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Research on Factors Affecting Green Buying Behavior of Consumers in Ho Chi Minh City

Dang Hoang Son*
Ho Chi Minh City University of Foreign Languages - Information Technology, Vietnam

KEYWORDS

Green buying behavior,
Green purchase intention,
Sustainability,
Theory of Planned Behavior,
Smart-PLS 4.0.

ABSTRACT

Investigating the elements influencing customers' purchasing behavior for green products in Ho Chi Minh to analyze, identify, and assess consumer behavior in the region. Data were gathered from 528 consumers. The suggested model was evaluated using structural equation modeling using a bootstrapping approach in Smart-PLS 4.0. Research findings indicate that three factors affect green buying behavior via green purchase intention, ranked as follows: attitude (0.355), perceived behavioral control (0.314), and perceived behavioral control (0.355). Green purchasing intention (0.738) directly affects green purchase behavior, while Subjective Norm (0.291) is the third influencing element. This research seeks to enhance comprehension of the determinants affecting green purchasing behavior among consumers in Ho Chi Minh City and will aid green marketers in capitalizing on the substantial potential within this market segment by developing tailored marketing strategies and plans. The results of this study can enhance organizations' comprehension of consumers' green buying intents and shopping behaviors, significantly contributing to environmental sustainability.

1. Introduction

1.1. Background of the study

The expansion of the global population leads to accelerated production, consumption, and environmental challenges. Presently, unsustainable global consumption results in significant environmental issues, including global warming, and pollution of water, air, and land, which also influence alterations in consumption patterns and shopping behaviors (Ying & Wang, 2019). In this context, cultivating a practice of eco-friendly consumption among consumers is an effective approach for environmental conservation and sustainability. When customers recognize environmental degradation and their obligation to conservation, they are inclined to evaluate the ecological consequences of their purchasing choices, particularly preferring products that are less detrimental to the environment (Yadav & Pathak, 2016).

Green products are constructed from recyclable materials and manufactured through processes that conserve water and energy, hence reducing waste, packaging, and the management of hazardous substances. Consequently, fostering eco-friendly shopping practices and augmenting customer understanding and awareness of sustainable products is essential. Studies in developing nations demonstrate

*Corresponding author. Email: *sondh@huflit.edu.vn*
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an increasing focus on eco-friendly buying practices as individuals acknowledge the environmental consequences of their consumption (Ying & Wang, 2019). Nonetheless, prior research employing the Theory of Planned Behavior to elucidate intentions for green or ecologically sustainable purchases frequently neglected the influence of environmental concern and knowledge on customer purchasing choices. Yadav and Pathak (2016) underscored that environmental awareness and knowledge are crucial determinants in the decision to acquire green products.

Research on the factors affecting green buying behavior of consumers in Ho Chi Minh City (HCMC) is an emerging field that requires a comprehensive understanding of various socio-economic, cultural, and environmental dynamics. Despite the growing interest in sustainable consumption, significant research gaps remain that need to be addressed to enhance our understanding of this phenomenon. The first gap is the lack of empirical studies examining the role of customer awareness and attitude in shaping green purchasing behavior among consumers in HCMC. While some studies have indicated that environmental knowledge positively influences purchasing intentions for green products, there is insufficient evidence to establish a direct correlation within the specific context of HCMC (Nguyen et al., 2021). Research should focus on assessing the level of awareness and attitude among different demographic groups and how this awareness translates into actual purchasing behavior. This could involve exploring the effectiveness of educational campaigns and community initiatives aimed at promoting sustainable consumption practices. Moreover, the influence of marketing strategies and brand perception on green buying behavior is an area that requires further exploration. Existing literature has highlighted the importance of brand trust and corporate social responsibility (CSR) in influencing consumer choices (Ha, 2020).

1.2. Research Questions and objectives

To fill this gap, the research aims to investigate consumer behavior for green products consumption. There are several main objectives of the research:

• RO1: To determine factors that influence the intention behavior to buy green products

• RO2: To assess the direction between intention behavior and green purchasing behavior

To accomplish the above-mentioned goals. The following are some of the most important questions that will be answered:

• RQ1: What are the factors that influence the intention behavior to buy green products?

• RQ2: Does intention behavior affect green purchasing behavior?

2. Material and Methodology

This section is to review concepts of "Green" concept and green products, decision making model, and Theory of Planned Behavior (TPB). The proposed research methods and models are also captured in the pieces of literature which include hypotheses and relations between attributes.

2.1. Conceptual Foundation

2.1.1. "Green" concept and green products

According to Nguyen et al. (2021), used the term "environmentalism" in their study of consumers' willingness to purchase organic products and in a study of environmentally friendly intentions. customer market in the hotel industry, Nguyen et al. (2021), mentioned the concept of "environmentally friendly". The term "green" is used in his research on the impact of trade-offs on green products. Our research has adopted the terms, in this research, "green" and "eco-friendly" in relation to minimizing impact on the environment, saving energy or natural resources, avoid using chemicals that pollute or destroy the natural environment (Tapsoba et al., 2022).

2.1.2. Decision making model

Decision-making as a process of intentionally selecting one choice among two or more alternatives and suggest a five-step decision-making model, with the initial stage being the recognition of consumer demands. personal requirementsInitially, clients seek information pertinent to shopping; subsequently, they assess options; thereafter, they make purchasing selections; and ultimately, they engage with after-sales support. Individuals' shopping need may emerge from internal or external influences (Nguyen et al., 2021).

2.1.3. Theory of Planned Behavior (TPB)

The Theory of Planned Behavior derives from the Theory of Reasoned Action (Ajzen, 1991). This theory utilizes attitudes, subjective perceptions, and perceived behavioral control to elucidate the aspects influencing human intentions with precision. Ajzen (1991), a prominent authority on the Theory of Planned conduct, elucidates the determinants of human conduct. While both theories share the premise that behavior results from a conscious decision to act in a specific manner, the Theory of Planned Behavior incorporates the concept of volition (the availability of opportunity, resources, and support to engage in a behavior). According to Ajzen (1991), this theory includes an additional variable not present in the Theory of Reasoned Action, which is utilized to regulate behavior. The idea posits that

individuals' attitudes, subjective views, and perceived behavioral control collectively impact the development of personal intentions to engage in a specific behavior.

2.2. Research methods

Hypotheses Development based on Past Studies

2.2.1. Attitude (AT)

Attitude is a crucial antecedent variable influencing purchasing intention (Ajzen, 1991). Individuals' propensity to acquire green products increases with their positive perceptions of these items (Tapsoba et al., 2022). The attitude toward green shopping pertains to customers' cognitive assessment of environmentally conscious purchasing behavior. It is cultivated by an individual's cognitive and reasonable assessment of the significance of green purchasing initiatives (Ying & Wang, 2019). Numerous studies examining the correlation between consumer ecological attitudes and green buying behavior have yielded inconsistent results; nonetheless, the majority indicate a favorable association (Tapsoba et al., 2022; Shih-Wei Wu and Pei Yun Chiang, 2023) between the two variables. The author subsequently proposed. I propose the subsequent hypothesis:

H1: Attitude has a positive impact on green purchase intention.

2.2.2. Subjective norm (SN)

Subjective norm is a social determinant that denotes the felt societal pressure to engage in or abstain from a specific activity (Ajzen, 1991). Previous research has indicated that favorable impressions of significant others, including friends, family, colleagues, and relatives, about green products substantially affect an individual's inclination to acquire such products (Thi Thu Huong Nguyen et al., 2019). In the Indian context, Yadav and Pathak (2016) discovered that subjective norms substantially affect the propensity to purchase green items overall. I propose the following hypothesis:

H2: Subjective norm has a positive impact on green purchase intention.

2.2.3. Perceived behavioral control (PBC)

Perceived behavioral control denotes the relative ease or difficulty associated with executing a specific behavior (Ajzen, 1991). When acquiring eco-friendly products, several external elements may be beyond an individual's control, including time, cost, knowledge, and expertise. When individuals see an abundance of resources and possibilities while anticipating fewer challenges, their cognitive behavioral control will be enhanced, leading to a heightened intention to make environmentally friendly purchases. In accordance with prior research, customers are inclined to exhibit green purchasing behavior when they perceive control over relevant aspects (Wang, Lin & Li, 2017). Consequently, the subsequent hypothesis is posited.

H3: Perceived behavioral control positively impacts green purchase intention.

2.2.4. Green purchase intention to green purchase behavior (PI to PB)

Green purchase intention (PI) denotes a consumer's inclination to acquire eco-friendly products to promote environmental welfare (Thi Thu Huong Nguyen et al., 2019). In contrast, Green Purchase Behavior (PB) refers to the cognitive acts undertaken by customers when selecting eco-friendly products while eschewing those detrimental to society and the environment (Rahman, 2018). Consequently, PB is influenced by consumers' aspirations and readiness to interact with environmentally friendly items (Rahman, 2018). The Theory of Planned Behavior (TPB) model is frequently utilized in Asia to evaluate Green Purchase Intention (PI) and customer eco-friendly behavior (Thi Thu Huong Nguyen et al., 2019). Awareness of eco-friendly concepts promotes the adoption of organic and sustainable foods. Studies on eco-friendly items have revealed a substantial correlation between GPI and GPB (Thi Thu Huong Nguyen et al. 2019; Yadav & Pathak, 2016). Furthermore, research demonstrates that consumers' Green Purchase Intention (PI) is influenced both directly and indirectly by environmental concern via perceived behavioral control, subjective standards, and attitudes (Nguyen et al., 2021). This relationship establishes the foundation for the subsequent hypothesis:

H4: Green purchase intention positively impacts green purchasing behavior.

2.3. Research model

The proposed research model is presented in Figure 1.

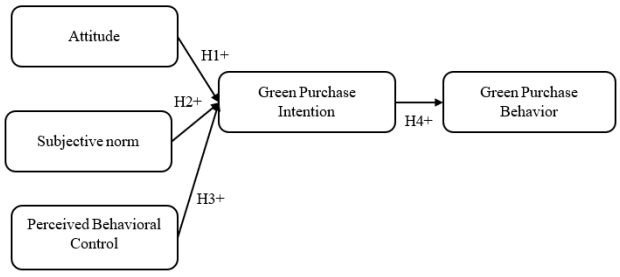

Figure 1. Proposed Research Model

3. Results and Discussion

3.1. Research subjects and methodology

The assessment variables for each construct, based on relevant studies, employ a 5-point Likert scale to fulfill the study objectives. The scale extends from "Completely Disagree = 1" to "Completely Agree = 5." Prior to the formal survey, interviews were conducted with experts, administrators, and long-serving staff in the field to improve the measurement scales regarding reliability and validity. Improvements and adjustments were implemented following the consideration of their suggestions, which included modifications to the questionnaire through both additions and deletions. The questionnaire's wording was revised to improve readability and comprehension. Attitudes were adapted from the works of Zhang Yanyan et al. (2023) and Yen Thi Hoang Nguyen and Hung Vu Nguyen (2020). Subjective Norms were adapted from the works of Yen Thi Hoang Nguyen and Hung Vu Nguyen (2020), and Shih-Wei Wu and Pei Yun Chiang (2023). Perceived Behavioral Control was adapted from the work of Thi Thu Huong Nguyen et al. (2019). Green Purchase Intention was adapted from the works of Zhang Yanyan et al. (2023), and Ying & Wang, (2019). Green Purchase Behavior was adapted from Ying & Wang, (2019).

The aforementioned data indicates that the majority of customers that engage in green purchasing practices are female; 329 female consumers, or 62.3% of the total, took part in the poll. The primary cause might be that women are more concerned than men with preserving the environment and the health of their families. With 226 individuals, or 42.8% of the total, the age group between 31 and 45 makes up the biggest percentage. This demonstrates that individuals in this age range are capable and willing to spend in environmentally friendly goods and services since they are in a stage of financial and professional stability. They frequently choose green items as part of a healthy and conscientious lifestyle, which reflects their high level of social and environmental responsibility. The highest percentage (41.5%) is made up of those whose income is between 10 and less than 20 million VND. Their access to more upscale goods and services, such as eco-friendly products, shows that they care about the environment and human health. This further demonstrates a readiness to allocate a percentage of revenue to support sustainable alternatives.

Table 1. Descriptive statistics of the survey sample

Item	Category	Frequency	Rate (%)
Gender	Male	199	37.7%
	Female	329	62.3%
	Total	528	100%
Age	18 - 22	19	3.6%
	23 - 30	122	23.1%
	31 - 45	226	42.8%
	46 - 55	140	26.5%
	Over 55	21	4%
	Total	528	100%
Current job	Civil servants	85	16.1%
	Teacher	190	36%
	Student	17	3.2%
	Housewife	18	3.4%
	Worker	22	4.2%
	Business	181	34.3%
	Freelancer	15	2.8%
	Total	528	100%
Monthly income	Under 5 million	35	6.6%
	From 5 - under 10 million	123	23.3%
	From 10 - under 20 million	219	41.5%
	Over 20 million	151	28.6%
	Total	528	100%
Experience to buy green products	Less than 1 year	174	33%
	From 1 - less than 2 years	102	19.3%
	From 2 - less than 3 years	98	18.6%
	More than 3 years	154	29.2%
	Total	528	100%

3.2. Measurement model assessment

Using Smart PLS is beneficial for assessing both direct and indirect effects, as well as structural route models, without requiring strict data distribution assumptions (J. Hair et al. 2017). The measurement model assessment involves three key criteria: internal consistency reliability, convergent validity, and discriminant validity, collectively known as the outer model assessment. Internal consistency reliability examines the interrelationship among components within a test. Cronbach's alpha (α) is a common measure, calculated as the average of all possible split-half coefficients. However, composite reliability, which weights items based on indicator loadings, is considered more effective (J. F. Hair et al., 2017). As shown in Table 2, Cronbach's alpha ranges from 0.822 to 0.897, CR from 0.875 to 0.900 all exceed 0.7, confirming the constructs' consistency and reliability (J. Hair et al., 2017).

Table 2. Summary of Cronbach's Alpha reliability test of the scales

Variables	Items	SFL	Cronbach's Alpha	AVE	CR
Attitude	AT3	0,831	0.841	0.638	0.898
	AT2	0,806			
	AT4	0,759			
	AT5	0,805			
	AT1	0,792			
Subjective Norms	SN3	0,888	0.839	0.750	0.900
	SN1	0,854			
	SN2	0,855			
Perceive behavioral control	PBC2	0,898	0.897	0.712	0.881
	PBC3	0,823			
	PBC1	0,808			
Green purchase intention	PI1	0,852	0.822	0.745	0.898
	PI2	0,863			
	PI3	0,875			
Green purchase behavior	PB1	0,830	0.872	0.699	0.875
	PB2	0,858			
	PB3	0,820			

Assessing discriminant validity is essential and involves the Fornell-Larcker criterion (J. Hair et al., 2017). According to the Fornell-Larcker criterion, the AVE of a latent variable should exceed the squared correlations between that variable and all others. As shown in Table 3, the square root of the AVE for each construct was higher than its correlation coefficients with other constructs, confirming clear distinction between the constructs (J. F. Hair et al., 2017).

Table 3. Fornell-Larcker criterion

	PI	AT	SN	PBC	PB
PI	0.863				
AT	0.668	0.799			
SN	0.637	0.560	0.866		
PBC	0.642	0.541	0.537	0.844	
PB	0.705	0.608	0.600	0.599	0.836

3.3. Structural model assessment

The hypothesis tests, summarized in Table 4, indicate that subjective norms, attitude, and perceived behavioral control positively influence green purchase intentions at a 5% significance level. Among these, attitude has the strongest impact (coefficient = 0.355), followed by perceived behavioral control (coefficient = 0.314) and subjective norms (coefficient = 0.291). Additionally, hypothesis H4 confirms that green purchase behavior is strongly influenced by green purchase intentions, with intention being a critical factor (coefficient = 0.738).

Table 4. Structural model assessment

Path	Standardized regression coefficient	S.E.	p-value
PI <--- SN	0.291	0.037	0.000
PI <--- AT	0.355	0.042	0.000
PI <--- PBC	0.314	0.039	0.000
PB <--- PI	0.738	0.045	0.000

4. Conclusion

The objectives of the study are to identify the factors that influence the intention to purchase green products, assess the relationship between purchase intention and actual green purchasing behavior, and examine how gender and age differences impact green purchasing behavior. These objectives aim to provide a comprehensive understanding of the key determinants of green purchasing decisions and how demographic variables may shape consumer behavior in the context of sustainability. The findings reveal that three factors significantly influence green purchase behavior through green purchase intention: attitude (Beta = 0.355), which has the strongest impact, followed by perceived behavioral control (Beta = 0.314), subjective norm (Beta = 0.291), and green purchase intention (Beta = 0.738), which directly drives green purchase behavior. Attitude, with a Beta coefficient of 0.355, significantly impacts green purchase intention, confirming that a positive attitude toward green products increases the likelihood of purchase. This finding aligns with studies by Sousa et al. (2022) and Yadava & Pathak (2016). Subjective norm, with a Beta coefficient of 0.291, also positively affects green purchase intention, highlighting the influence of social groups, friends, and family in shaping this intention. This result is consistent with prior research by the same authors. Perceived behavioral control, with a Beta coefficient of 0.314, demonstrates that a perceived ability to manage and control purchasing behavior positively influences green purchase intention. When consumers feel capable of making green purchases, they are more likely to do so, supporting findings from Tapsoba et al. (2022) and others. The strong relationship between green purchase intention and behavior is evidenced by a Beta coefficient of 0.738, showing that intention often translates into actual purchasing behavior. This is consistent with the aforementioned studies, reinforcing the critical role of intention in driving behavior.

Additionally, based on independent sample t – test and one-way Anova, Sig. of Levene test equal to 0.216 > 0.05, F test with Sig. = 0.000 < 0.05. There are

differences between "Green purchase behavior" among different gender groups overall. Sig. of Levene test equal to 0.002 < 0.05, F test with Sig. = 0.037 < 0.05. There are differences between "Green purchase behavior" among different age groups overall. Sig. of Levene test equal to 0.000 < 0.05, F test with Sig. = 0.000 < 0.05.

To promote environmentally sustainable purchasing behavior, several strategic actions are essential. Targeted promotional campaigns and educational initiatives should be developed to highlight the benefits of environmentally friendly products, leveraging platforms such as social media, digital advertisements, and community outreach programs to effectively disseminate this information. Providing consumers with clear and comprehensive details about the environmental advantages and low-pollution characteristics of green products is crucial to building trust and informed decision-making. Additionally, incentivizing participation through discounts, reward programs, and other promotions can encourage trial purchases and foster long-term adoption of sustainable products. Finally, showcasing success stories and testimonials from consumers who have embraced green purchasing behaviors can serve as powerful motivators, inspiring others to make similar environmentally conscious choices.

This study's findings are subject to certain limitations. The scope of the research is confined to consumers in Ho Chi Minh City, which restricts the generalizability of the proposed model. Additionally, the use of convenience sampling may yield a sample that does not fully represent the broader population. The small sample size, along with constraints related to time, funding, and resources, further limits the accuracy and robustness of the survey results.

Future study should concentrate on expanding the sample size and guaranteeing greater variety to increase the generalizability and validity of the results in order to improve the findings. To provide a more thorough understanding of green purchasing behavior within various cultural and socioeconomic situations, studies should also be carried out in other geographic locations. Improving accuracy and relevance requires incorporating lessons from more local and foreign studies into the study model and measuring scales. Additionally, a more comprehensive knowledge will be possible through the identification and analysis of other elements impacting green purchasing behavior, allowing for the creation of stronger and more practical suggestions for encouraging sustainable consumer activities.

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