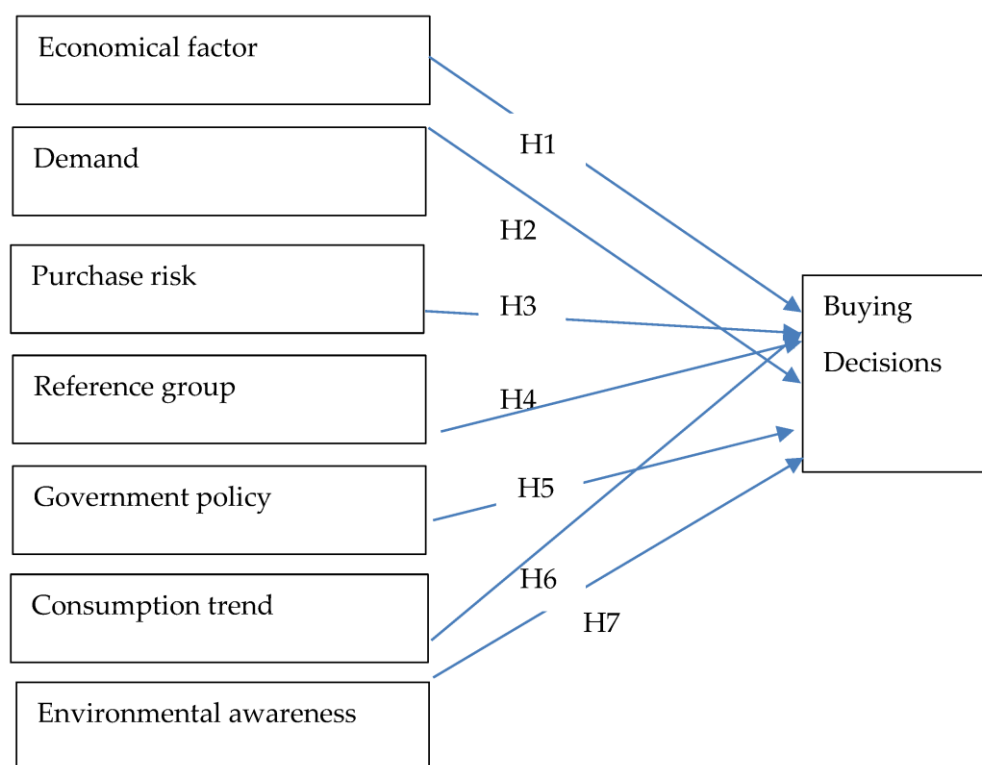


Figure 1. Model of factors affecting the decision to buy green products.

H1: *The economics of green products have a positive impact on the decision to consume green products.*

Previous studies have shown that social influence positively affects the intention to buy green products. Therefore, this study hypothesizes that social factors positively influence purchasing decisions. Luarn and Lin [43] argued that perceived monetary value affects users' behavioral intentions toward mobile communication services. When consumers perceive that the price of a green product is guaranteed, their willingness to buy a green product will increase. Lin and Huang [13] determined that consumers are willing to pay a higher price for a green product when they believe the product is worth it. Therefore, this

study hypothesizes that perceived monetary value positively affects green consumption decisions.

H2: *Consumer demand for green products has a positive impact on the decision to consume green products.*

The need to buy green consumer goods is one of the factors related to customer attitudes. Purchase needs are mentioned in the theory of rational behavior and planned behavior (TPB). The impact of subjective norms on purchasing decisions is said to be positively related in the studies of Lam and Hsu [44] and Bhatti et al. [45].

H3: *The risk of consuming green products has a negative impact on the decision to consume green products.*

The risk of buying green consumer goods is considered in terms of perception. The perceived risk stems from uncertainty about the potential negative consequences associated with a choice. Falugera [46] argued that consumers could not predict with certainty the consequences of a purchase. Baurer [47] argued that risk could be assessed based on two aspects: (1) Uncertainty due to consumer perception. Risks can be in aspects such as price specifications. As such, it will influence consumer choice. (2) Consequences can be determined through the following types of losses: financial loss, performance loss, material loss, and social loss. Mitchel and Harris [48] analyze that consumers consider a buying situation to be risky when they feel that there is a high probability of a negative outcome or, conversely, a low probability of a positive outcome.

H4: *The reference group also has a positive effect on the decision to consume green products.*

According to Ajzen [20], the reference group is a criterion in the subjective norm. Subjective norms are the individual's perception of relevant and important people.

Rise et al. [49] also argues that a subjective norm is an individual's perception of a person or group to refer to a certain behavior. In other words, the concept takes into account the possibility that important people may or may not accept the individual's behavior. Subjective norms reflect societal pressures on an individual's perception of a particular behavior. In this hypothesis, the reference group is one of the influencing factors for green product consumption decisions.

H5: *Government policy also positively affects the decision to consume green products.*

Spark and Spherd [31] have shown that government policies are the main predictor of environmental attitudes; therefore, environmental legislation affects consumers' attitudes toward the environment. Tan [21] hypothesized that the role of government positively influences consumers' attitudes toward the environment and products. Research by Holbert et al. also suggests that specific media content (e.g., TV advertising) positively affects consumers' environmental attitudes [50]. Wray et al. [51] showed that media exposure positively affects consumers' environmental attitudes and behavior. Good [52] suggests that environmental reporting by the media positively affects environmental attitudes. This study hypothesizes that government policies positively influence consumers' attitudes toward the environment.

H6: *Consumption trends also have a positive impact on the decision to consume green products.*

In the study of intention, it was found that subjective norms have a significant impact on intention. Research by Janssen and Jager [11] in the same field does not support the influence of subjective norms on intention but concludes that subjective norms do not affect the intention to learn. Research by Maio and Oslan [37] shows that social trends are one of the factors that affect individuals' consumption behavior.

H7: *Awareness of environmental protection has a positive impact on the decision to consume green products.*

In the theory of planned behavior, attitude toward behavior is a person's favorable or unfavorable evaluation of the behavior in question. Attitude toward behavior, along with subjective norm and perceived behavioral control, are the three variables that determine the intention to perform the behavior [20]. Consumer attitudes related to green consumption have also been used in previous studies to predict energy-saving use or purchase and use of eco-related products. Gifford and Chen [53] have found that a positive attitude toward life and being ecologically conscious leads to the purchase and use of eco-responsible products. Falguera et al. [46] argued that the attitude toward the environment is the awareness of protecting the environment. When consumers express their likes or dislikes in the decision-making process, it affects their purchasing behavior for products related to the environment. Haron et al. [54] also defines attitudes toward green consumption that represent an individual's awareness of their responsibility toward the environment.

4. Results

4.1. Statistical Analysis

A total of 460 questionnaires were collected, of which 12 responses were rejected because they did not meet the study's eligibility criteria. Among the research sample, 53.8% are female, and 46.2% are male. In terms of age, the age group 18–24 years old accounted for 20.5%; 25–34 accounted for 18.5%; 35–44 accounted for 31.7%; 45–54 accounted for 22.1%; and more than 54 years old accounted for 7.1%. Regarding occupation, managers accounted for 13.6%; business people accounted for 22.3%; civil servants accounted for 15.2%; manual workers accounted for 17.6%; and other occupations accounted for 8.7%.

4.2. Evaluate the Reliability of the Scale

The study evaluated the scale's reliability by using Cronbach's alpha coefficient. Testing the reliability coefficient of the scale plays an important role in the accuracy of the research. Evaluating the scale's reliability can eliminate the observed variables (see Appendix A Table A1) that are not reliable enough. Scales with a coefficient of 0.5 and above were accepted [41]. The results in Table 1 show that Cronbach's alpha coefficients are all greater than 0.6, so the scales are reasonably good and have a high level of reliability (Table 1).

Table 1. Results of the reliability analysis of the scale.

Code	Scale	Number of Observed Variables	Cronbach's Alpha Coefficient	Conclusion
ECO	Economical	6	0.893	Accept
DEM	Demand for green product	5	0.873	Accept
RIS	Purchase risk	6	0.785	Accept
REF	References groups	4	0.861	Accept
POL	Government policy	4	0.815	Accept
TRE	Consumer trending	3	0.891	Accept
EVN	Environmental protection	3	0.881	Accept
DEC	Buying decisions	3	0.809	Accept

4.3. EFA—Exploratory Factor Analysis

The main objective of EFA exploratory factor analysis is to determine whether the proposed factors influence the decision to purchase green consumer products. In the proposed research model, seven independent factors (corresponding to 34 independent variables—see Appendix A Table A1) are assumed to affect the decision to buy green consumer goods.

The KMO coefficient of the independent variable obtained in the model is $0.869 > 0.5$, with $\text{sig} = 0.00 < 0.05$, satisfying the EFA analysis conditions. Thus, all observed variables are accepted to conduct exploratory factor analysis.

The rotation matrix also shows that the factors are all 0.5, so the variables are kept the same, and no variables are excluded, especially since no elements are uploaded twice (Table 2).

Table 2. Rotation pattern matrix.

	Component							
	1	2	3	4	5	6	7	8
ECO5	0.905							
ECO1	0.856							
ECO6	0.831							
ECO3	0.758							
ECO2	0.743							
ECO4	0.723							
DEM4		0.884						
DEM2		0.820						
DEM3		0.803						
DEM5		0.759						
DEM1		0.746						
RIS5			0.906					
RIS4			0.883					
RIS2			0.877					
RIS1			0.785					
REF4				0.866				
REF2				0.854				
REF1				0.841				
REF3				0.774				
POL2					0.844			
POL3					0.836			
POL4					0.766			
POL1					0.743			
TRE2						0.918		
TRE1						0.915		
TRE3						0.832		
EVN1							0.898	
EVN2							0.869	
EVN3							0.855	
DEC1								0.659
DEC2								0.652
DEC3								0.587

Extraction method: principal component analysis. Rotation method: Promax with Kaiser normalization. Rotation converged in six iterations.

4.4. Check Model Fit

In this model, the criteria are chi-squared with p -value < 0.05 ; CFI comparability index (comparative fit index); GFI (goodness-of-fit index); TLI; PCLOSE; and RMSEA (root mean square error approximation) index. If a model receives GFI, TLI, and CFI values between 0.7 and 1, RMSEA values < 0.08 , and PCLOSE > 0.9 , then the model is considered to be in good agreement with the data [55]. The results show that chi-square/df is $1.927 < 3$; TLI is $0.713 > 0.7$; CFI is $0.755 > 0.7$; GFI is 0.866; RMSEA is $0.046 < 0.08$; and PCLOSE is 0.942. Thus, the model fit indicators are relatively good, indicating that the model is suitable (Figure 2). The covariance results show some relatively high error pairs. In this model, some error pairs have high errors, possibly due to duplication and similar interview questions. This problem can be fixed by some two-way arrows. A high modification

index (MI) indicates that if the two-way arrows are connected to this pair of errors, the MI coefficient is reduced and the model is better [55].

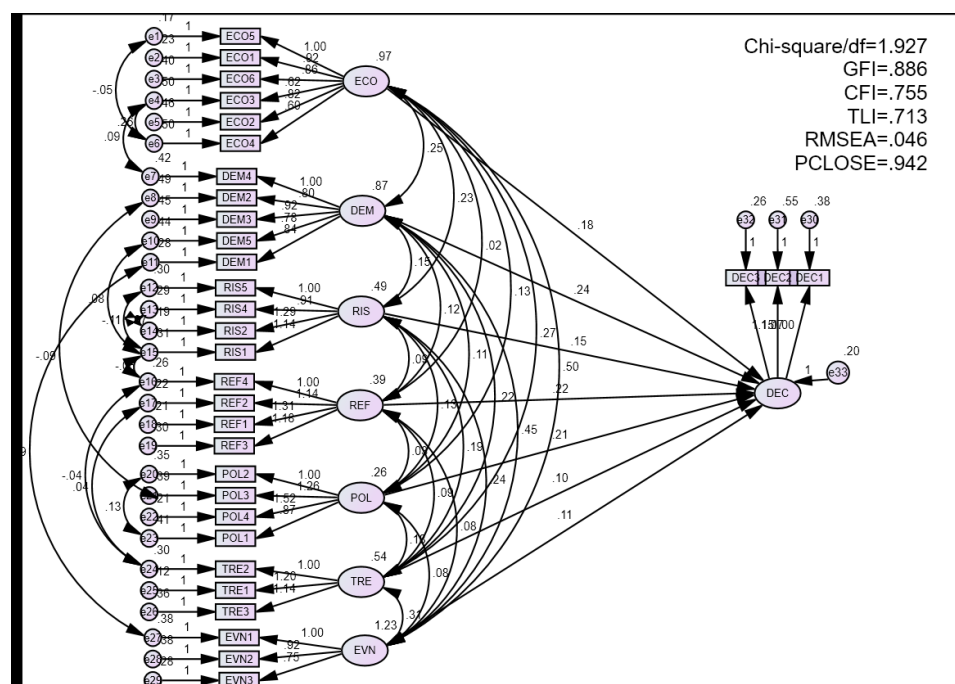


Figure 2. Structural model result.

4.5. Convergence Value Check

The scale must achieve the convergence value when the standardized weights of the scale are all high (>0.5) and exhibit a statistically significant p -value < 0.05 [56]. According to Table 3, the p -value is almost equal to $0 < 0.05$ in all factors when analyzing the regression weight (un-normalized). The estimated values in the un-normalized regression weight table are all positive, showing that the factors built into the model affect the decision to consume green products.

Table 3. Regression weights: (Group number 1—Default model).

			Estimate	S.E.	C.R.	p
DEC	<- -	ECO	0.176	0.039	4.473	***
DEC	<- -	DEM	0.240	0.042	5.781	***
DEC	<- -	RIS	0.150	0.052	2.882	0.004
DEC	<- -	REF	0.219	0.057	3.854	***
DEC	<- -	POL	0.210	0.079	2.658	0.008
DEC	<- -	TRE	0.101	0.057	1.775	0.076
DEC	<- -	EVN	0.107	0.036	2.971	0.003

*** 000.

Next is the normalized estimate of the regression weight; Table 4 shows that all estimates are >0.5 . It can be confirmed that the concepts achieve convergent validity. In the normalized regression weight shown in Table 3, the estimated values are also positive, thus the influence of the independent variables on deciding to buy the green product can be confirmed. Each value represents a degree of correlation between the variables. Large values represent a strong influence, and vice versa.

Table 4. Composite reliability and extracted variance.

	CR	AVE	MSV	ASV	EVN	ECO	DEM	RIS	REF	POL	TRE	DEC
EVN	0.896	0.742	0.303	0.155	0.861							
ECO	0.932	0.695	0.293	0.149	0.469	0.834						
DEM	0.896	0.632	0.364	0.143	0.468	0.309	0.795					
RIS	0.911	0.720	0.261	0.146	0.358	0.402	0.277	0.849				
REF	0.897	0.685	0.116	0.040	0.136	0.048	0.220	0.200	0.828			
POL	0.841	0.572	0.267	0.123	0.193	0.314	0.267	0.412	0.093	0.756		
TRE	0.894	0.738	0.294	0.178	0.403	0.411	0.355	0.426	0.214	0.517	0.859	
DEC	0.832	0.624	0.364	0.262	0.550	0.541	0.603	0.511	0.341	0.454	0.542	0.790

The combined reliability (AVE) and extracted variance (CR) are calculated based on the estimated factor weights in the CFA model of the scales [57]. Table 4 shows that the scales meet the requirements for aggregate reliability (AVE > 0.5). Regarding the extracted variance, all CR scales have values >0.6, so they are satisfactory.

4.6. Linear Structural Model Results

The SEM linear structure model is formed with seven independent variables affecting the dependent variable after converting two-dimensional arrows into one-dimensional arrows, according to the research model proposed. Model testing has an affirmative value for the given research model (Figure 2).

In the regression weight, there are six factors that have p -values less than 0.05, showing that the relationship between the factors in the model is statistically significant. The factor TRE, however, is $0.076 > 0.05$, so this factor is not statistically significant (Table 3).

The normalized regression weight table is applied to determine the degree of influence between the independent and dependent variables. The research results show that the factors in the model all affect the decision to buy green products. Therefore, the model's hypotheses are accepted.

5. Discussion

The model evaluation results show that the factors affecting the decision to consume green goods include:

The influence of the variables is arranged in the following order: DEM > ECO > REF > POL > EVN > RIS (Table 5). The variable TREN was excluded because it has a p -value > 0.05.

Table 5. Standardized regression weights: (Group number 1—Default model).

			Estimate
DEC	< - -	ECO	0.237
DEC	< - -	DEM	0.306
DEC	< - -	RIS	0.144
DEC	< - -	REF	0.186
DEC	< - -	POL	0.146
DEC	< - -	TRE	0.101
DEC	< - -	EVN	0.162

5.1. The Economics of Green Products Have a Positive Impact on the Decision to Consume Green Products

Many Vietnamese consumers are concerned about the economy when buying any products, including green products. In this research model, economics also strongly impacts

consumers' decisions to buy green products. If the economics of green products increases by 1 unit, the consumer's decision increases by 0.237 units.

Product prices affect consumers' choices when consuming green products. Price trust, price transparency, price-to-quality ratio, relative price, fair price (consumer's perception of the difference between a socially acceptable price or another comparator), are reasonable, acceptable, or justifiable [58]. These are the main motivations for choosing green products. High earners pay more for green products. Thus, the economy of the product is also one of the driving forces for consumers of green products. Price-sensitive consumers have a tradeoff with the environment. The results of this study are completely similar to studies such as Arvola et al. [59], Vermeir and Verbeke [60], Park and Rabolt [61], and Williams and Soutar [62].

5.2. Consumer Demand for Green Products Has a Positive Impact on the Decision to Consume Green Products

The demand for green products has the most decisive influence on the dependent variable. If consumer demand increases by 1 unit, the decision to consume green products increases by 0.306 units. For Vietnamese consumers, consumer demand is one of the most important factors leading to consumption decisions. The results of this study are similar to those of Mostafa [63] showing that the need to buy green products influences consumers' purchasing decisions. Kaiser [64] also shows that more than 50% of the need to buy green products can be used to explain consumer buying behavior toward green products.

5.3. The Risk of Consuming Green Products Has a Positive Impact on the Decision to Consume Green Products

The riskiness of consuming green products also positively impacts consumption decisions. However, the risk in this study was relatively low. This result is also consistent with the hypothesis because only some green products have great value, the risk is higher, and households need to consider more before making a decision. However, the research results of this hypothesis are uncertain. Usually, when consumers evaluate the risks that green products bring, they will not make a purchase decision. Consumers can under-evaluate the risk of green products, however, especially low-value consumer goods. Consumers can assess the risks of consuming green goods. Chen and Chang [65] suggested that risk factors negatively affect green consumption decisions.

5.4. The Reference Group Also Has a Positive Effect on the Decision to Consume Green Products

The reference group is moderately influential among the independent variables. When making consumption decisions related to green products, consumers consult with people who have experience consuming green products. The impact of the reference group increased by 1 unit, and the decision to consume green products increased to 0.186 units. The reference group is also one factor that strengthens consumers' confidence based on others' experiences to make the right decisions and avoid risks when buying goods. This study result is consistent with the studies of Tarkiainen and Sundqvist [66] and Vermeir [60].

Vietnam's culture is inherently a collective culture, so consumers are influenced by the reference group. Therefore, when the consumer group has more information from people around them, such as family, friends, or colleagues, they use this information to make consumption decisions. The more references there are, the more green purchasing decisions increase.

5.5. Government Policy Also Positively Affects the Decision to Consume Green Products

Government policy always has an impact on the consumption decisions of consumers. In this model, government policy increases by 1 unit, and consumers' decision to consume green products increases to 0.146 units. This factor moderately influences the consumer's decision to consume green products.

This result is also consistent with the studies by Haron et al. [54] and Pacheco [67]. Those who care about the environment believe that protecting the environment is the duty

of the government. Therefore, the government plays an important role in environmental protection. Under certain conditions, government officials may try to persuade responsible consumption, use the law, and raise public awareness to promote consumer awareness and concern about the relationship between the product and the environment. In this study, the role of the government was identified as the obligation of the government to protect the environment. When exposed to the media, members of the media propagate environmental concerns by rapidly sharing meaningful knowledge with the public. Green products can be advertised on TV. However, print advertising can facilitate sharing of insights and establish product image recognition among consumers. Therefore, recycled components or details need to be printed on product packaging to attract consumers.

5.6. The Awareness of Environmental Protection Positively Impacts the Decision to Consume Green Products

The beta coefficient of this variable shows that when consumers in Vietnam have more knowledge about the environment, the level of decision to consume green goods also increases: when the environmental protection point of view increases by 1 unit, the decision to consume green products increases by 0.162 units. The results of this study are similar to previous studies such as Lin and Huang [13], Mostafa et al. [63], and Liu et al. [68].

Many consumers do not give attention to environmental issues when purchasing consumer products. Environmental insights are one of the important variables contributing to green consumption intentions. The results of this study are also similar to previous studies such as Susanty et al. [69], Sajid et al. [70], and Liu et al. [68]. Nuttavuthisit and Thøgersen [28] show that the view of environmental protection has not greatly affected this model.

Along with the low awareness of environmental protection among Vietnamese people, many Vietnamese consumers still do not have the habit of using recycled products to reduce waste in the environment [71]. Less environmentally friendly products, such as plastic bags and foam boxes, are still popular among Vietnamese consumers. Therefore, it is necessary to strengthen communication and education on knowledge related to the environment so that they will increase their green consumption.

Environmental knowledge is one of the important factors contributing to promoting the intention to consume green products. Activities and programs enhance environmental knowledge to raise awareness and protect the environment while living and studying. Just changing a few habits of using recycled products can reduce the amount of waste in the environment. Using environmentally friendly products is also a practical action that contributes to environmental protection. When people have sufficient knowledge about the environment, they will be more active in searching for and choosing to buy environmentally friendly products. The formation of communities consuming green products helps consumers have more information and knowledge about products and contributes to spreading green lifestyles in the community.

6. Conclusions

These research results show the factors affecting Vietnamese consumers' consumption behavior of green products. From the research results, it can be concluded that Vietnamese consumers, when making consumption decisions in general and consuming green products, are influenced by reference groups and the people around them. Vietnamese consumer sentiment may be affected by the "crowd effect". In addition, a number of other factors, such as government policy, environmental awareness, risk perception, purchasing demand, or product economics, all have a positive impact on green consumption decisions.

In order to strengthen green consumption activities, the Government of Vietnam should develop and complete a legal framework on green consumption that would create a driving force to encourage and form green consuming habits in the market. In addition to green production, there should be green consumption policies. On the one hand, the government should encourage manufacturers to market green products and services,

promoting green consuming intentions and the behavior of consumers. Green behavior can be replicated across the country by prioritizing the development of industries, clean technology, and green production.

The Vietnamese government should have priority policies for businesses that are willing to participate in green production and are interested in the environmental management system. Moreover, local authorities need to strengthen propaganda to support people to understand information related to green consumption. Managers should devote more resources to building green consumer forums and groups to promote propaganda, support green consumption, and raise consumers' knowledge and interest in green consumption, thereby stimulating consumers to make more positive decisions for accepting green products.

7. Limitation of the Research

This article has many limitations that should be noted. Firstly, the data collection of the study only focuses on one country and a few large cities in Vietnam. Survey results can vary among cities and between developing countries. Second, the sample is not sufficiently large. If possible, researchers should attain larger sample sizes. In addition, this study did not select a specific green product. Failure to select a specific green product leads to deviations in answers to the question due to different product experiences. If possible, green products should be classified in future studies.

In addition, the author did not consult experts in proposing policy recommendations to suit the context of green consumption in Vietnam. Therefore, the recommendations in this study are subjective. Future studies can conduct in-depth interviews with experts in the field of green consumption for more appropriate recommendations and policies.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The author declares no conflict of interest.

Appendix A

Table A1. Coding table of research variables.

	EVN	Awareness of Environmental Protection When Transitioning to Green Product Consumption
1	EVN1	I always have the consciousness to protect the environment when I decide to switch to consuming green products
2	EVN2	I know that green products will help reduce environmental pollution
3	EVN3	I know that green products can be reused and thus reduce environmental pollution
	TRE	Consumption trends impact the transition to green products
4	TRE1	Society is tending to switch to consuming green and environmentally friendly products
5	TRE2	Society tends to save resources
6	TRE3	Society tends to use renewable products
	REF	Reference group
7	REF1	The opinion of relatives has an impact on the decision to switch to consuming green products

Table A1. Cont.

EVN		Awareness of Environmental Protection When Transitioning to Green Product Consumption
8	REF2	I refer to the experience of acquaintances in converting to consuming green products
9	REF3	An acquaintance introduced me to the transition to consuming green products
10	REF4	I saw my neighbor and relatives use it, so I bought it to try it out
	POL	Government policy affects the decision to transition to consuming green products
11	POL1	I am willing to switch to green products if I have financial support
12	POL2	I am ready to transfer to using green products if the government has the policy to encourage people to use green products.
13	POL3	I am ready to switch to using green products if the government has support in terms of old revenue innovation
14	POL4	I am willing to use it if the government carries out propaganda activities about the environment and green products
	RIS	Risks affecting the decision to consume green products
15	RIS 1	I am apprehensive if I have to spend a lot of money to buy great value green products that I am not sure about the effectiveness
16	RIS 2	I do not know the information that evaluates the effectiveness of green products
17	RIS 3	I feel hesitant when some green products have the complexity of ordering and re-ordering
18	RIS 4	I do not have much information about businesses that produce green products
19	RIS 5	I am worried about the warranty, exchange, and replacement of spare parts for green products
	DEM	Demand for green products
20	DEM 1	The characteristics of green products affect the decision to switch to the consumption of green products
21	DEM 2	The need to live in a pollution-free living environment also affects the decision to switch to the consumption of green products
22	DEM 3	The need to use valuable products affects the decision to switch consumption of green products
23	DEM 4	The need to use safe products for health also affects the decision to switch consumption of green products
24	DEM 5	The need to show that grasping the trend of green consumption also influences the decision to switch consumption of green products
	ECO	Economic factors affect the decision to consume green products
25	ECO1	The price of green products also affects the decision to switch
26	ECO2	Consumer income also affects the decision to switch to consuming green products
27	ECO3	Promotions of green products also influence the decision to switch
28	ECO4	The difference in benefits between using green products and traditional products
29	ECO5	Using green products tends to be more economical than using traditional products
30	ECO6	Post-purchase maintenance costs influence the decision to switch
	DEC	Deciding to consuming green products

References

- Geng, Y.; Zhu, Q.; Doberstein, B.; Fujita, T. Implementing China's circular economy concept at the regional level: A review of progress in Dalian, China. *Waste Manag.* **2009**, *29*, 996–1002. [\[CrossRef\]](#) [\[PubMed\]](#)
- Testa, F.; Pretner, G.; Iovino, R.; Bianchi, G.; Tessitore, S.; Iraldo, F. Drivers to green consumption: A systematic review. *Environ. Dev. Sustain.* **2021**, *23*, 4826–4880. [\[CrossRef\]](#)
- Tran, T.M.; Phan, T.H.; Tran, T.V.; Le, A.T.T. Examining the Correlation among Economic Development, Foreign Direct Investment, and CO₂ Emissions by Utilizing the VECM Model—Empirical Study in Vietnam. *Sustainability* **2022**, *14*, 12621. [\[CrossRef\]](#)
- Trần, T.V.; Phan, T.H.; Lê, A.T.T.; Trần, T.M. Evaluation of Factors Affecting the Transition to a Circular Economy (CE) in Vietnam by Structural Equation Modeling (SEM). *Sustainability* **2022**, *14*, 613. [\[CrossRef\]](#)
- Durif, F.; Boivin, C.; Julien, C. In search of a green product definition. *Innov. Mark.* **2010**, *6*, 25–33.
- Gleim, M.R.; Smith, J.S.; Andrews, D.; Cronin, J.J., Jr. Against the Green: A Multi-method Examination of the Barriers to Green Consumption. *J. Retail.* **2013**, *89*, 44–61. [\[CrossRef\]](#)
- Roman, T.; Bostan, I.; Manolică, A.; Mitrica, I. Profile of Green Consumers in Romania in Light of Sustainability Challenges and Opportunities. *Sustainability* **2015**, *7*, 6394–6411. [\[CrossRef\]](#)
- Bebbington, J.; Unerman, J. Achieving the United Nations Sustainable Development Goals: An enabling role for accounting research. *Account. Audit. Account. J.* **2018**, *31*, 2–24. [\[CrossRef\]](#)
- Ueasangkomsate, P.; Santiteerakul, S. A Study of Consumers' Attitudes and Intention to Buy Organic Foods for Sustainability. *Procedia Environ. Sci.* **2016**, *34*, 423–430. [\[CrossRef\]](#)
- Shamdasani, P.; Chon-Lin, G.O.; Richmond, D. Exploring green consumers in an oriental culture: Role of personal and marketing mix factors. *ACR N. Am. Adv.* **1993**, *20*, 488–493.
- Janssen, M.A.; Jager, W. Stimulating diffusion of green products. *J. Evol. Econ.* **2002**, *12*, 283–306. [\[CrossRef\]](#)
- Tseng, S.-C.; Hung, S.-W. A framework identifying the gaps between customers' expectations and their perceptions in green products. *J. Clean. Prod.* **2013**, *59*, 174–184. [\[CrossRef\]](#)
- Lin, P.-C.; Huang, Y.-H. The influence factors on choice behavior regarding green products based on the theory of consumption values. *J. Clean. Prod.* **2012**, *22*, 11–18. [\[CrossRef\]](#)
- Nair, S.R.; Little, V.J. Context, Culture and Green Consumption: A New Framework. *J. Int. Consum. Mark.* **2015**, *28*, 169–184. [\[CrossRef\]](#)
- Wang, Y.; Ying, Q.; Hu, J.; Zhang, H. Spatial and temporal variations of six criteria air pollutants in 31 provincial capital cities in China during 2013–2014. *Environ. Int.* **2014**, *73*, 413–422. [\[CrossRef\]](#)
- Das, G.; Varshneya, G. Consumer emotions: Determinants and outcomes in a shopping mall. *J. Retail. Consum. Serv.* **2017**, *38*, 177–185. [\[CrossRef\]](#)
- Gifford, R.; Nilsson, A. Personal and social factors that influence pro-environmental concern and behaviour: A review. *Int. J. Psychol.* **2014**, *49*, 141–157. [\[CrossRef\]](#)
- Johnstone, M.-L.; Tan, L.P. An exploration of environmentally-conscious consumers and the reasons why they do not buy green products. *Mark. Intell. Plan.* **2015**, *33*, 804–825. [\[CrossRef\]](#)
- Darnall, N.; Ponting, C.; Vazquez-Brust, D.A. Why consumers buy green. In *Green Growth: Managing the Transition to a Sustainable Economy*; Springer: Berlin/Heidelberg, Germany, 2012; pp. 287–308.
- Ajzen, I. The theory of planned behavior. *Organ. Behav. Hum. Decis. Process.* **1991**, *50*, 179–211. [\[CrossRef\]](#)
- Tan, B.-C. The role of perceived consumer effectiveness on value-attitude-behaviour model in green buying behaviour context. *Aust. J. Basic Appl. Sci.* **2011**, *5*, 1766–1771.
- Balderjahn, I. Personality variables and environmental attitudes as predictors of ecologically responsible consumption patterns. *J. Bus. Res.* **1988**, *17*, 51–56. [\[CrossRef\]](#)
- Chan, H.K.; Yee, R.W.; Dai, J.; Lim, M.K. The moderating effect of environmental dynamism on green product innovation and performance. *Int. J. Prod. Econ.* **2016**, *181*, 384–391. [\[CrossRef\]](#)
- Yadav, R.; Pathak, G.S. Young consumers' intention towards buying green products in a developing nation: Extending the theory of planned behavior. *J. Clean. Prod.* **2016**, *135*, 732–739. [\[CrossRef\]](#)
- Vicente-Molina, M.A.; Fernández-Sáinz, A.; Izagirre-Olaizola, J. Environmental knowledge and other variables affecting pro-environmental behaviour: Comparison of university students from emerging and advanced countries. *J. Clean. Prod.* **2013**, *61*, 130–138. [\[CrossRef\]](#)
- Gilg, A.; Barr, S.; Ford, N. Green consumption or sustainable lifestyles? Identifying the sustainable consumer. *Futures* **2005**, *37*, 481–504. [\[CrossRef\]](#)
- Singh, A. Financial Liberalisation, Stockmarkets and Economic Development. *Econ. J.* **1997**, *107*, 771–782. [\[CrossRef\]](#)
- Nuttavuthisit, K.; Thøgersen, J. The Importance of Consumer Trust for the Emergence of a Market for Green Products: The Case of Organic Food. *J. Bus. Ethics* **2017**, *140*, 323–337. [\[CrossRef\]](#)
- Pothitou, M.; Hanna, R.F.; Chalvatzis, K.J. Environmental knowledge, pro-environmental behaviour and energy savings in households: An empirical study. *Appl. Energy* **2016**, *184*, 1217–1229. [\[CrossRef\]](#)
- Levine, D.S.; Strube, M.J. Environmental Attitudes, Knowledge, Intentions and Behaviors Among College Students. *J. Soc. Psychol.* **2012**, *152*, 308–326. [\[CrossRef\]](#)

31. Sparks, P.; Shepherd, R. Self-Identity and the Theory of Planned Behavior: Assessing the Role of Identification with “Green Consumerism”. *Soc. Psychol. Q.* **1992**, *55*, 388. [[CrossRef](#)]
32. Schnidrig, J.; Nguyen, T.V.; Li, X.; Maréchal, F. A modelling framework for assessing the impact of green mobility technologies on energy systems. In Proceedings of the 34th International Conference on Efficiency, Cost, Optimization, Simulation and Environment Impact of Energy Systems, Taormina, Italy, 27 June–2 July 2021.
33. Litvine, D.; Wüstenhagen, R. Helping “light green” consumers walk the talk: Results of a behavioural intervention survey in the Swiss electricity market. *Ecol. Econ.* **2011**, *70*, 462–474. [[CrossRef](#)]
34. Tabi, A.; Hille, S.L.; Wüstenhagen, R. What makes people seal the green power deal?—Customer segmentation based on choice experiment in Germany. *Ecol. Econ.* **2014**, *107*, 206–215. [[CrossRef](#)]
35. Hille, S.L.; Tabi, A.; Wüstenhagen, R. Market Segmentation for Green Electricity Marketing Results of a Choice-Based Conjoint Analysis with German Electricity Consumers. In *Market Segmentation for Green Electricity Marketing Results of a Choice-Based Conjoint Analysis with German Electricity Consumers*; Springer: Berlin/Heidelberg, Germany, 2017; pp. 91–108.
36. Kim, M.-S.; Hunter, J.E. Relationships among attitudes, behavioral intentions, and behavior: A meta-analysis of past research, part 2. *Commun. Res.* **1993**, *20*, 331–364. [[CrossRef](#)]
37. Maio, G.; Olson, J.M. Relations between Values, Attitudes, and Behavioral Intentions: The Moderating Role of Attitude Function. *J. Exp. Soc. Psychol.* **1995**, *31*, 266–285. [[CrossRef](#)]
38. DKhairullah, Z.; Khairullah, Z.Y. Relationships between acculturation, attitude toward the advertisement, and purchase intention of Asian-Indian immigrants. *Int. J. Commer. Manag.* **1999**, *9*, 46–65. [[CrossRef](#)]
39. Claudy, M.C.; Garcia, R.; O’Driscoll, A. Consumer resistance to innovation—a behavioral reasoning perspective. *J. Acad. Mark. Sci.* **2014**, *43*, 528–544. [[CrossRef](#)]
40. Claudy, M.C.; Peterson, M.; O’Driscoll, A. Understanding the Attitude-Behavior Gap for Renewable Energy Systems Using Behavioral Reasoning Theory. *J. Macromark.* **2013**, *33*, 273–287. [[CrossRef](#)]
41. Hair, J.F., Jr.; Hult, G.T.M.; Ringle, C.M.; Sarstedt, M. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*; Sage Publications: New York, NY, USA, 2021.
42. Fan, Y.; Chen, J.; Shirkey, G.; John, R.; Wu, S.R.; Park, H.; Shao, C. Applications of structural equation modeling (SEM) in ecological studies: An updated review. *Ecol. Process.* **2016**, *5*, 19. [[CrossRef](#)]
43. Luarn, P.; Lin, H.-H. Toward an understanding of the behavioral intention to use mobile banking. *Comput. Hum. Behav.* **2005**, *21*, 873–891. [[CrossRef](#)]
44. Lam, T.; Hsu, C.H.C. Predicting behavioral intention of choosing a travel destination. *Tour. Manag.* **2006**, *27*, 589–599. [[CrossRef](#)]
45. Ibrahim, M.A.; Fisol, W.N.M.; Haji-Othman, Y. Customer Intention on Islamic Home Financing Products: An Application of Theory of Planned Behavior (TPB). *Mediterr. J. Soc. Sci.* **2017**, *8*, 77–86. [[CrossRef](#)]
46. Falguera, V.; Aliguer, N.; Falguera, M. An integrated approach to current trends in food consumption: Moving toward functional and organic products? *Food Control* **2012**, *26*, 274–281. [[CrossRef](#)]
47. Bauer, R.A. Consumer behavior as risk taking. In *Marketing: Critical Perspectives on Business and Management*; Routledge: Abingdon, UK, 1967; pp. 13–21.
48. Mitchell, V.; Harris, G. The importance of consumers’ perceived risk in retail strategy. *Eur. J. Mark.* **2005**, *39*, 821–837. [[CrossRef](#)]
49. Rise, J.; Kovac, V.; Kraft, P.; Moan, I.S. Predicting the intention to quit smoking and quitting behaviour: Extending the theory of planned behaviour. *Br. J. Health Psychol.* **2008**, *13*, 291–310. [[CrossRef](#)] [[PubMed](#)]
50. Holbert, R.L.; Kwak, N.; Shah, D.V. Environmental concern, patterns of television viewing, and pro-environmental behaviors: Integrating models of media consumption and effects. *J. Broadcast. Electron. Media* **2003**, *47*, 177–196. [[CrossRef](#)]
51. Wray, R.J.; Jupka, K.; Ludwig-Bell, C. A Community-wide Media Campaign to Promote Walking in a Missouri Town. *Prev. Chronic Dis.* **2005**, *2*, A04.
52. Good, J. Internet use and environmental attitudes: A social capital approach. *Environ. Commun. Yearb.* **2006**, *3*, 211–233. [[CrossRef](#)]
53. Gifford, R.D.; Chen, A.K.S. Why aren’t we taking action? Psychological barriers to climate-positive food choices. *Clim. Change* **2016**, *140*, 165–178. [[CrossRef](#)]
54. Haron, S.A.; Paim, L.; Yahaya, N. Towards sustainable consumption: An examination of environmental knowledge among Malaysians. *Int. J. Consum. Stud.* **2005**, *29*, 426–436. [[CrossRef](#)]
55. Byrne, B.M. *Structural equation Modeling with AMOS: Basic Concepts, Applications, and Programming*; Routledge: Abingdon, UK, 2016.
56. Gerbing, D.W.; Anderson, J.C. Monte Carlo Evaluations of Goodness of Fit Indices for Structural Equation Models. *Sociol. Methods Res.* **1992**, *21*, 132–160. [[CrossRef](#)]
57. Hair, J.F. Multivariate data analysis: An overview. In *International Encyclopedia of Statistical Science*; Springer: Berlin/Heidelberg, Germany, 2011; pp. 904–907.
58. Matzler, K.; Würtele, A.; Renzl, B. Dimensions of price satisfaction: A study in the retail banking industry. *Int. J. Bank Mark.* **2006**, *24*, 216–231. [[CrossRef](#)]
59. Arvola, A.; Vassallo, M.; Dean, M.; Lampila, P.; Saba, A.; Lähteenmäki, L.; Shepherd, R. Predicting Intentions to Purchase Organic Food: The Role of Affective and Moral Attitudes in the Theory of Planned Behaviour. *Appetite* **2008**, *50*, 443–454. [[CrossRef](#)] [[PubMed](#)]

60. Vermeir, I.; Verbeke, W. Sustainable Food Consumption among Young Adults in Belgium: Theory of Planned Behaviour and the Role of Confidence and Values. *Ecol. Econ.* **2008**, *64*, 542–553. [[CrossRef](#)]
61. Park, H.-J.; Rabolt, N.J. Cultural value, consumption value, and global brand image: A cross-national study. *Psychol. Mark.* **2009**, *26*, 714–735. [[CrossRef](#)]
62. Williams, P.; Soutar, G.N. Value, satisfaction and behavioral intentions in an adventure tourism context. *Ann. Tour. Res.* **2009**, *36*, 413–438. [[CrossRef](#)]
63. Mostafa, M.M. Antecedents of Egyptian consumers' green purchase intentions: A hierarchical multivariate regression model. *J. Int. Consum. Mark.* **2006**, *19*, 97–126. [[CrossRef](#)]
64. Kaiser, F.G.; Gutscher, H. The Proposition of a General Version of the Theory of Planned Behavior: Predicting Ecological Behavior1. *J. Appl. Soc. Psychol.* **2003**, *33*, 586–603. [[CrossRef](#)]
65. Chen, Y.-S.; Chang, C.-H. Greenwash and Green Trust: The Mediation Effects of Green Consumer Confusion and Green Perceived Risk. *J. Bus. Ethics* **2012**, *114*, 489–500. [[CrossRef](#)]
66. Tarkiainen, A.; Sundqvist, S. Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. *Br. Food J.* **2005**, *107*, 808–822. [[CrossRef](#)]
67. Pacheco-Blanco, B.; Bastante-Ceca, M.J. Green public procurement as an initiative for sustainable consumption. An exploratory study of Spanish public universities. *J. Clean. Prod.* **2016**, *133*, 648–656. [[CrossRef](#)]
68. Liu, D.; Zhu, X.; Wang, Y. China's agricultural green total factor productivity based on carbon emission: An analysis of evolution trend and influencing factors. *J. Clean. Prod.* **2020**, *278*, 123692. [[CrossRef](#)]
69. Susanty, A.; Ulkhaq, M.; Puspitasari, N.B.; Prastawa, H.; Akshint, P.Y.; Listyawardhani, P. Socio-Economic Factors Affecting Environmental Concern and Knowledge of Consumers' Purchasing Behaviors of Green Products: A Study of Semarang Regency. In Proceedings of the 11th Annual International Conference on Industrial Engineering and Operations Management, Singapore, 7–11 March 2021; pp. 7–11.
70. Sajid, K.S.; Hussain, S.; Hussain, R.I.; Mustafa, B. The Effect of Fear of COVID-19 on Green Purchase Behavior in Pakistan: A Multi-Group Analysis Between Infected and Non-infected. *Front. Psychol.* **2022**, *13*, 826870. [[CrossRef](#)] [[PubMed](#)]
71. Nguyen, H.T.T.; Hung, R.-J.; Lee, C.-H. Determinants of Residents' E-Waste Recycling Behavioral Intention: A Case Study from Vietnam. *Sustainability* **2018**, *11*, 164. [[CrossRef](#)]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.