



Original Article

## Factors affecting consumers' green product purchase decisions in Vietnam

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**Abstract:** Though previous literature on green consumer behavior focuses on the Vietnamese market, the concept of consumer behavior is quite broad and not yet clearly understood. Therefore, this paper aims to focus more on the behavior of consumers in Vietnam in terms of green product buying decisions and their determinants. This study used the research model of Kumar and Ghodeswar (2015) as the methodological input in addition to the variables modeled by them. Data were collected from a total of 350 respondents from 4 locations, namely Hanoi, Da Nang, Binh Dinh, and Ho Chi Minh City. The data were used for EFA, CFA and SEM structural model analysis. The results show that consumers decide to buy green products for many reasons. Such reasons are: they want to support environmental protection, drive for environmental responsibility, support products with green attributes (Eco-label), support the price of green products, and become involved in the green product experience. In particular, social appeal has a significant influence on the decision-making process. The originality of this study is that it examined new factors that influence consumers' purchase decisions towards green products including products with green attributes (Eco-label) and the price of green products.

**Keywords:** Factors affecting, green product purchase decisions, consumer, green product.

### 1. Introduction

The natural environment is deteriorating, making environmental protection a pressing issue (Ha, 2021). Nowadays, consumers are increasingly aware of the environmental impact of their consumption and are therefore more open to environmental policies and green products, which has led to a growing trend

towards sustainable lifestyles (Göçer & Sevil Oflaç, 2017; Tan et al., 2019).

Currently, there have been many studies on consumer behavior towards green products, and most of the research on this topic is based on the European and American contexts (Tan et al., 2019). Researchers are working to understand Asian consumers' reactions to green products

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while clarifying similarities and differences that may exist between cultures. Green product consumption behavior has been studied in China by the authors Wang et al. (2018), Wang, Liu and Qi (2014), and in the Indian market by Yadav and Pathak (2017). Currently, there are a few authors who have conducted research on green product consumption decisions in Asia such as Hussain et al. (2014) who researched the Pakistani market, Jouzdani and Esfahani (2020) who studied Iran, Kumar and Ghodeswar (2015), and Mishra and Kulshreshtha (2023) who studied in India. The studies in the Vietnam context, so far, have focused on the examination of consumer's perception in terms of motivations and barriers to the consumption of eco-friendly products (Nguyen & Dekhili, 2019) and, factors affecting consumer intention to buy green products in Vietnam (Nguyen et al., 2020). Studies in Vietnam have also included, more detailed research in the category of green skincare products (Bui et al., 2021), organic agriculture products (Luu, 2019) and the behavior of young consumers toward green packaged products in Vietnam (Nguyen, Nguyen, & Tran, 2021). These studies indicate that environmental knowledge, product knowledge, and external factors (like processing, packaging, labeling, and certification) significantly influence consumer's intention, willingness to pay and purchase decisions on green products in the context of the Vietnamese market (Luu, 2019; Nguyen, Nguyen, & Tran, 2021). In addition, there are some case studies on consumer behavior toward green products such as that of Nguyen, Phan, Cao, and Nguyen (2017), Trong Nguyen et al. (2023), Luong et al. (2021). These studies were conducted to explain consumer buying behavior and green purchase intention. However, there have been only two studies related to green product purchase decisions of consumers in the context of Vietnam so far, namely Ho et al. (2023) and Ha (2022). While Ho et al. (2023) focused on healthcare products within the Mekong Delta, Ha (2022) studied the factors affecting students' decision to buy green products in Ho Chi Minh City. That said, despite growing environmental concerns, the specific factors behind Vietnamese consumers' decision to buy green products have not been fully and comprehensively clarified. Therefore, this study was conducted with the aim

of contributing to the knowledge base on green product purchasing decisions in Vietnam and the factors affecting it.

## 2. Theoretical framework and research model

### 2.1. Theoretical framework

A green product is defined as “a product that was manufactured using toxic-free ingredients and environmentally-friendly procedures, and which is certified as such by a recognized organization” (Gurău & Ranchhod, 2005). Durif, Boivin, and Julien (2010) compared the definition of green products from three different perspectives: academic, industrial, and consumer. In terms of academic perspective, “a green product is a product whose design and/or attributes (and/or production and/or strategy) uses recycling (renewable/toxic-free/biodegradable) resources and which improves environmental impact or reduces environmental toxic damage throughout its entire life cycle”; according to the industrial perspective, “a green product is a product that must respect the “3Rs”: “reduce”, “reuse” and “recycle” and that is not tested on animals. From the consumer's perspective, “a green product is non-toxic for nature, good for health, socially responsible, and good for the planet”.

### 2.2. Research model

Our research has inherited and been developed from the research model of Kumar and Ghodeswar (2015) which suggested factors affecting green product purchases: support for environmental protection, promotion of environmental responsibility, green product experience, environmental friendliness of companies, and social attractiveness. Besides, this study adds 2 more factors: green product attribute and price. With regards to the product attribute, few studies have examined how product attributes affect consumer decisions on green products. The study of Ian and Kathryn (2003) asserted that product attributes such as quality, price, and brand are always considered by consumers before any purchase decisions. However, product attributes should be understood to a broader extent, which represents the benefits of the products to the consumers.

Product benefits are cost effectiveness, fuel or energy efficiency, durability, price, quality, availability, and overall functionality of a green product (Sharma & Joshi, 2017). Generally, product attributes are a variable that has an impact on customers' actual purchases (Sharma & Joshi, 2017). Besides, Sharma and Foropon (2019) also stated that consumers are willing to buy green products provided that green products are functionally equivalent to non-green products in terms of quality, durability, ease of use, and the brand name of producers. However, it would be incomplete to not include the eco-label as an important product attribute, since the eco-label is a way of identifying a product that qualifies as a green product. A product's eco-label is an indicator of its environmental performance (Chekima et al., 2015). Eco-labels were developed with the aim of preventing consumers from being confused by claims of environmental friendliness (Sharaf et al., 2015). Tan et al. (2019) and Laroche et al. (2001) both agreed that eco-labeling has a positive impact on consumers' buying decisions of green products and Maniatis (2016) also concluded that the awareness of the presence of eco-labels is one of the indicators that influence consumers to choose to buy green products. Eco-labels include information about a product's impact on the environment that is easily accessible to consumers, which can encourage the purchasing decision of consumers (Ritter et al., 2015). Therefore, in addition to the beneficial characteristics of the product, the attribute of the green product also includes the eco-label. Hence, the hypothesis for this study is that product attributes have a positive influence on the purchasing decisions of green product consumers.

As mentioned, price is a component of product attributes and significantly influences purchasing decisions, especially for green products. This study proposes price as an independent variable affecting the decision to buy green products. Generally, consumers prefer lower-priced products with the same function, but green products are often more expensive than conventional ones (Hussain et al., 2014). Dunlap and Scarce (1991), Bang et al. (2000), and Biswas and Roy (2015) suggest consumers are willing to pay more for green products. Conversely, other research (Chan, 2013; D'Souza et al., 2006) indicates that there are also

many customers who complain about the high price of green products. However, Suki (2013) argues that green products must be reasonably priced to encourage green consumption. This research examines these opposing views to explore how price influences the decision to buy green products in the Vietnamese market, hypothesizing that price positively affects this decision.

In summary, with the inheritance of the research model of Kumar and Ghodeswar (2015) and the addition of two new factors namely price and green product attributes, the hypotheses of this study are proposed in the context of Viet Nam as follows:

*H1: Social appeal has a positive influence on consumers' decision to buy green products.*

*H2: Green product experience has a positive influence on consumers' decision to buy green products.*

*H3: The environmental friendliness of companies has a positive influence on consumers' decision to buy green products.*

*H4: Supporting environmental protection has a positive influence on consumers' decision to buy green products.*

*H5: Green product attributes have a positive influence on consumers' decision to buy green products.*

*H6: The drive for environmental responsibility has a positive influence on consumers' decision to buy green products.*

*H7: The price of green products has a positive influence on consumers' decision to buy green products.*

### 3. Methodology

To comprehensively understand the study problem, the survey was conducted in Hanoi, Da Nang, Ho Chi Minh City, and Binh Dinh Province. Hanoi, Da Nang, and Ho Chi Minh City represent Vietnam's most economically developed regions, with diverse economic, cultural, and social landscapes. Binh Dinh Province represents a rural area, offering a contrasting perspective. This urban-rural combination allows for a holistic examination of Vietnam's overall situation, encompassing diverse geographical regions and distinct characteristics, thus providing a more comprehensive understanding of the research topic.

Data was collected online through a Google Forms-based online survey using a convenience sampling method. The survey was distributed to survey pages on social media platforms such as Zalo and Facebook. Data collection took place over a two-month period, from June 2023 to August 2023, with a total of 388 responses. However, only 350/388 (90.20%) responses met the criteria for analysis. Our sample distribution was as follows: Hanoi (26.9%), Da Nang (17.1%), Binh Dinh (32.6%), and Ho Chi Minh City (23.4%). To ensure the initial reliability of the data, we consulted with experts who have experience in marketing research. The experts assessed that Binh Dinh (the only locality representing rural provinces) having a higher sample size than larger cities like Hanoi, Ho Chi Minh City, and Da Nang (which represent urban areas) is quite reasonable. Therefore, the survey data is suitable for analysis.

According to Hair, Babin and Anderson (2019), Exploratory Factor Analysis (EFA) requires a minimum sample size of 5 cases per observed variable. Therefore, with a total of 38 observed variables, the minimum sample size should be 190. Gorsuch (1983) and MacCallum et al. (1999) both suggest that the minimum sample size for Confirmatory Factor Analysis (CFA) should be at least 100, or preferably 200, to ensure reliable results. Weston and Gore (2006) recommend a sample size of 200 to 400 for moderate to complex SEM models. Based on the recommendations for sample size in EFA, CFA, and SEM analyses, the authors concluded that the 350 survey responses were sufficient to conduct the planned analyses.

## 4. Results

### 4.1. Preliminary assessment of the scale

To ensure the reliability of the scale and assess the internal consistency of the scale, the research team conducted a Cronbach's Alpha test on the components of the hypothesized model. The analysis result showed that the Cronbach's Alpha values of all latent variables were greater than 0.8, suggesting that the items have relatively high internal consistency. Thus, the results of the preliminary scale assessment by Cronbach's Alpha indicate that the reliability of SEP, DER, GPE, EFC, PR, SA, GPA, and GPPD

was ensured. Therefore, the scale could be used in the following analysis steps.

### 4.2. Exploratory factor analysis (EFA)

In the first exploratory factor analysis, the KMO value of 0.923 and the statistical significance of 0.000 showed that the scale qualified the conditions for EFA. With 8 components extracted, the total variance extracted was 65.539%, which was satisfactory. Factor loading coefficients of all variables were greater than 0.5 except two, DER2 and PR1. Hence, these two variables were removed.

In the second exploratory factor analysis, after removing DER2 and PR1, a KMO value of 0.923 ( $> 0.5$ ) showed that the factor analysis was eligible with the research data; Barlett's test results of 9,580.602 with a significance level of 0.000 ( $< 0.05$ ) indicated that the data used for factor analysis was appropriate. Eigenvalues of factors  $> 1$ ; total variance extracted of 67.471% ( $> 50\%$ ) met the requirements, presenting that these factors explained 67.471% of the variability of the data. The factor matrix consisted of 8 components, ensuring the requirements of convergent and discriminant validity.

### 4.3. Confirmatory factor analysis (CFA)

The results of confirmatory factor analysis for the scale of factors affecting the decision to buy green products are shown in Table 1. To confirm the reliability of the model, we tested the following criteria:

- Model fit: After adjusting the relationships between observed variables in the model using the modification indices (MI), the results of confirmatory factor analysis obtained the following values: Chi-square/df = 2.449  $< 3$ , CFI = 0.913  $> 0.9$ , TLI = 0.902  $> 0.9$  (very good), GFI = 0.830  $> 0.8$  (acceptable) and RMSEA = 0.064  $< 0.08$  (good). The above results showed that the theoretical model fits the data.

- Convergent validity: The calculation results indicated that the average variance extracted (AVE) values of the factors were in the range of 0.557 - 0.784 ( $> 0.5$ ) and statistically significant ( $p$ -value  $< 0.5$ ). Thus, convergence validity was checked by ensuring all the average variance extracted values ( $> 0.5$ ) and statistically significant values ( $< 0.5$ ).

- Discriminant validity: The coefficients of maximum shared variance (MSV) were smaller than the average variance extracted (AVE), and the square root of each average variance

extracted (AVE) was greater than the construct correlations. It thus suggested adequate discriminant validity for all constructs.

Table 1: The coefficients evaluate the model fit using CFA

Model	CMIN	DF	P	CMIN/DF	GFI	CFI	TLI	RMSEA	RMR
Default model	1376.5	562	0.000	2.449	0.830	0.913	0.902	0.064	0.04

Source: Summary of the authors' analysis of survey data (2023).

Table 2: Test the discriminant value of the scale

Component/ Factor	Number of observed variables	Composite reliability (CR)	Average variance extracted (AVE)	Maximum shared variance (MSV)
SA	5	0.915	0.685	0.252
GPE	4	0.935	0.784	0.315
EFC	4	0.915	0.728	0.329
SEP	5	0.863	0.557	0.431
GPA	5	0.880	0.597	0.532
GPPD	6	0.901	0.604	0.55
DER	4	0.859	0.605	0.355
PR	3	0.865	0.682	0.550

Source: Summary of the authors' analysis of survey data (2023).

Therefore, the results of the CFA analysis show that the scale of factors meets the requirements of model fit, composite reliability, convergent, and discriminant validity.

In summary, the initial scale of 38 observed variables belonging to 8 factors of the theoretical model, after evaluating the preliminary scale (Cronbach's Alpha) and scale testing (EFA and CFA), was shortened with 36 variables with unchanged components.

4.4. Hypotheses testing

This study employs the structural equation model (SEM) to test proposed hypotheses. The results are shown in Figure 1. After adjusting some relationships between errors of observed variables using modification indices (MI), a number of indices were calculated to assess the model fit using SEM analysis as follows: value Chi-square/df = 2,449 < 3; CFI = 0.913 > 0.9; TLI = 0.902 > 0.9 (good); GFI value = 0.830 ≥ 0.8 (acceptable) and RMSEA value = 0.064 < 0.08 (good). This result showed that the theoretical model was compatible with market data, so the relationships between GPPD and SA, GPE, EFC, SEP, GPA, DER, and PR in the model all met the standards.

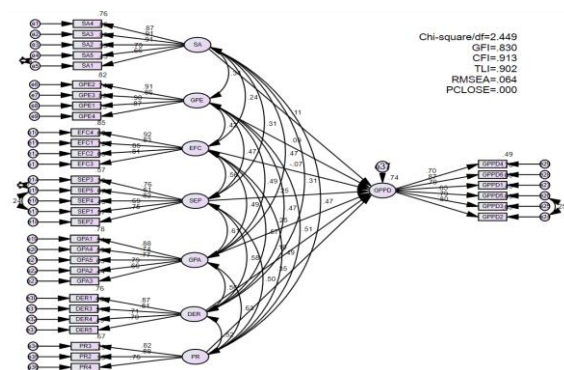


Figure 1: Output of SEM

Source: Summary of the authors' analysis of survey data (2023).

The processing results from the structural equation model through the regression weights are explained and discussed as follows:

First, hypothesis H1 was supported (P < 0.05). This indicates that individuals who want to be part of an eco-friendly society and develop and maintain eco-friendly living standards are more likely to buy green products. The results of this study are consistent with the findings of Kumar and Ghodeswar (2015), Mishra and Kulshreshtha (2023), Jouzdani and Esfahani (2020).

The results of the study showed that hypothesis H2 was also supported (P < 0.05) in the study. This finding is consistent with that of

D'Souza et al. (2006), and Kim and Chung (2011) who found a positive influence of consumers' experience with green products on environmentally friendly purchasing behavior. Oliver and Lee (2010) also found that the tendency to seek information about green products has a positive relationship with environmentally friendly purchasing behavior.

The results of the study show that hypothesis H3 is not supported ( $P > 0.1$ ). This result may be due to external confounding factors that are not included in the research model, or the number of observations in the study is not sufficient to provide strong statistical evidence to support the research hypothesis.

Hypothesis H4 was supported as it was statistically significant ( $p < 0.05$ ), which proves that individuals with a positive bias towards green products are more likely to purchase green products. This finding is consistent with the findings of Follows and Jobber (2000) who have positively tested that consumers who understand the environmental consequences of their consumption will intend to make environmentally responsible purchases. At the same time, this result also gives the same result as Kumar and Ghodeswar (2015) that supporting environmental protection has a positive influence on consumers' decision to buy green products.

Hypothesis H5 is also supported because the results are statistically significant ( $p < 0.01$ ), which means that consumers are very interested in products of natural origin, products with green product certification, green labels, or eco-labels. Tan et al. (2019) also stated that eco-labels also positively influence consumers' decision to buy green products. In addition, before deciding to buy green products, consumers are also interested in whether the production and consumption activities of this product are harmful to the

environment, and they tend to support products that are less harmful to the environment.

Hypothesis H6 was also supported ( $p < 0.1$ ) in this study. This result indicates that individuals who are aware of their personal responsibility for the environment are more likely to buy green products. The finding is consistent with the results of Lee (2009), and Kumar and Ghodeswar (2015) when they examined and found that once consumers understand the important role of each person in improving environmental quality, they will have the intention to buy responsibly with the environment.

Hypothesis H7 is supported as it is statistically significant ( $p < 0.05$ ). That is, consumers are also willing to accept high prices for green products that contribute to improving environmental quality, which is worth doing. This result is consistent with the observations of Dunlap and Scarce (1991), Bang et al. (2000), and Biswas and Roy (2015) when they suggested that some consumers are willing to pay more for green products. However, this study also found that the price of green products must be commensurate with the value they bring. This is also consistent with the observations of D'Souza et al. (2006) that consumers do not accept higher prices for green products of lower quality.

Thus, green product purchase decisions (GPPD) were significantly influenced by factors including Social appeal (H1), Green product experience (H2), Supporting environmental protection (H4), Green product attributes (H5), Drive for environmental responsibility (H6) and Price (H7). The analysis results show that there are 6 out of 7 hypotheses supported. Besides, an  $R^2 = 0.74$  means that the descriptive variables in the model explain up to 74% of the difference in the green product purchase decisions.

Table 3: Results of hypotheses testing

Hypotheses	Relationship	Estimate	S.E.	C.R.	P	Findings
H1	GPPD <--- SA	.064	.026	2.453	.014	Supported ( $p < 0.05$ )
H2	GPPD <--- GPE	.095	.047	2.032	.042	Supported ( $p < 0.05$ )
H3	GPPD <--- EFC	-.081	.055	-1.485	.138	Not supported
H4	GPPD <--- SEP	.300	.070	4.257	***	Supported ( $p < 0.01$ )
H5	GPPD <--- GPA	.221	.054	4.090	***	Supported ( $p < 0.01$ )
H6	GPPD <--- DER	.098	.053	1.835	.066	Supported ( $p < 0.10$ )
H7	GPPD <--- PR	.279	.048	5.840	***	Supported ( $p < 0.01$ )

Source: Summary of the authors' analysis of survey data (2023).

In addition, the paper also examines the differences between demographic characteristics and green purchase decisions. The results show that there are no significant differences in green purchase decisions based on gender, age, occupation, or income. Men and women show similar levels of environmental concern and willingness to buy green products. All age groups, occupational groups, and income levels demonstrate comparable awareness and willingness to purchase green products.

However, significant differences were found based on location and education level. Consumers in different regions vary in purchasing behavior due to factors like environmental awareness, product availability, cultural and social influences, and local government policies. Higher education levels correlate with greater environmental awareness and a higher likelihood of purchasing green products.

## **5. Discussion**

First, the factor of supporting environmental protection has the greatest influence on green product purchasing decisions, confirming that consumers buy green products to support environmental protection. Vietnamese consumers are increasingly adopting environmentally friendly lifestyles, with 55% willing to change their habits for environmental protection (Anh, 2024) and over 47% prioritizing biodegradable products (PwC, 2021; Nguyen, 2023). Therefore, marketers should address consumers' environmental concerns and educate customers on the benefits of green products to meet their target customers' desires.

Second, the price of green products positively affects consumer purchasing decisions. Consumers are willing to pay more for green products if they match their needs or offer unique benefits. Anh (2024) found that 72% of Vietnamese consumers are ready to pay a premium for green products. These products not only fulfill typical functions but also help protect the environment. However, consumers are cautious about whether the price justifies the value of the green product. This study highlights the impact of pricing on consumer choices, offering new insights for green product pricing strategies.

Third, green product attributes have a positive influence on consumers' purchase

decisions. Research has proven that consumers care about the origin of green products and the environmental protection function of green products through their ability to be recycled, with little impact on the environment when discarded. This study also shows that consumers have proper awareness of standards and how to choose green products when they rely on green product certification and eco-labels to identify green products and make purchase decisions. In line with this finding, Anh (2024) further highlights that up to 60% of Vietnamese consumers express trust in products labeled as "green."

Fourth, the drive for environmental responsibility positively influences consumers' decisions to buy green products. People choose green products intentionally, considering the environmental impact and their individual responsibility. Kumar and Ghodeswar (2015) highlight that purchasing green products involves a thoughtful evaluation of their environmental, personal, and social effects. In 2023, the Vietnamese organic food market reached \$100 million, a 20% increase since 2020, and sales of biological detergents grew by 15% in 2022. Vietnam's sustainable fashion industry attracted over 1 million consumers in 2023 (Anh, 2024). Marketers should emphasize environmental responsibility in their campaigns, promote community programs for environmental protection, and align green product promotions with their company's eco-friendly image.

Fifth, the results of this study have shown that the consumer experience has a positive influence on their decisions to buy green products. According to Kumar and Ghodeswar (2015), product experience, including information search and usage, highlights a product's environmental attributes and features. Like consumers elsewhere, Vietnamese buyers gain awareness of green products through personal use or learning from others. According to Ha (2022), Vietnamese students in Ho Chi Minh City gather information about green products due to their interest and intent to purchase. Therefore, marketers should focus on educating consumers about green products and facilitating information sharing.

Next, the social appeal factor has a positive influence on consumers' decisions to buy green products. Similarly, consumers buy green products if they are a recognized symbol of

supporting environmental protection, conveying the consumer's self-concept, and conveying desired social meaning (Kumar & Ghodeswar, 2015). If individuals want to be seen as ethical and environmentally responsible, they are more likely to adopt green products. Marketers should leverage this by emphasizing the social and ethical benefits of green products in their advertising, particularly in the Vietnamese market.

In summary, this study contributes to the theory by identifying factors influencing green product purchases in the Vietnamese market. While previous research explored the effects of environmental protection, driving for environmental responsibility, green product experience, and social appeal, this study also presents the relationship between green product attributes and pricing on consumer decisions. This new finding expands understanding of the factors affecting green product purchases and their interrelationships.

## 6. Conclusion

Firstly, this study shows that Vietnamese consumers are environmentally conscious and interested in environmental protection. They have taken specific actions for environmental protection by actively supporting the environment by purchasing and consuming environmentally friendly products. Besides, they are also aware that environmental protection actions are meaningful actions and environmental protection activities are the responsibility of individuals and society. They are also willing to change themselves, adopting an eco-friendly lifestyle from their personal self-perception and from societal pressures. To do this, they search for information about green products themselves and ask friends. They also share their experiences of green products with others, thereby observing the social appeal of supporting environmental issues. However, Vietnamese consumers are also quite cautious when buying green products because they have to consider the value green products bring compared to their cost. However, if green products have quality that matches their needs, they are willing to pay a higher price when buying them for the goal of contributing to environmental protection through this purchase.

In addition, Vietnamese consumers have become more knowledgeable when relying on a number of standards to identify green products such as eco-labels, and green product certificates as well as paying attention to the natural origin of the product and the disposal process with little impact on the environment.

Second, through this research, marketers understand consumer behavior in making decisions to purchase green products, as well as consumers' concerns about environmental issues. In addition, the study also suggests that marketers of green products should provide consumers with practical information related to green products and pricing policies, and create green products that suit their lifestyles.

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