

ISIR Journal of Arts, Humanities and Social Sciences (ISIRJAHSS)
ISSN: 3048-7463 (Online)
Frequency: Bimonthly
Published By ISIR Publisher
Journal Homepage Link- https://isirpublisher.com/index.php/isirjahss

Factors influencing whether or not customers are willing to pay more for sustainable cosmetics

By
Nguyen Hoang Long
Ho Chi Minh City University of Foreign Languages – Information Technology

Article History

Received: 15/11/2024
Accepted: 20/12/2024
Published: 05/01/2025

Vol – 2 Issue – 1

PP: -06-18

Abstract
Sustainability is presently a prominent theme influencing various sectors, including the cosmetics industry. In recent years, there has been an increasing interest in sustainability within the cosmetics business among scholars from several disciplines, as well as consumers and organizations. Public awareness of this issue has heightened because to growing apprehension about cosmetic safety, the societal and environmental consequences of illicit commerce, and ecological impacts like as deforestation. This study examined the psychological factors affecting individuals' intention to utilize green energy through the frameworks of the Theory of Planned Behavior (TPB) and the Norm Activation Model (NAM). The investigation's conclusions are expected to substantially impact the efficacy of social marketing methods aimed at promoting the adoption of environmentally responsible cosmetics among consumers. Moreover, our study aids in the development of marketing strategies for advertising seeking to acquire new clientele.

Keywords: *Sustainable cosmetic consumption, Sustainable cosmetic, Purchase intentions, Theory of planned behavior, Willingness to pay, Norm activation model*

1. Introduction

Environmental pollution is a major health risk (Rahman & Nguyen-Viet, 2023). The main cause of soil degradation, air and water pollution, habitat destruction, biodiversity loss, and global warming is excessive consumer consumption (Sun et al., 2021). These environmental concerns and sustainability activities have increased green consumption (Y. Wang et al., 2019). This makes it crucial for a sustainable future (Nekmahmud et al., 2022). When discussing items that ensure future stability, "sustainable products," "eco-friendly," "environmentally friendly," and "green products" are used interchangeably (L.-T. Nguyen, 2023; Prakash & Pathak, 2017). The industrial sector is the main emitter and energy and resource consumer (Garetti & Taisch, 2012) This presents a major challenge for the sector, which must increasingly emphasize sustainability (Haidegger, 2018). Few studies have focused on green cosmetics, but most have examined green purchasing behavior in food, electronics, energy systems, and textiles (ElHaffar et al., 2020). Thus, academics must study what motivates customers to buy eco-friendly cosmetics (Shimul et al., 2022). Green cosmetics are predicted to receive a lot of attention in green purchasing behavior research. The cosmetics sector has grown steadily. The cosmetics industry requires long-term Sustainability Management planning due to its heavy use of natural resources and global expansion. An emphasis on environmental and social sustainability in operations and products is driving the industry toward a Green Transition (Bom et al., 2019).

This study investigates what motivates customers to switch to green consumption and how they behave throughout this transition. Consumers may admire environmental sustainability, but they won't buy if they don't plan to. We'll investigate why customers' sustainable consumption patterns don't match their objectives. This study fills a gap in the literature by assessing consumers' cosmetic sustainability beliefs and purchase intentions. This study explores customers' complex desires to buy eco-friendly cosmetics. We focus on the main aspects that influence customers' decisions to buy environmentally friendly cosmetics to illuminate the many variables that affect these vital decisions. We analyze crucial variables and the latest research to help entrepreneurs, policymakers, and researchers understand the complex interactions that shape consumer attitudes about sustainable cosmetics. By recognizing these forces, stakeholders can develop focused strategies to promote sustainable decisions and a balance between environmental responsibility and consumer desires. This research seeks to identify the main drivers of consumers' adoption of eco-friendly cosmetics.

2. Literature review and Hypothesis development

2.1. Literature review

In order to establish a conservation-oriented society, it is advantageous to implement sustainable cosmetics consumption behavior, as it is both pro-environmental and

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pro-social. TPB and NAM are the two theories that are most frequently employed in the field of personal pro-environmental behavior (Aguilar-Luzón et al., 2012).

2.1.1. Norm activation model (NAM)

In 1973, Schwartz established the Norm Activation Model (NAM) to identify the factors that influence people's intentions to behave in a pro-environmental manner in respect to moral and humanitarian norms. NAM asserts that behavior begins with an individual's recognition of the consequences of destructive behavior, which is followed by the development of a sense of responsibility for the negative repercussions of that behavior (P. Van Nguyen & Nguyen, 2017). In the end, there is a rise in the individual's intents to act in a prosocial way. "A personal norm is a moral code and guideline that directs an individual to engage in specific behaviors, thereby influencing their personal behavior." They are the central focus of this paradigm, which consists of two components: the assignment of responsibility and the identification of consequences. In research studies focused on predicting and promoting environmental intentions and behaviors, NAM is a foundational hypothesis that has been applied worldwide (S.-H. Dang & Nguyen, 2023). This has been applied in a wide range of fields, including the prediction of visitors' binning behavior in national parks (Esfandiar et al., 2021), the conservation of electricity (Zhang et al., 2013), and the development of culinary innovations (Govaerts & Olsen, 2022).

2.1.2. Theory of Planning Behavior (TPB)

TPB is widely used in the behavioral domain, which is devoted to the study of human behavior and the forecasting of the different situations in which behavioral intents may arise (Ajzen, 1991). The TPB paradigm is more external and objective, according to (Ajzen, 1991). This paradigm takes into consideration both the personal within the personal to explain the behavior's personal goal (attitude) and the external elements to explain the behavior's individual conduct in tandem with external constraints (perceived behavioral control). In relation to organic PCP, the goal of (Ghazali et al., 2017) is to investigate the relationship, based on TPB theory, between Malaysian customers' behavioral intentions, attitudes, and values and their attitudes toward repurchasing organic PCP. Liao et al., 2023) contend that the Theory of Planned Behavior (TPB) can be employed as a comprehensive and fundamental framework for the development of policy mechanisms that are designed to motivate urban residents to participate in low-carbon travel. The study conducted by (Xu et al., 2024) not only investigates the impact of various driving factors on farmers' GAPBs, but also incorporates the NAM and TPB frameworks, thereby enhancing and broadening the research model of farmers' behaviors. This is achieved by considering both the subjective moral criterion and the entirety of objective reality.

2.2. Hypotheses development

2.2.1. Personal norms (PN)

The motivations for engaging in pro-environmental behaviors are derived from the domain of morality in an individual's psyche and their assessments of what is right or wrong in the eyes of others or themselves (Lindenberg, 2007). According to the NAM, internalized values are reflected in personal norms, which are viewed as moral obligations to participate in decision-making processes. Thus, when personal norms are in place, they have an impact on both the intention and the actual behavior of altruism (H.-B. Nguyen & Nguyen, 2021; L.-T. Nguyen et al., 2022; Schwartz', 1973). As a result, moral principles have a significant impact on people's intentions and behaviors related to environmental protection (T.-Q. Dang, Tran, et al., 2023; Dao et al., 2023; S. Wang et al., 2020; Xie et al., 2021). Furthermore, personal norms have a direct influence on the intention to purchase energy-efficient appliances (Zhao et al., 2019), the application of organic fertilizer by farmers (Xie et al., 2021), and the purchase of environmentally friendly clothing products (Kim & Seock, 2019). Upon activation of their personal norms, consumers will experience moral obligations, values, and guilt. Consequently, this will encourage the formation of a behavioral intention to purchase sustainable cosmetic products. Given this, the subsequent hypothesis is formed.

Hypothesis 1: Personal norms have a positive impact on consumers' intention to purchase sustainable cosmetic product

2.2.2. Perceived behavioral control (PBC)

Based on the TPB model, one variable is perceived behavioral control. According to (Islam et al., 2022), perceived behavioral control is a metric that evaluates a person's capacity and opportunity to act in a certain way when they feel they have the power to do so. It demonstrates the obstacles that individuals encounter when attempting to complete particular behavior. In addition, it is closely associated with one's convictions regarding about how internal and external circumstances affect one's ability to act in a certain way (Tan et al., 2017). According to Tegar Wibawa & Hartoyo, 2015), prompt access to information, sufficient funds, and sufficient time are essential factors in the decision to make an intention purchase. Moreover, numerous research has verified the beneficial association between aspirations to purchase sustainable products and thought to be in control of conduct (Cao Minh & Nguyen Thi Quynh, 2024; D. T. V. Dang et al., 2022; Luan-Thanh et al., 2024; Nekmahmud et al., 2022; L.-T. Nguyen, Duc, et al., 2023a; Phan et al., n.d.; Rehman et al., 2024). As a result, the following hypotheses were formulated:

Hypothesis 2: Perceived behavioral control has a positive impact on consumer's intention to purchase sustainable cosmetic product

2.2.3. Attitude (ATT)

The attitude toward a particular action is recognized as one of the three predictors of intention in the Theory of Planned Behavior (TPB), which are conceptually isolated from one another, which is the extent to which an individual evaluates the conduct in question favorably or unfavorably (Ajzen, 1991; Ha & Janda, 2012; Klöckner, 2013).When it comes to purchasing ecologically friendly cosmetics, Ajzen (1991) defined attitude as the individual's subjective evaluation of

*Corresponding Author: **Nguyen Hoang Long.**

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their specific activity. That's what happens when you combine outcome rating with behavioral belief. An individual's attitude toward a particular activity indicates whether they favor it or dislike it. According to Ali & Kamal, 2015; Kamal et al., 2015), consumers' attitudes toward purchasing significantly influence their intentions and purchases. In the context of sustainable practices, an individual's attitude is considered a predicate of their intention to make a purchase (Duc, Nguyen, et al., 2024; B.-H. T. Nguyen et al., 2024; B.-T. H. Nguyen et al., 2023; L.-T. Nguyen, Duc, et al., 2023a; L.-T. Nguyen, Nguyen, et al., 2023; Straughan & Roberts, 1999). For instance, a consumer may form a favorable opinion of a common cosmetic product as a result of its perceived cost-effectiveness. Nevertheless, the consumer may opt for a more expensive sustainable cosmetic product after evaluating a variety of alternatives. The ultimate intention to purchase the specific product, despite its higher cost, may be determined by an individual's level of alignment with their beliefs regarding the advantageous outcomes of making the purchase of the item (Ha & Janda, 2012). According to recent research, one of the most important predictors of decisions about sustainable consumption and a range of behavioral intents is consumer attitudes (Liobikienė & Bernatonienė, 2017; A. H. D. Nguyen et al., 2024; H. V. Nguyen et al., 2019; N. T. T. Nguyen et al., 2024; Rehman et al., 2024). When considered collectively, we anticipate that attitudes have a beneficial impact on the intentions to purchase sustainable cosmetic products and we propose that:

Hypothesis 3: Attitude has a positive impact on consumer's intention to purchase sustainable cosmetic product

2.2.4. Environmental concern (EC)

Environmental concern was identified as a critical component of the extended TPB model (Bamberg, 2003).In recent decades, consumers have become more concerned with the environment due to the dire condition of the environment (Jalilvand & Samiei, 2012). Schuitema et al. (2013) defined environmental concern as the identification and assessment of environmental issues. Therefore, it is imperative to assist individuals in transitioning from their current behavior to one that is more environmentally favorable (Richardson, 2013). Consumers' attitudes toward environmentally advantageous products become more favorable as they become more environmentally aware (Paul et al., 2016). Their attitude and desire to purchase sustainable products are both directly and indirectly influenced by environmental concerns. Testa et al. (2020) suggest that the purchase of sustainable packaging may be positively correlated with environmental concern, as environmentally conscious consumers actively pursue environmental information. Rossi & Rivetti (2023) determined that consumers' intents to buy products bearing a sustainable label are positively impacted by environmental concern. In the same vein, Dangelico et al. (2022) discovered that environmental concern can have positively influenced on the desire to purchase sustainable apparel. Consequently, it is reasonable to assume that consumers who are preoccupied with environmental issues will be more likely to adopt environmentally favorable behaviors. As a result, we suggested that there is a direct correlation between the level of environmental concern of consumers and their intention to purchase sustainable cosmetics.

Hypothesis 4: Environmental concern has a positive impact on consumer's intention to purchase sustainable cosmetic product

2.2.5. Sustainable cosmetic product purchase intention (SPI)

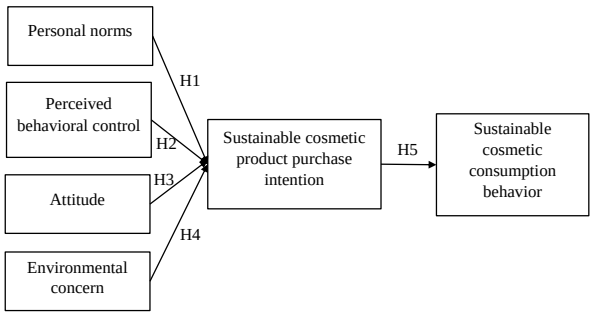
According to Fishbein & Ajzen (2005) research on consumer behavior, a customer's capacity to successfully manage their objectives may determine how much their intentions can be translated into concrete actions. Within the context of sustainable product consumption, individuals strive to satisfy their own needs while concurrently engaging in environmentally beneficial behaviors that benefit society as a whole. Furthermore, clients who anticipate that their behavior will persist for an extended period exhibit a higher level of compliance with environmentally friendly protocols. As these consumers' environmental objectives are perceived as more achievable and less incompatible with their long-term expenditures objectives that support environmental behavior, Miniero et al. (2014) have a valid point when they suggest that they have more control over the effects of pro-environmental behavior.

Nevertheless, there is a potential for a substantial discrepancy between purpose and behavior, as individuals do not always conduct in accordance with their intentions. For example, (Schwepker & Cornwell (1991) found that intentions culminate in action only approximately half of the time. In order to enhance our comprehension of green consumer behavior, future research could investigate the nature of intentions in green consumption, the circumstances under which intentions can be executed, and the extent to which intentions and conduct diverge.

Hypothesis 5: Sustainable cosmetic product purchase intention has a positive impact to sustainable cosmetic consumption behavior.

The research model will be illustrated in accordance with the antecedent discourse in Figure 1.

Fig.1 Research model



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3. Methodology

The "Doi Moi" (Reform) strategy of Vietnam has led to an increase in urbanization since 1986 (Hocquard, 2010). During the 2000s, Vietnam is believed to have had the highest urbanization rate in Southeast Asia, with an estimated 3.4% (World Bank, 2011). Vietnam is facing environmental issues as a result of industrialization and urbanization (Clarke & Vu, 2021). Due to challenges including pollution, deforestation, waste production, and increased carbon emissions, Vietnamese consumers are becoming more and more environmentally sensitive. Vietnamese consumers are increasingly cognizant of environmental concerns, which has led to the adoption of sustainable products as a new consumption trend (T. P. Nguyen & Dekhili, 2019). As a result, Vietnamese consumers prioritize cosmetic products that are environmentally favorable. However, these phrases are relatively novel concepts for Vietnamese customers. Thus, it is crucial to comprehend Vietnamese customers' behavioral goals about sustainable beauty products. With this understanding, businesses may customize their product lines and marketing campaigns to the tastes and inclinations of Vietnamese consumers.

3.1. Target Population

Customers are the research's target audience, especially those who are interested in sustainable goods and cosmetics and who either use sustainable items now or intend to in Vietnam. The city is renowned for its cultural diversity as a result of its substantial immigrant population. Nevertheless, this investigation employs non-probability sampling due to the absence of a consumer sampling frame in HCMC. Furthermore, judgmental sampling was implemented in this investigation due to the fact that the researchers selected samples that were cost-effective and time-efficient, as evidenced by numerous other investigations.

3.2. Measurement items, questionnaire design, and data collection

Surveys collected data for this study. Surveys are better for studying individual behavior than other methods since they use field observations (Kelley et al., 2003). This study used Google Forms to create an electronic questionnaire. Content validity of the questionnaire was ensured by updating and changing all prior study items based on an intensive literature investigation. An expert group would then assess the selected works' content. The survey was initially modified from the English one. To ensure translation parity, the translation was finalized in Vietnamese, the official language and the language spoken by most Vietnamese logistics professionals. English to Vietnamese and Vietnamese to English translations were done. The sources are meticulously cited: Li et al (2021) provided personal norms (PN), a modified version of their work; Cao Minh & Nguyen Thi Quynh (2024) provided perceives behavioral control (PBC); Li et al. (2021) provided attitude (ATT); Duarte et al (2024) provided environmental concern (EC); and (Duarte et al., 2024; H. V. Nguyen et al., 2019) provided sustainable cosmetic product purchase intention (SPI). Due to its reduced neutral responses and increased dispersion, the 7-point Likert scale was also used for measurement. It goes from (1) Strongly Disagree to (7) Strongly Agree. G*Power version 3.1 recommends a minimum sample size of 92, with an effect size of 0.15, probability of error α of 0.05, power level (1- β) of 0.8, and 6 predictors.

4. Data analysis and result

4.1. Statistics analysis

Through this study, the perspectives of 116 customers in HCMC were acquired. Table 1 shows that women make up 70.7 percent of the sample, while men make up 29.3 percent. This is in accordance with the findings of Yiridoe et al. (2005), who demonstrated that women are more cognizant of the potential health hazards associated with chemical residues and preservatives in products. Consequently, women were more likely to purchase sustainable products. Of those surveyed, 58.5 percent were in the 20–35 age range, with 32.5% being in their lower 20s. People over 50 (1.6%) and those between the ages of 35 and 50 (7.3%) make up the minority. Currently, 74.8% of the respondents are students, and 77.2% earn less than 10 million VND annually. Of these, 88.6% employ makeup, 80.5% are aware of and have used ecological cosmetics, but only 69.1% have actually employed them. Almost half of the respondents, or 50.4%, indicated that they occasionally use sustainable cosmetics. In the context of sustainable cosmetic products, 48% of respondents are willing to pay between 200,000 and 500,000 VND, 16.3% are willing to pay more, 7.3% are willing to pay more than 1,000,000 VND, and 28.5% are only willing to pay less than 200,000 VND.

Table 1. Descriptive statistics

Demographic characteristics		Frequency (Total: 123)	Percentage
Gender	Female	87	70.7%
	Male	36	29.3%
Age	Under 20 years old	40	32.5%
	20 and 35 years old	72	58.5%
	35 and 50 years old	9	7.3%
	Above 50 years old	2	1.6%
Carreer	Office workers	10	8.1%
	Homemakers	4	3.3%
	Manual laborers	2	1.6%
	Self-employed	13	10.6%
	Students	92	74.8%
	Others	2	1.6%

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Income	Under 10 million dong	95	77.2%
	10 – 20 million dong	10	8.1%
	20 – 30 million dong	10	8.1%
	Above 30 million dong	8	6.5%
Frequency	Never	38	30.9%
	Sometimes	62	50.4%
	Usually,	18	14.6%
	Always	5	4.1%
Willing to pay	Under 200,000 đ	35	28.5%
	200,000 đ – 500,000 đ	59	48%
	500,000 đ – 1,000,000 đ	20	16.3%
	Above 1,000,000 đ	9	7.3%

Note: *n=123*

4.2. Assessing the outer measurement model

Our study looks into the variables that affect the use of environmentally friendly cosmetics. Because PLS is a prediction-focused SEM strategy that can successfully manage the model's complexity, it is the most appropriate method for our inquiry.

It is imperative to verify the evaluation of the outer model (measurement model) (structural model) prior to evaluating the hypotheses in the inner model. During the first stage, the measurement accuracy was assessed. The precision of the measurement was evaluated during the initial phase. In Table 2, the composite reliability value (pA), outer loadings, Cronbach's α, and average variance extracted (AVE) values are presented. Convergent and discriminant characteristics are evaluated to verify the validity of the measurement model. In order to evaluate a significant number of elements that are pertinent to related concepts, the term "convergent validity" (CV) is employed. In accordance with (Hair et al., 2017), the CV should be evaluated using the outer loading value and the average variance extracted (AVE). The outer loading values of all other items exceeded 0.7, while the loading value of only one item exceeded 0.5 (T.-Q. Dang, Tan, et al., 2023; Duc, Mai, et al., 2024; N.-T. T. Nguyen et al., 2024). As a result, one item with low factor loadings was eliminated during this process.

Table 2. Cronbach's α, composite reliability, loading, and average variance extracted

Construct	**Items**	**Outer loading**	**Composite reliability (rho_a)**	**Cronbach's α**	**Average variance extracted (AVE)**
ATT	ATT1	0,886	0,862	0,862	0,785
	ATT2	0,919			
	ATT3	0,852			
EC	EC1	0,868	0,847	0,843	0,761
	EC2	0,850			
	EC3	0,899			
PBC	PBC1	0,918		0,842	0,863
	PBC2	0,940			
PN	PN1	0,880	0,894	0,887	0,816
	PN2	0,927			
	PN3	0,902			
SCB	SCB1	0,888	0,820	0,783	0,697
	SCB2	0,734			
	SCB3	0,874			
SPI	SPI1	0,882	0,871	0,865	0,717
	SPI2	0,877			
	SPI3	0,905			
	SPI4	0,709			

As a result, the reliability of this effort is demonstrated. Discriminant validity (DV), on the other hand, ensures that the relevant items load highly on the relevant dimensions and poorly on irrelevant ones. An examination of the cross-loadings is also included in Table 3, where it was found that they were consistently high for the connected constructs and low for the unrelated ones (Henseler et al., 2015). Additionally, Table 4 demonstrates that the correlation coefficients are smaller than the square root of AVE, in accordance with the results of the discriminant validity "Fornell-Larcker criteria test" (Fornell & Larcker, 1981). The DV is determined in light of this outcome (Ab Hamid et al., 2017).

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Table 3. Cross loadings

	ATT	EC	PBC	PN	SCB	SPI
ATT1	**0,886**	0,552	0,613	0,411	0,569	0,683
ATT2	**0,919**	0,574	0,576	0,477	0,593	0,653
ATT3	**0,852**	0,566	0,468	0,609	0,642	0,685
EC1	0,516	**0,868**	0,571	0,247	0,574	0,685
EC2	0,550	**0,850**	0,446	0,397	0,643	0,638
EC3	0,599	**0,899**	0,588	0,421	0,690	0,720
PBC1	0,498	0,514	**0,918**	0,257	0,476	0,582
PBC2	0,650	0,623	**0,940**	0,344	0,597	0,674
PN1	0,552	0,467	0,428	**0,880**	0,605	0,503
PN2	0,481	0,303	0,215	**0,927**	0,563	0,419
PN3	0,485	0,312	0,215	**0,902**	0,566	0,427
SCB1	0,688	0,633	0,583	0,579	**0,888**	0,780
SCB2	0,377	0,500	0,289	0,507	**0,734**	0,504
SCB3	0,588	0,677	0,534	0,528	**0,874**	0,699
SPI1	0,646	0,630	0,591	0,403	0,697	**0,882**
SPI2	0,677	0,711	0,626	0,352	0,657	**0,877**
SPI3	0,653	0,710	0,654	0,457	0,737	**0,905**
SPI4	0,599	0,590	0,412	0,496	0,638	**0,709**

Table 4. Fornell-Larker criterion

	ATT	EC	PBC	PN	SCB	SPI
ATT	**0,886**					
EC	0,637	**0,872**				
PBC	0,623	0,616	**0,929**			
PN	0,564	0,407	0,326	**0,903**		
SCB	0,680	0,729	0,582	0,643	**0,835**	
SPI	0,761	0,782	0,679	0,503	0,807	**0,847**

4.3. Inspecting the inner structural model

After the measurement model was confirmed, the robustness of the structural model was assessed by looking at its linkages and explanatory power. As demonstrated in Table 5 and Fig. 2, the structural model evaluation suggests testing the hypotheses. The results showed that a person's inclination to purchase ecologically friendly cosmetics is positively influenced by their thinking. H3 (β = 0.102, p_value <0.05) is therefore supported. Furthermore, the results showed that personal norms do not considerably negatively affect the inclination to purchase sustainable cosmetic goods. Therefore, there is no support for H1 (β = 0.057, p_value >0.05). Moreover, the willingness to buy sustainable cosmetics is negatively impacted by perceived behavioral control (β = 0.107, p_value >0.05). Thus, H2 is not supported. On the other hand, the desire to buy sustainable cosmetic products purchase intention is significantly influenced by environmental concerns (β = 0.088, p_value <0.05). H4 is therefore recommended. Furthermore, the results showed that the use of environmentally friendly cosmetics is significantly positively impacted by the intention to purchase environmentally sustainable cosmetics. H4 (β = 0.034, p_value <0.05) is therefore supported. All constructs had VIFs between 1.406 and 3,851, which is lower than the threshold value of 5 (Dang Quan et al., 2024; L.-T. Nguyen, Duc, et al., 2023b), suggesting a lesser probability of multicollinearity.

Table 5. Hypothesis testing outcomes

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	2.5%	97.5%	Mark
ATT -> SPI	0,327	0,321	0,102	3,212	0,001	0,122	0,521	Supported
EC -> SPI	0,424	0,417	0,088	4,828	0,000	0,249	0,588	Supported
PBC -> SPI	0,186	0,194	0,107	1,745	**0,081**	-0,012	0,392	Unsupported
PN -> SPI	0,084	0,089	0,057	1,494	**0,135**	-0,019	0,203	Unsupported
SPI -> SCB	0,807	0,809	0,034	23,599	0,000	0,736	0,867	Supported

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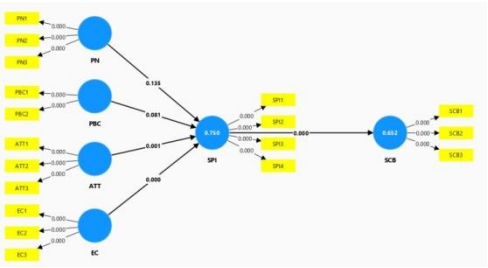


Fig.2 Assessment of Structural Models

When the explanatory power of the study model is assessed, Table 6 shows that our formulation explains 65.2% of the variance in purchase intention for sustainable cosmetic items and 70.0% of the variance in sustainable cosmetic consumption behavior. These findings imply that the suggested model has a high level of explanatory ability.

Table 6. R-square

	R-square	R-square adjusted
SCB	0,652	0,649
SPI	0,750	0,741

5. Discussion, conclusions

5.1.Discussion

Sustainable items make a greener lifestyle more accessible. From the literature, it appears that eco-friendly cosmetics are becoming more popular. Although many elements and triggers affect consumers' green behavior, the literature often produces inconsistent and fragmented results. Using a modified TPB framework, we examined buyers' behavioral intentions toward eco-friendly cosmetics manufactured of diverse eco-materials. We examined how environmental concern, attitude, personal norms, and perceived behavioral control affected customers' purchasing intentions and sustainable cosmetic use.

Personal norms may not affect sustainable cosmetic product purchases for several reasons. Sustainability is often more expensive than traditional alternatives, therefore financial constraints can prohibit people from buying it, even if they have strong personal ideals. Consumers' purchase behavior may prioritise traditional cosmetics over their personal norms, and ingrained behaviours and brand loyalty might make it hard to switch. Personal norms affect general attitudes and beliefs, but pragmatic, psychological, and contextual factors can diminish their direct effect on sustainable cosmetics buying intentions. Consumers' views on sustainability reflect their values, which affect their intention to buy sustainable cosmetics. Customers are more likely to buy organic, cruelty-free, or eco-friendly products if they believe they align with their ethical or environmental ideals. Consumers prefer sustainable cosmetics due to its high quality, low environmental effect, and safer ingredients, allowing them to make informed and responsible choices. Attitudes strongly influence consumer behavior, especially when ethical and personal values are involved. Environmental considerations also impact consumers' purchases of sustainable beauty products. As they learn about deforestation, pollution, and climate change, consumers care more about reducing their ecological imprint. ecologically conscientious shoppers use ecologically friendly cosmetics for long-term benefits, showing responsibility and concern. Individuals' attitudes can influence their choice of sustainable cosmetics, which can benefit ecological initiatives. Perceived behavioral control may not affect purchasing intentions due to several causes. Sustainable cosmetics are expensive, which can limit consumers' control. Greenwashing and false statements can confuse consumers, reducing their ability to make educated decisions. Internal and external impediments can reduce the impact of perceived behavioral control on purchase intentions, even if customers are confident in their sustainability choices. Finally, purchase intention affects sustainable cosmetics use. Strong buy intentions, which lead to real purchases, motivate consumers to overcome shortages or high pricing. Customers that want sustainable cosmetics spend more time researching them, which leads to purchases. Effective marketing, incentive elements, consistency expectations, and past experiences encourage consumers to act on their intentions and make sustainable purchasing decisions.

Our findings support Dangelico et al (2021) by demonstrating that money does not affect the intention to buy sustainable cosmetics. Income is positively connected with organic apparel premiums, but only for organic apparel. This suggests that higher-income consumers may be willing to spend more for sustainable cosmetics, even if only specialized solutions are available. Dangelico et al (2021) found that income did not affect the willingness to pay more for eco-friendly products. Our and their findings imply that income and propensity to pay a premium price may depend on product type and materials.

5.2.Conclusion

This study examined the growing importance of sustainable cosmetic development by examining economic considerations, policy frameworks, and big data analytics. Four hypotheses were developed in order to investigate the influence of policy frameworks, economic factors, and Big Data analytics on diverse aspects of sustainable tourism, as per the Theory of Planned Behavior. These theories investigated the relationships between these variables and the attitudes, personal norms, perceived behavioral control, and environmental concerns of stakeholders. Customers responded to a questionnaire that was integrated into a survey for the investigation. The data was analyzed using Structural Equation Modeling (SEM), a reliable statistical method that is well-suited for the examination of intricate interrelations between multiple variables.

This study contributes to the existing body of literature by improving our understanding of the variables that influence consumers' intentions to purchase cosmetics that contain sustainable components. This is particularly significant due to the fact that there is still a significant amount of unexplored information regarding consumers' preferences for environmentally responsible cosmetics. It is conceivable that the primary factor influencing the desire to purchase

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environmentally responsible cosmetics is the willingness to pay a higher price. Consequently, the development of consumer propensity to pay for sustainability must be the primary focus of public agents. It is essential to conduct campaigns that underscore the benefits of ecological cosmetics in comparison to their cost. Fostering collaboration between government agencies and businesses is essential to increase the likelihood that consumers will accept this type of offer and to decrease the cost of products that contain sustainable cosmetics.

QUESTIONNAIRE

Part 1: Demographic characteristic

Demographic variable	
Gender	Male
	Female
Age	Under 20 years old
	20 – 35 years old
	35 – 50 years old
	Above 50 years old
Occupation	Office staff
	Housewife
	General labor
	Self-employed
	Students
	Others
Income	Under 10 million
	10 - 20 million
	20 - 30 million
	Over 30 million
Frequently buy green cosmetic products	Never
	Sometimes
	Frequent
	Always
Price willing to pay for green cosmetics	Under 200,000 VND
	200,000 VND - 500,000 VND
	500,000 VND - 1,000,000 VND
	Over 1,000,000 VND

Part 2: Measurement scale

Constructs	Items	Sources
Personal norms (PN)	I feel regretful If I do not purchase sustainable cosmetics. I believe it is my duty to purchase sustainable cosmetics. I feel obligated to use sustainable cosmetics	(Li et al., 2021)
Perceived behavioral control (PBC)	I anticipate that in the future I will be capable of purchasing sustainable cosmetic products. There are probably numerous opportunities for me to acquire environmentally friendly cosmetic products. I lack complete control over my decision to purchase sustainable cosmetic products.	(Cao Minh & Nguyen Thi Quynh, 2024)
Attitude (ATT)	In my opinion, purchasing sustainable cosmetic is a good choice. In my opinion, purchasing sustainable cosmetic is a prudent decision. I find great joy in purchasing sustainable cosmetic.	(Li et al., 2021)
Environmental concern (EC)	I hold environmental protection issues in high regard. Environmental protection issues heavily affect my emotions. I often consider ways to enhance environmental quality.	(Duarte et al., 2024)
Sustainable cosmetic product purchase intention (SPI)	I will contemplate transitioning to cosmetic brands that market their products in a sustainable manner. I aspire to purchase sustainable cosmetic products in the future due to their favorable impact on the environment. I intend to purchase sustainable cosmetics in the foreseeable future. I am inclined to pay a premium for a cosmetic product that promotes environmental protection or health.	(Duarte et al., 2024) (H. V. Nguyen et al., 2019)
Sustainable cosmetic consumption behavior (SCB)	I favor purchasing sustainable cosmetics. I employ non-sustainable cosmetics infrequently. I apprise my peers and family of the sustainable cosmetics that I employ.	(H. V. Nguyen et al., 2019)

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