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Understanding Green Consumption Behaviors in an Emerging Market: The Influence of Environmental Concern, Health Consciousness, and Product Availability in Vietnam

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Abstract. This study investigates the factors influencing green consumption behaviors among Vietnamese consumers, focusing on the roles of environmental concern, health consciousness, and product availability. Drawing on an extended Theory of Planned Behavior (TPB), the authors propose a research model that incorporates these factors along with attitudes, subjective norms, and perceived behavioral control. A mixed-methods approach was employed, involving qualitative interviews with experts and a quantitative online survey with 400 consumers. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to analyze the data. The findings reveal that environmental concern, health consciousness, attitudes, and perceived behavioral control significantly influence green consumption intentions, while subjective norms have no significant effect. Moreover, the unavailability of green products negatively moderates the relationship between intentions and actual green consumption behaviors. The study contributes to a better understanding of green consumption in emerging markets and offers practical implications for businesses and policymakers to promote sustainable consumption practices in Vietnam.

Keywords: Environmental concern, Health consciousness, Green product availability, Green consumption intention-behavior, Theory of planned behavior, Vietnam.

1. Introduction

In the past decade, global consumption of goods and services has significantly increased, leading to the depletion of natural resources and severe environmental damage. Serious environmental impacts such as global warming and biodiversity loss have been observed (Käb et al., 2016). Recognizing these threats, countries worldwide have started implementing solutions to minimize the negative effects of business activities on the environment. This growing awareness has led to the emergence of the concept of "sustainable development", emphasizing the necessity to promote sustainability and support economic development while reducing negative impacts on the environment and society. Sustainable development encourages ecological innovation and green consumption, focusing on integrating sustainable environmental development practices at all stages of goods and services production (Wu & Chen, 2014).

Environmental issues and natural resource depletion, along with their direct impacts on human health, require a more responsible approach to consumption. Therefore, to mitigate the adverse effects of consumption on the environment, individuals need to adopt green consumption behaviors. Green consumption entails considering the environmental impact of products when making purchasing decisions and opting for goods with minimal environmental harm (Sinh, 2024). Green consumption behavior should be practiced in daily life, with national policies leading consumer behavior changes (Fosu et al., 2024). However, awareness of green consumption affects both consumption intentions and actual behaviors.

Nowadays, green consumption is quite common in developed countries and has also made initial strides in developing countries as personal incomes and consumer consciousness increase. The recent willingness of consumers to pay more for eco-friendly products indicates the expanding market for environmentally friendly products (Paul et al., 2016). In Vietnam, economic growth is closely linked to significant declines in natural resources and increasing environmental pollution. According to recent statistics from the Ministry of Health, Vietnam had one of the highest cancer incidence rates globally in 2018, with environmental pollution being a significant contributing factor (Sinh & Tam, 2022). Each year, Vietnam allocates 0.22% of its GDP to treating six cancer types mainly caused by contaminated food. Raising environmental awareness, specifically promoting green consumption, can help improve this situation.

Despite the abundance of articles and studies on green consumption in Vietnam that predominantly focus on consumer intentions and behaviors toward green products (Dung et al., 2013; Hung et al., 2015; Hung et al., 2016, Hung et al., 2018; Cao & Nguyen, 2024), there remains a notable gap in exploring the factors associated with actual green consumption behavior. Understanding the intention-behavior gap can aid companies, marketers, and campaigns in devising more effective consumer outreach strategies.

This study aims to answer the question of what truly influences consumers toward green consumption, leading to practical actions. Specifically, the study objectives are to: (i) identify factors influencing the green consumption intention of consumers in Vietnam; (ii) determine the impact of each factor on the green consumption intention and behavior of customers in Vietnam; (iii) propose managerial implications to support businesses in identifying approaches to reaching customers with green consumption intentions and suggest solutions to promote green consumption behavior. By delving into these aspects, this research paper endeavors to shed light on the nuances of green consumption behavior in Vietnam and contribute to the discourse on sustainable consumption practices in the country.

This research holds significant theoretical and practical contributions. Theoretically, it enriches the existing literature by providing empirical evidence on the determinants of green consumption behavior in an emerging economy. Practically, it offers actionable insights for businesses and policymakers to

foster sustainable consumption practices, ultimately contributing to environmental conservation and public health improvement in Vietnam.

2. Literature Review

2.1. Conceptual Definitions

Green products are those that are environmentally friendly, characterized by their minimal pollution impact and sustainable attributes, often being recyclable or sustainably sourced (Vazifehdoust et al., 2013). According to Taylor and Todd (1995), green products are evaluated based on both their production and usage aspects, ensuring they do not harm the environment during consumption, and the production process itself is eco-friendly.

The term "green" consumption emerged in the 1960s in Europe and the United States. It was first proposed by the International Organization of Consumer Unions in 1963, emphasizing consumers' responsibility toward the environment. Today, it is understood in various contexts and approaches. Alfredsson (2004) links green consumption to scientific indicators such as energy use and CO2 emissions, while Carrigan et al. (2004) define it as the purchase of environmentally friendly products. However, green consumption extends beyond avoiding environmentally harmful goods to actively choosing eco-friendly options. Jaiswal and Bihari (2020) discuss green consumption as the willingness to purchase eco-friendly products with minimal environmental impact, emphasizing both product ingredients and production methods. Additionally, Peattie (2010) highlights that green consumption involves decisions based on environmental or social standards, making it the purchase and use of green products.

Reflecting consumers' beliefs about consumption behaviors, consumption intention is the motivation behind the perceived plan or decision to engage in specific behaviors (Ajzen & Fishbein, 1980). It precedes actual behavior, indicating readiness to perform a planned action. In studies on green consumption, the intention to purchase eco-friendly products is a key predictor of future green purchasing actions (Wang, 2017). In this study, green consumption intention refers to consumers' intentions to buy and use green products.

Green consumption behavior encompasses a range of actions, including purchasing green products and adopting eco-friendly practices such as energy conservation (e.g., using energy-saving devices), rooted in the concept of consumption behavior and environmentally friendly products.

2.2. Theoretical Foundations

Theory of Reasoned Action. Developed by Fishbein in the late 1960s and later expanded by Ajzen and Fishbein (1980), the Theory of Reasoned Action (TRA) posits that behavioral intention is the primary predictor of consumption behavior. It is influenced by attitudes and subjective norms, providing a widely accepted framework for understanding consumer behavior. Attitudes reflect consumers' perceptions of products and attributes, while subjective norms capture the influence of social relationships on individual behavior.

Theory of Planned Behavior. An extension of TRA, the Theory of Planned Behavior (TPB) by Ajzen (1991) incorporates perceived behavioral control as a crucial factor. Perceived behavioral control represents the individual's perception of control over their beliefs, directly influencing behavioral intention and actual behavior. Intention to engage in planned behavior is determined by consumer attitudes, subjective norms, and perceived behavioral control, with stronger intention and effort leading to an increased likelihood of behavior performance.

2.3. Research Model and Hypothesis Development

Several previous studies (e.g., Dung et al., 2013; Gleim et al., 2013; Hung et al., 2015; Wu, 2015; Hung et al., 2018; Emekci, 2019; Sinh, 2024) have explored green consumer behavior, focusing on factors such as product characteristics, resources, social influences, attitudes, and trust. In a study, Sinh (2024)

examined the impact of various factors on green consumption behavior, including trust, perceived effectiveness, and the rarity of green products. The study draws on previous research and considers demographic differences in consumption intentions and behaviors.

Despite the known benefits of green consumption for health and environmental protection, significant barriers remain, hindering consumer engagement. The availability of green products emerges as a critical factor in cultivating consumer preference, particularly in emerging markets such as Vietnam. Additionally, three core components of the TPB including attitudes towards green consumption, subjective norms, and perceived behavioral control exert fundamental influence on both the intention and actual behavior regarding green consumption.

The research model is depicted in Figure 1.

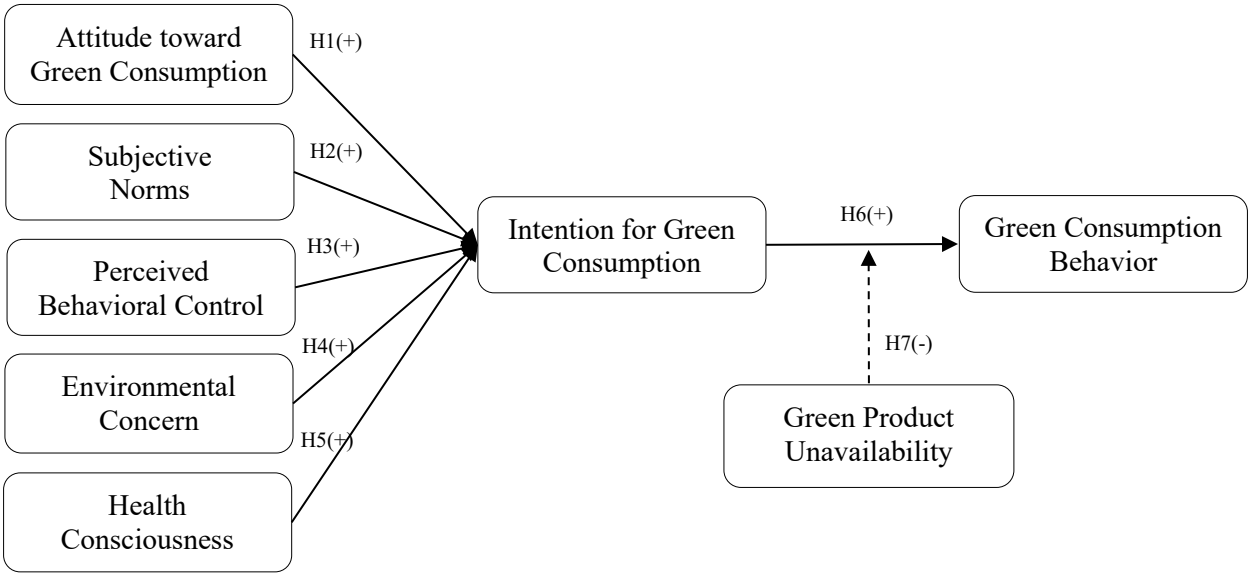

Fig. 1: Research Model

Attitudes toward green consumption. Attitude toward a behavior is understood as an individual's positive or negative feelings about performing a specific behavior (Ajzen & Fishbein, 1980). In consumer behavior studies, attitude is considered a representative factor of what consumers like or dislike, and consumer purchasing decisions are often based on their attitudes toward products and the environment (Chen & Chai, 2010). Previous studies have indicated the positive impact of attitudes toward green consumerism and the intention to engage in this behavior (Chan, 2001). The research results of Stanislawski et al. (2015) demonstrated that for all selected candidates, individuals' attitudes toward green consumerism are the strongest factor influencing their intention to engage in green consumption. In Vietnam, Nguyen et al.'s (2019) study also showed that people with positive attitudes toward green consumerism tend to have a higher intention to engage in green purchasing behavior. Therefore, the following hypothesis is proposed:

H1: Attitude toward green consumption positively influences the intention for green consumption.

Subjective norms. Ajzen (1991) defined subjective norms or social influence as the perception of individuals regarding the pressure from social factors on whether to perform or not perform a behavior. Subjective norms can be described as individuals' perceptions of social pressures regarding the performance or non-performance of a behavior.

According to the TRA (Ajzen & Fishbein, 1980), subjective norms can be formed through the perception of normative beliefs from influential people or social factors affecting consumers such as family, friends, government, media... The impact of subjective normative beliefs on consumers'

purchase tendencies depends on the level of support/opposition to the consumer's purchase and the motivation of the consumer to comply with the wishes of influential individuals. Dung et al. (2013) also found that social factors such as influence from family and society are important sources influencing Vietnamese people's concern for green products. Subsequently, the authors further developed and tested a model based on the TPB (Ajzen, 1991) with the influences of social factors alongside attitude to explain the intention of sustainable consumption among Vietnamese people. Thus, the hypothesis is as follows:

H2: Subjective norms positively influence the intention for green consumption.

Perceived behavioral control. Perceived behavioral control is understood as an individual's perception of the ease or difficulty of performing a behavior. It represents the degree of control over performing the behavior rather than the outcome of the behavior. In the context of green consumerism, perceived behavioral control describes consumers' perceptions of the availability of necessary resources, barriers, and the ease of engaging in green consumption.

Ajzen (1991) suggested that perceived behavioral control directly influences the tendency to perform behavior. If the subject accurately perceives their level of control, then perceived behavioral control also predicts behavior. Some researchers (eg., Straughan and Roberts, 1999) have studied this area and noted that individuals interested in the environment only exhibit environmental behavior if they perceive individual actions can contribute to solving common environmental problems. Perceived behavioral control is conceptually similar to self-efficacy as proposed by Bandura (1997). Therefore, the proposed research hypothesis is:

H3: Perceived behavioral control positively influences the intention for green consumption.

Environmental concerns. Environmental concern is defined as the concern for environmental degradation and the community's indifference to environmental conservation (Nia et al., 2018). Environmental concern is considered as an individual's attitude evaluation toward their behavior or the behavior of others that have consequences for the environment (Zhao et al, 2014). With consumers, environmental concern may translate into a willingness to pay for environmentally friendly products. Therefore, the following hypothesis is proposed:

H4: Environmental concern positively influences the intention for green consumption.

Health consciousness. Health consciousness can be defined as the extent to which health concerns are integrated into an individual's daily activities (Jayanti & Burns, 1998). Consumers consider health as an important factor when purchasing food products and show concern for issues related to food and health. Consumers who are more concerned about health issues have more favorable attitudes toward purchasing organic products (Nandi et al., 2016). Consequently, the following hypothesis is proposed:

H5: Health consciousness positively influences the intention for green consumption.

Green consumption intention and behavior. The theory of consumer behavior indicates that consumers go through an intention phase before deciding to purchase, implying a causal relationship between intention and behavior. In this model, intention is considered the direct precursor to behavior. Additionally, Ajzen and Fishbein (1980) pointed out that intention is the most important factor and the best predictor of behavior. Therefore, the following hypothesis is suggested:

H6: The intention for green consumption positively influences green consumption behavior.

Availability of green products. The availability of green products can act as a hindrance to green consumption behavior (Roberts, 1996). Thus, the proposed hypothesis is as follows:

H7: The unavailability of green products negatively impacts the relationship between intention and green consumption behavior.

3. Research Methodology

3.1. Research Methods

This study employed a mixed-methods approach, integrating both qualitative and quantitative research methods.

Qualitative research. Drawing on existing literature on green consumption, the research model included scales to measure variables such as attitudes toward green consumption (Taylor & Todd, 1995), subjective norms (Ajzen, 2002), perceived behavioral control (Zhao et al., 2014), environmental concerns (Mamun et al., 2018), health consciousness (Yadav & Pathak, 2016; Nandi et al., 2016), green product unavailability (Gleim et al., 2013), intention for green consumption (Sinh, 2024), and green consumption behavior (Yi, 2017). A 5-point Likert scale was employed for consistency with previous research (see Appendix).

Dyadic interviews and group discussions were conducted with 10 experts from the green consumer goods industry in Ho Chi Minh City, Vietnam. The experts were selected based on their extensive experience and expertise in green consumer products, ensuring diverse insights into the study. This purposive sampling method aimed to gather detailed and relevant qualitative data to refine the initial scale by assessing readability, identifying areas for improvement, adjusting scale measurements, and crafting respondent-friendly survey questionnaires.

Quantitative research. A pilot study involving 20 participants assessed the revised scale's suitability before commencing the main study. The main study utilized a quantitative approach, administering a comprehensive survey questionnaire based on the finalized scale. An online survey was developed and distributed via email, forums, and social media platforms, with careful screening to ensure the quality of responses.

3.2. Surveys

Sampling and Sample Size. Convenience sampling was employed, with 400 survey questionnaires distributed to ensure representative sampling. The sample size of 400 was chosen based on guidelines suggesting that a sample size greater than 300 provides adequate power for structural equation modeling (SEM) and ensures the robustness of statistical analyses (Kline, 2015). Among the 350 valid responses, the sample reflects typical profiles of green consumers in Vietnam, predominantly females (69.1%), aged 30-39 (65.43%),

Demographic Characteristics. The age group 30-39 has the highest representation (65.43%), followed by those below 30 (20.29%), the age groups 40-49 (8%) and 50 and above (6.28%). The largest cohort holds a Bachelor's degree (57.4%), followed by postgraduate qualifications (27.4%). Those with high school or vocational education represent less than 20% of the sample. The income bracket of 10-15 million VND comprises the largest proportion (29.1%), followed by the 5-10 million VND. The high-income group (above 30 million VND) accounts for 22.6% of the total sample.

Overall, the surveyed sample represents a typical profile of green consumers in Vietnam, especially among individuals aged 30-39, predominantly female, with at least a Bachelor's degree, and earning moderate to high incomes. This aligns closely with the characteristics of consumers in major urban areas of Vietnam, reflecting a prevalent trend toward green consumption among the young working-age demographic. However, the use of convenience sampling may limit the generalizability of the findings. While it offers practicality and efficiency in gathering data, this method may not accurately represent the broader population. Therefore, the results should be interpreted with caution, acknowledging that they may primarily reflect the behaviors and attitudes of more accessible and willing participants. Future studies could benefit from employing probability sampling techniques to enhance the representativeness and robustness of the findings.

4. Research Results and Discussion

4.1. Measurement Test

Descriptive statistics outline a comprehensive assessment encompassing 32 variables typically rated on a scale from 1 to 5, allowing for a broad spectrum of responses (Table 1).

Table 1: Means and Standard Deviations

Factors	Number of Items	Means	Standard Deviations
Attitudes toward green consumption (GA)	3	3.440	1.210
Subjective norms (SN)	5	3.000	0.856
Perceived behavioral control (BC)	5	3.206	0.975
Environmental concern (EC)	4	3.285	1.039
Health consciousness (HC)	4	3.540	1.251
Green product availability (PA)	3	2.923	1.435
Intention for green consumption (CI)	4	3.593	0.883
Green consumption behavior (CB)	4	3.298	1.065

These statistics provide insights into factors influencing green consumption in Vietnam. Positive attitudes and high intentions, combined with moderate perceived control and environment and health concerns, suggest a favorable environment for promoting green products. However, the lack of availability and information about green products highlights areas needing improvement to enhance green consumption behaviors.

Reliability. Reliability analysis, employing Cronbach's Alpha coefficient, was conducted for all measurement factors to assess internal consistency or reliability (Hair et al., 2006; Nguyen, 2024). The validation process of the measurement scale involved 32 observed variables distributed across eight-factor groups. After examination, one observed variable was deemed inadequate and subsequently excluded due to an item-total correlation coefficient of 0.050, which fell below the acceptable threshold of 0.4.

Exploratory factor analysis. Bartlett's Test of Sphericity and the KMO test affirmed the suitability of observed variables for factor analysis. After conducting EFA, 31 observed variables were retained with Eigenvalues > 1 and a total extracted variance of 75% (Nguyen, 2024). After the measurement scale test, one observed variable out of 31 was removed due to a loading of 0.481, falling below the threshold of 0.5. This refinement resulted in the scale consisting of 30 observed variables. Table 2 presents the factor analysis results, confirming the reliability and appropriateness of the measurement model for further analysis.

Table 2: Exploratory Factor Analysis

	Factors							
	1	2	3	4	5	6	7	8
SN4	0.860							
SN1	0.859							
SN5	0.857							
SN2	0.858							
SN3	0.857							
BC4		0.834						
BC1		0.834						
BC3		0.837						
BC5		0.824						

BC2		0.843						
EC3			0.869					
EC2			0.860					
EC4			0.864					
EC1			0.863					
HC2				0.828				
HC1				0.823				
HC4				0.819				
HC3				0.818				
PA1					0.793			
PA2					0.786			
PA3					0.790			
CB2						0.802		
CB1						0.805		
CB3						0.801		
GA3							0.823	
GA2							0.827	
GA1							0.821	
CI3								0.848
CI4								0.856
CI2								0.842

Confirmatory factor analysis. The findings of the CFA analysis indicate the measurement model had a goodness-of-fit: $\chi^2/df = 1.617 \leq 5$. Additionally, other indices also meet the benchmarks: CFI = 0.945 ≥ 0.9, GFI = 0.898 ≥ 0.8, TLI = 0.945 ≥ 0.9, and RMSEA = 0.042 ≤ 0.08. Therefore, it can be concluded that the measurement model aligns well with the market data.

The CFA analysis demonstrates that the regression weights of all observed variables are statistically significant at $p < 0.05$, indicating a clear discrimination among concepts (Hair et al., 2006). Furthermore, all variables exhibit $p < 0.05$, affirming their statistical significance and correlation with the main factor. Additionally, the standardized regression weights of observed variables exceed the acceptable threshold of 0.5, confirming convergence for all measurement scales, as illustrated in Table 3.

Table 3: Convergent Validity: Factor Loadings and Composite Reliability

Paths			**Loadings**	**S.E.**	**C.R.**	**p-value**
SN4	<---	SN	0.825			
SN1	<---	SN	0.808	0.069	16.951	***
SN5	<---	SN	0.829	0.061	17.519	***
SN2	<---	SN	0.789	0.063	16.416	***
SN3	<---	SN	0.649	0.058	12.770	***
BC4	<---	BC	0.865			
BC1	<---	BC	0.836	0.055	18.940	***
BC3	<---	BC	0.812	0.052	18.172	***
BC5	<---	BC	0.685	0.058	14.242	***
BC2	<---	BC	0.670	0.053	13.805	***
EC3	<---	EC	0.814			
EC2	<---	EC	0.837	0.056	17.465	***

Paths			Loadings	S.E.	C.R.	p-value
EC4	<---	EC	0.832	0.059	17.324	***
EC1	<---	EC	0.823	0.054	17.086	***
HC2	<---	HC	0.797			
HC1	<---	HC	0.785	0.074	14.303	***
HC4	<---	HC	0.738	0.082	13.492	***
HC3	<---	HC	0.674	0.068	12.257	***
PA1	<---	PA	0.886			
PA2	<---	PA	0.702	0.066	11.987	***
PA3	<---	PA	0.720	0.070	12.182	***
CB2	<---	CB	0.815			
CB1	<---	CB	0.732	0.088	11.115	***
CB3	<---	CB	0.673	0.085	10.705	***
GA3	<---	GA	0.799			
GA2	<---	GA	0.637	0.074	9.978	***
GA1	<---	GA	0.711	0.079	10.595	***
CI3	<---	CI	0.836			
CI4	<---	CI	0.755	0.065	13.928	***
CI2	<---	CI	0.722	0.067	13.352	***

*** *denotes < 0.001.*

Composite reliability. CR is used to assess the consistency of questions in measuring the structure and latent concepts. A commonly accepted threshold for CR is 0.6 or higher (Nguyen, 2024). The results of CR in this study range from 0.761 to 0.896, meeting the theoretical requirements with CR > 0.6. This indicates that the survey questions' reliability is very high.

Average variance extracted. In this study, convergence is measured using AVE. According to Hair et al. (2006), AVE should be above 0.5, and AVE is also a reliability measure, reflecting the common variance of observed variables computed by latent variables. AVE values in this study range from 0.517 to 0.683, all exceeding 0.5, meeting theoretical requirements. This demonstrates that the convergence results of factors meet the survey requirements.

Table 4: Discriminant Validity: Fornell-Larcker Criterion

	CR	AVE	MSV	SN	BC	EC	HC	PA	CB	GA	CI
SN	0.887	0.613	0.026	**0.783**							
BC	0.883	0.605	0.026	0.162	**0.778**						
EC	0.896	0.683	0.073	-0.075	-0.108	**0.827**					
HC	0.837	0.563	0.265	0.093	-0.02	0.119	**0.75**				
PA	0.816	0.599	0.049	-0.062	-0.001	-0.062	-0.028	**0.774**			
CB	0.785	0.551	0.049	0.132	0.092	0.017	0.179	-0.222	**0.742**		
GA	0.761	0.517	0.209	0.018	0.142	-0.113	0.181	0.059	0.044	**0.719**	
CI	0.816	0.597	0.265	0.104	0.160	0.270	0.515	0.059	0.208	0.457	**0.773**

Square roots of AVE in the diagonal, correlations for each construct in the lower half of the table.

In Table 4, the bold values on the diagonal represent the square root of the AVE, while the values below the diagonal are the correlations between the independent variables. These results indicate that the scales for each concept achieve discriminant validity, as the square root of the AVE exceeds the correlation coefficients between the latent constructs.

Therefore, the CFA results meet theoretical standards, confirming the reliability of the measurement scales in the model and providing sufficient grounds to proceed with Structural Equation Modeling (SEM) analysis.

4.2. Model and Hypothesis Test

Model without moderating variables. SEM was employed to test the proposed hypotheses within the research model. The SEM results revealed favorable indicators: $\chi^2/df = 1.593 \leq 5$, meeting compatibility requirements, along with other indices meeting the criteria: CFI = 0.959 $\geq$ 0.9, GFI = 0.907 $\geq$ 0.8, TLI = 0.953 $\geq$ 0.9, and RMSEA = 0.041 $\leq$ 0.08. These findings align with theoretical expectations (Hair et al., 2006), confirming that the model fits well.

The results in Table 5 demonstrate that most correlations in the research model are statistically significant at $p < 0.05$. The regression coefficient table serves as the basis for determining the influence of relationships. Specifically, HC has the greatest impact on CI, with a standardized regression coefficient of 0.410, the largest among all variables.

The model's appropriateness is reflected in the R^2 coefficient, with CI = 0.495. This implies that the five independent variables in the model explain 49.5% of the variance in green consumption intention.

Table 5: Structural Model Path Coefficients

Paths			Coefficient	S.E.	C.R.	p-value	Hypothesis
CI	<---	GA	0.393	0.039	6.078	***	H1: accepted
CI	<---	SN	0.063	0.047	1.207	0.227	H2: rejected
CI	<---	BC	0.135	0.038	2.544	0.011	H3: accepted
CI	<---	HC	0.410	0.040	6.695	***	H4: accepted
CI	<---	EC	0.283	0.037	5.124	***	H5: accepted
CB	<---	CI	0.217	0.081	3.246	0.001	H6: accepted

Based on the p-value, the research hypotheses are confirmed. Except for the SN and CI relationship with $p = 0.227 > 0.05$, hence rejecting H2. All other hypotheses are accepted. All standardized regression coefficients are positive, indicating that the factors influence green consumption intention positively.

Model with moderating variables. The structural model incorporating moderating variables, specifically the unavailability of green products, produced the following indicators: $\chi^2/df = 2.598 \leq 5$, which meets compatibility standards, alongside additional indices meeting the criteria: CFI = 0.973 $\geq$ 0.9, GFI = 0.989 $\geq$ 0.8, TLI = 0.861 $\geq$ 0.9, and RMSEA = 0.068 $\leq$ 0.08. These indices also align with theoretical benchmarks (Hair et al., 2006). Thus, it can be inferred that the structural model is suitable for the dataset obtained from the market.

The results in Table 6 show that the relationship between SN and CI is still not accepted in this study, as $p = 0.431 > 0.05$. Other paths have p-values less than 0.05, indicating support.

Table 6: Model Testing with Moderators

Paths			Coefficient	S.E.	C.R.	p-value	Hypothesis
CI	<---	BC	0.152	0.036	4.146	***	
CI	<---	EC	0.324	0.036	8.848	***	
CI	<---	HC	0.422	0.037	11.344	***	
CI	<---	SN	0.029	0.036	0.788	0.431	
CI	<---	GA	0.409	0.038	10.954	***	

Paths			Coefficient	S.E.	C.R.	p-value	Hypothesis
CB	<---	CI	0.279	0.049	5.586	***	
CB	<---	GA	-0.255	0.049	-5.092	***	
CB	<---	CI x GA	-0.105	0.042	-2.070	0.038	H7: accepted

The relationship between the unavailability of green products (GA) and green consumption behavior (CB), as well as the moderator (CI x GA) and CB, both have negative regression coefficients, indicating a reverse impact on CB. This confirms H7: The unavailability of green products negatively affects the relationship between intention and green consumption behavior.

4.3. Discussion of Research Findings

The study sheds light on the factors influencing green consumption intentions and behaviors among consumers in Vietnam. Among the identified factors, health consciousness and attitudes toward green consumption emerge as the most significant (β = 0.410, 0.393, respectively), followed closely by environmental concerns and perceived behavior control (β = 0.283, 0.135, respectively). However, the subjective norms do not exert any notable impact on green consumption intentions ($p > 0.05$) . Furthermore, the unavailability of green products is found to negatively affect the relationship between intentions and green consumption behaviors (β = -0.105).

The study underscores the significant influence of consumers' attitudes toward green consumption on their purchasing intentions. This finding aligns with prior research by Tanner and Kast (2003) and Ajzen (1991), emphasizing the pivotal role of attitude in driving purchasing behavior. No significant impact of subjective norms on green consumption intentions was observed. This suggests a growing societal awareness of green consumption, particularly among educated, economically active individuals, who are less influenced by external norms (Ajzen, 2002).

Health consciousness significantly influences green consumption intentions, suggesting that consumers are more inclined to engage in green consumption when they perceive its positive effects on their well-being. This is evident in behaviors such as selecting food carefully to ensure good health, being conscious consumers regarding health, regularly contemplating health-related matters, and acknowledging the importance of maintaining good health (Yadav & Pathak, 2016).

Environmental concern positively influences green consumption intentions, thereby expanding green consumption behavior. It is perceived as the impact of modern development on the environment, personal concerns about environmental pollution, belief in the necessity of collective action to mitigate pollution, recognition of the importance of addressing environmental issues, and advocacy for greater attention to environmental concerns (Mamun et al., 2018).

Perceived behavior control exhibits a positive relationship with green consumption intention. This underscores the importance of individuals' perceptions of control over their actions, including resource availability, in shaping their intentions toward green consumption (Zhao et al., 2014). The unavailability of green products hampers the translation of intentions into actual green consumption behaviors, as observed in previous studies highlighting the inhibitory effect of limited access to green products (Gleim et al., 2013).

The analysis confirms a positive correlation between green consumption intentions and behaviors. However, the unavailability of green products impedes the realization of intentions into tangible behaviors (Sinh, 2024). In conclusion, the findings underscore the intricate interplay of various factors shaping green consumption behaviors, emphasizing the need to address barriers such as limited product availability to promote sustainable consumption patterns.

5. Conclusion and Implications

5.1. Conclusion

This study contributes to the literature on green consumption by providing insights into the factors influencing Vietnamese consumers' intentions and behaviors. The findings highlight the significant roles of environmental concern, health consciousness, attitudes, and perceived behavioral control in shaping green consumption intentions. Additionally, the study reveals the moderating effect of green product availability on the intentionbehavior relationship, emphasizing the importance of ensuring accessible and recognizable green products in the market. .

5.2. Managerial Implications

These findings have important implications for businesses and policymakers in Vietnam. Businesses should focus on promoting the environmental and health benefits of their products while improving the availability and visibility of green options. Policymakers should develop educational initiatives to raise awareness about environmental issues and support the development of a robust green product market.

5.3. Limitations and Future Research

Despite its contributions, the study has limitations, such as the convenience sampling method and the focus on a single country context. Future research should explore green consumption behaviors in other emerging markets, consider additional factors influencing the intention-behavior gap, and employ longitudinal designs to capture changes in consumer perceptions and behaviors over time.

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Appendix

Scale Measurements

Codes	Factor Items	Sources
Attitudes toward Green Consumption		
A1	I like the idea of green consumption	Taylor and Todd (1995)
A2	Green consumption is a good idea	
A3	I support buying green products instead of regular ones	
Subjective Norms		
SM1	My shopping decisions are influenced by those in my family	Ajzen (2002)
SM2	Most of my relatives think I should consume green products	
SM3	The mass media (newspapers, TV, Internet, etc.) nowadays provide a lot of information about green products	
SM4	The government is currently encouraging consumers to buy and use green products	
SM5	Many people around me also consume green	
Perceived Behavioral Control		
PBC1	Energy-saving products have economic significance for both households and society	Zhao et al. (2014)
PBC2	My green consumption behavior can have a positive impact on the environment	
PBC3	have reliable information about green products	
PBC4	I take the time to research and consider when choosing between green products and conventional ones	
PBC5	Buying green products is easy for me	
Environmental Concerns		
MT1	I believe that modern development is gradually damaging the environment	Mamun et al. (2018)
MT2	I am very concerned about environmental pollution issues	
MT3	Environmental pollution can only be improved when we act together	
MT4	I worry about the deteriorating quality of the environment	
Health Consciousness		
SK1	I carefully choose food to ensure good health	Yadav and Pathak (2016); Nandi et al. (2016)
SK2	I am health-conscious and only consume food that is beneficial to my health	
SK3	I frequently think about health-related issues	
SK4	I am aware that health is important	
Green Product Unavailability		
LOA1	I don’t know where green products are sold	Gleim et al. (2013)
LOA2	Green products are not available at the regular stores I shop at	
LOA3	It’s not easy to recognize green products unless I check them carefully	
Green Consumption Intention		
PI1	I will buy green products because they cause less environmental pollution	Sinh (2024)
PI2	I will be willing to purchase green products for personal and family use	
PI3	I will make an effort to buy green products	
PI4	I will recommend to relatives/friends to consume green products	
Green Consumption Behavior		
PB1	I often purchase environmentally friendly products/services	Yi (2017)
PB2	When I have a choice between two products, I usually buy the one that is less harmful to the environment and the community	
PB3	I regularly purchase green products	
PB4	All the electrical appliances in my family are energy-saving products	