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Green Packaging Adoption in Vietnam: Consumer Drivers and Barriers

Bich Thuy Nguyen[1]
[1]Faculty of International Business and Economics, Thuongmai University, Hanoi, Vietnam

Abstract— *The escalating global environmental crisis, primarily driven by plastic pollution, necessitates a transition towards sustainable consumption practices. Green packaging represents a viable alternative, yet its adoption faces significant hurdles, particularly in emerging economies like Vietnam. This study investigates the key factors influencing Vietnamese consumers' decisions to use green packaging. Drawing upon established behavioral theories, including the Theory of Planned Behavior (TPB) and incorporating insights from consumer behavior literature, a conceptual model was developed encompassing social influence, situational factors, personal consumer factors, and psychological factors. A quantitative survey methodology was employed, collecting data from consumers in Hanoi, Vietnam, using structured questionnaires. Data were analyzed using appropriate statistical techniques. The findings reveal that social influence and situational factors positively shape the intention to use green packaging. Conversely, certain psychological aspects emerged as significant deterrents to adoption. Personal consumer factors did not show a strong direct effect in this model. Overall, while specific drivers and barriers were identified, the results suggest that consumer decisions regarding green packaging are complex and influenced by a range of factors, indicating a need for multifaceted strategies to promote sustainable consumption. These findings offer critical insights for policymakers and businesses aiming to develop effective green marketing and sustainability initiatives in Vietnam.*

Keywords— *Green Packaging, Sustainable Consumption, Consumer Behavior, Vietnam, Emerging Economies*.

I. INTRODUCTION

The contemporary world faces an unprecedented environmental challenge characterized by climate change, resource depletion, and pervasive pollution. Among the most visible and damaging forms of pollution is plastic waste, which inundates landfills, chokes waterways, and harms ecosystems globally [27]. Packaging, particularly single-use plastics derived from fossil fuels, represents a substantial contributor to this crisis [32]. The convenience, low cost, and durability of traditional plastic packaging have led to its ubiquitous use across industries, but its persistence in the environment and the ecological disruption it causes demand urgent solutions [3].

In response, the concept of green consumerism has gained significant traction worldwide, reflecting growing public awareness and concern regarding environmental degradation [46]. Consumers are increasingly seeking products and services that align with their environmental values, leading to market growth for sustainable alternatives [30]. Within this context, green packaging – encompassing materials that are biodegradable, compostable, recyclable, reusable, or derived from renewable resources – has emerged as a critical component of sustainable consumption strategies [35]. Its adoption is seen not only as a way to mitigate waste but also as a signal of corporate environmental responsibility and a potential source of competitive advantage [17].

Vietnam, as a rapidly developing Southeast Asian nation, exemplifies the complex interplay between economic growth, changing consumption patterns, and environmental pressures. Rising disposable incomes and urbanization have fueled a surge in consumerism, accompanied by a dramatic increase in waste generation, particularly plastic waste [51]. According to Vietnam's Ministry of Natural Resources and Environment (MONRE), the country generates millions of tons of plastic waste annually, with daily plastic bag consumption reaching staggering levels, particularly in major cities like Hanoi and Ho Chi Minh City [38]. This imposes a significant burden on waste management infrastructure and contributes to terrestrial and marine pollution, impacting ecosystems and public health [38].

Recognizing the severity of the issue, the Vietnamese government has initiated policies aimed at reducing plastic consumption and promoting environmentally friendly alternatives. However, translating policy intentions into widespread behavioral change remains a significant challenge. Despite growing environmental awareness, the use of conventional plastic packaging, especially single-use plastic bags, remains deeply ingrained in daily consumer habits due to its perceived low cost and convenience [40]. Green packaging alternatives, while available, often face barriers such as higher perceived costs, concerns about durability or performance, and limited availability or consumer familiarity [49].

While the drivers of green consumption have been extensively studied in developed economies [29], there is a comparative lack of research exploring these dynamics within the specific socio-cultural and economic context of emerging markets like Vietnam. Understanding the unique factors that encourage or hinder the adoption of green packaging among Vietnamese consumers is crucial for designing effective interventions. Existing studies in Vietnam have touched upon pro-environmental attitudes or intentions [40], [49], but few have specifically focused on the multi-faceted decision-making process related to green packaging adoption, considering a combination of social, situational, personal, and psychological influences simultaneously.

This study aims to address the identified research gap by conducting an in-depth empirical investigation into the factors influencing Vietnamese consumers' decisions regarding the use of green packaging. The primary objectives are:

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- To identify the key social, situational, personal, and psychological factors influencing consumers' intention to use green packaging in Vietnam.
- To assess the relative strength and direction (positive or negative) of influence of these factors on green packaging adoption intention.
- To test a conceptual model integrating these factors based on established behavioral theories and prior empirical findings.
- To offer practical recommendations for decision-makers, corporations, and environmental groups aiming to encourage the use of sustainable packaging in Vietnam.

Based on these objectives, the central research question is: What are the primary determinants influencing Vietnamese consumers' decisions to adopt green packaging, and what is their relative impact?

This research offers several significant contributions. Firstly, it provides much-needed empirical evidence on green consumer behavior from Vietnam, a key emerging economy facing substantial environmental challenges related to packaging waste. Secondly, it tests a multi-dimensional model incorporating factors often studied in isolation, offering a more holistic understanding of the decision-making process. Thirdly, by identifying both drivers and significant barriers (particularly psychological ones), it provides nuanced insights that go beyond simply promoting awareness. Finally, the findings yield practical implications for developing targeted marketing strategies and effective public policies to accelerate the transition towards green packaging in Vietnam and potentially other similar contexts.

The remainder of this paper is organized as follows: Section 2 presents a comprehensive review of the relevant literature and develops the theoretical framework underpinning the study. Section 3 details the conceptual model and the specific hypotheses tested. Section 4 describes the research methodology, including sampling, data collection, and measurement instruments. Section 5 presents the results of the data analysis. Section 6 discusses the findings in relation to existing literature and theory, outlines theoretical, managerial, and policy implications. Section 7 suggests some implication for business and policy makers. In the end, section 8 wraps up the document, recognizes its limitations, and proposes avenues for upcoming studies.

II. Literature Review and Theoretical Framework

A. Green packaging

Eco-friendly packaging, commonly referred to alongside concepts such as green packaging or sustainable packaging, signifies packaging options created to reduce environmental harm during their entire lifespan, starting from material acquisition and manufacturing to usage and disposal [50], [35]. Key characteristics often include: Utilization of recycled content, renewable resources, or materials requiring less energy/water to produce; Minimizing energy consumption, water usage, emissions, and waste generation during manufacturing; Designed for reusability, durability, or reduced material usage; Facilitating recycling, composting, or biodegradation under specific conditions, thereby diverting waste from landfills or incineration [32].

It is crucial to distinguish 'green' from related but distinct terms. For instance, 'organic cosmetics' packaging may emphasize natural ingredients inside but requires adherence to specific certification standards regarding sourcing and formulation, which differ from general 'green' claims [2], [45]. Similarly, 'biodegradable' or 'compostable' claims require specific environmental conditions (e.g., industrial composting facilities) to be effective and can be misleading if these conditions are not met [36]. The ambiguity and potential for 'greenwashing' (deceptive marketing of environmental benefits) underscore the need for clear standards and consumer education [12], [34]. Challenges associated with green packaging often include higher upfront costs, potential trade-offs in performance, and underdeveloped collection/recycling infrastructure for newer materials [43].

B. Theoretical foundations of pro-environmental behavior

Understanding why consumers adopt (or fail to adopt) green packaging requires grounding in theories of human behavior, particularly those explaining pro-environmental actions. Several frameworks are pertinent:

- Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB): TRA [25] posits that behavioral intention, the immediate antecedent of behavior, is determined by attitude towards the behavior and subjective norms (perceived social pressure). TPB [1] extends TRA by adding Perceived Behavioral Control (PBC) – an individual's perception of the ease or difficulty of performing the behavior – as a third determinant of intention and a potential direct influence on behavior. TPB has been widely applied to predict various pro-environmental behaviors, including recycling, green purchasing, and reducing consumption [15]. Attitude reflects the individual's positive or negative evaluation of using green packaging. Subjective Norms capture the perceived expectations of significant others (family, friends, peers). PBC relates to perceived barriers like cost, availability, or knowledge.
- Norm Activation Model (NAM): Developed by Schwartz (1977), NAM focuses on altruistic and norm-based motivations for pro-social behavior. It suggests that pro-environmental behavior results from the activation of personal norms (moral obligation to act). This activation depends on Awareness of Consequences (AC – awareness of the negative impacts of not acting) and Ascription of Responsibility (AR – feeling personally responsible for addressing the problem). NAM is particularly relevant for behaviors perceived as having clear societal or environmental benefits [33].
- Value-Belief-Norm (VBN) Theory: Stern et al. (1999) integrated NAM with value theory and the New Environmental Paradigm (NEP). VBN proposes a causal chain: enduring Values (altruistic, biospheric, egoistic) shape general Beliefs about the environment (NEP), which influence specific beliefs about consequences (AC) and responsibility (AR), activating Personal Norms, ultimately

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leading to behavior. VBN provides a deeper understanding of the underlying value orientations driving environmental concern and action [18].

- Sheth's Theory of Buyer Behavior: While less focused on pro-environmental aspects specifically, Sheth's model considers complex purchasing decisions influenced by expectations, information processing, situational factors, and predisposition. It highlights the multi-attribute nature of choices and the role of past experience and learning, which could be relevant for habitual packaging choices versus conscious green decisions.

These theories suggest that green packaging adoption is likely influenced by a combination of individual attitudes, perceived social pressures, perceived control/barriers, underlying values and beliefs, moral considerations, and potentially habitual patterns. The model tested in this study attempts to capture several of these dimensions.

C. Empirical factors influencing green packaging adoption

Synthesizing empirical research globally reveals consistent themes regarding factors influencing green product purchasing, including packaging:

Social influence / Reference groups (TK): Subjective norms, as per TPB, consistently emerge as significant predictors [6]. Consumers are influenced by the perceived expectations and behaviors of family, friends, peers, and broader society [41]. Social media and influencer marketing increasingly play a role in shaping these norms and disseminating information (or misinformation) about green products [24]. The desire for social approval or conformity can drive green choices, particularly in collectivist cultures [24]. Government encouragement can also act as a form of societal norm-setting.

Situational factors / Circumstantial factors (HC): These relate to the context in which the purchase decision is made and directly impact PBC. Lack of readily available green packaging options at the point of sale is a major barrier [29], [43]. Convenient store locations offering green options (HC4) are crucial. Green packaging is often perceived as more expensive, acting as a significant deterrent for many consumers, especially in price-sensitive markets [31], [36]. Complex payment methods (HC1) could also be a barrier. Clear, credible information and trustworthy labeling (HC5) are essential to help consumers identify genuine green options and overcome skepticism [12]. Lack of preferred brands (HC2) might deter purchase. Product visibility (HC3), store layout, and the overall ease of making the green choice influence decisions [7].

Personal consumer factors (CN): Findings regarding age, gender, income, and education are often mixed and context-dependent [19]. While some studies find women or highly educated individuals more likely to buy green, these effects are not universal. Higher levels of environmental knowledge and awareness of issues like plastic pollution generally correlate positively with green purchase intentions [39], [40]. Underlying environmental values are strong predictors [30]. Consumers integrating sustainability into their broader lifestyle are more likely to choose green options (CN1). Egoistic motivations (personal benefit) can also play a role [50]. Routine purchasing behavior can override conscious green intentions [42]. Breaking established habits of using conventional packaging is a challenge. Trying green options (CN5) or deriving benefits (CN2) might foster new habits.

Psychological factors (TL): As central to TPB, a positive attitude towards using green packaging is a strong predictor of intention [40]. Attitude itself can be influenced by beliefs about consequences, effectiveness, and personal relevance. General concern for the environment is a foundational motivator [5], [20]. Concerns about personal health impacts from conventional packaging materials or a belief that green/natural is healthier can drive adoption [40]. The belief that one's individual actions can make a difference positively influences pro-environmental behavior [21]. Trust in brands, retailers, and certification labels is crucial for overcoming skepticism about green claims [26]. Conversely, factors like skepticism towards green marketing (TL1), perceived effort or inconvenience, resistance to change, perceived lower performance or quality of green alternatives, and lack of immediate tangible benefits can hinder adoption [29].

The literature suggests a complex interplay of internal (attitudes, values, psychology) and external (social norms, situational constraints) factors influencing green packaging adoption. While TPB provides a robust core framework [1], integrating insights from NAM/VBN regarding underlying values and norms, and acknowledging psychological barriers beyond simple attitudes, offers a richer perspective.

III. CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

Based on the theoretical foundations—primarily the Theory of Planned Behavior (TPB; [1])—and the broader empirical literature reviewed, this study proposes a conceptual model to investigate the factors influencing Vietnamese consumers' intention to use green packaging. The model (Figure 1) posits that consumer intention (the dependent variable, QD) is influenced by four main categories of independent variables: Social influence (TK), Situational factors (HC), Personal consumer factors (CN), and psychological factors (TL). This framework draws inspiration from general models of consumer behavior and adapts them to the specific context of green packaging adoption.

The following hypotheses are formulated:

Hypothesis 1 (H1): Social Influence positively affects consumers' intention to use green packaging in Vietnam. Social influence, representing the perceived social pressure from significant others, is a core component of the subjective norm construct within the Theory of Planned Behavior [1]. Numerous studies across various pro-environmental domains have demonstrated that the expectations, recommendations, and behaviors of reference groups—such as family, friends, peers, experts, and even governmental endorsements—significantly shape an individual's behavioral intentions [41], [15]. In societal contexts where group harmony and collective opinions are valued, such as Vietnam, the influence of these reference groups is anticipated to be particularly salient. Therefore, it is hypothesized that positive cues and

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endorsements from these social circles will enhance consumers' willingness to adopt green packaging.

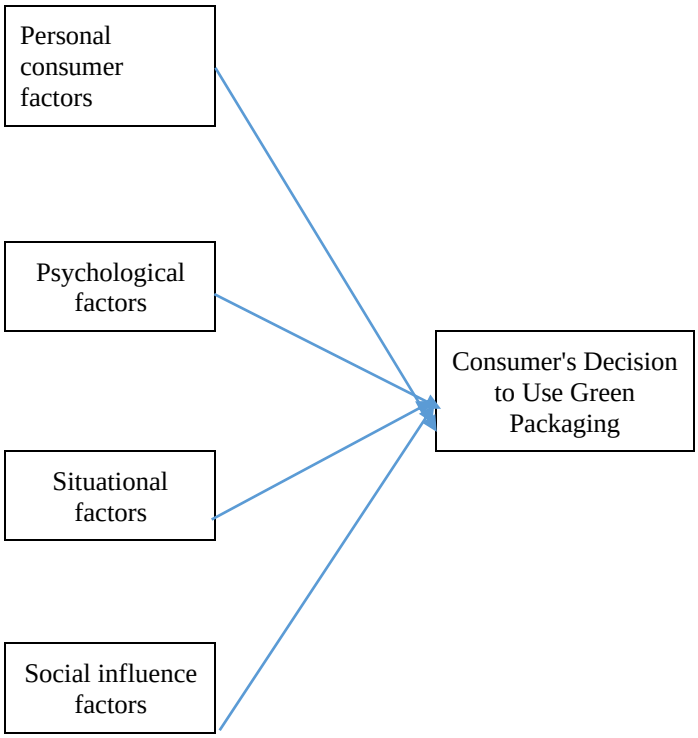

Figure 1. Research Model

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Hypothesis 2 (H2): Favorable Situational Factors positively affect consumers' intention to use green packaging in Vietnam.

Situational factors pertain to the characteristics of the immediate environment and context in which a purchase decision is made. These factors are closely aligned with the concept of Perceived Behavioral Control (PBC) in the TPB [1], reflecting the perceived ease or difficulty of performing the behavior. Literature suggests that aspects such as the availability and accessibility of green options, convenience of purchase, clarity of information (e.g., reliable labeling, trusted brands), and the overall store environment can significantly facilitate or hinder green consumption [29], [43]. When green packaging is readily available, clearly identifiable, conveniently located, and easy to purchase without undue effort or complexity, consumers are expected to be more inclined to choose it. Thus, favorable situational contexts are hypothesized to positively influence the intention to use green packaging.

Hypothesis 3 (H3): Personal Consumer Factors positively affect consumers' intention to use green packaging in Vietnam.

This category encompasses a range of individual characteristics and predispositions, such as established pro-environmental habits, levels of environmental knowledge and awareness, personal values, and positive past experiences with green products. General consumer behavior theories and specific studies on green consumption suggest that individuals who possess greater environmental concern, knowledge, or have integrated sustainable practices into their lifestyle are more likely to exhibit stronger intentions to purchase green products [39], [40]. Therefore, it is hypothesized that positive personal consumer factors will be associated with a higher intention to adopt green packaging.

Hypothesis 4 (H4): Positive psychological factors positively affect consumers' intention to use green packaging in Vietnam.

Psychological factors are internal states that drive behavior, with attitude towards the behavior being a central construct in the TPB [1]. A positive attitude, formed from favorable beliefs about the consequences and value of using green packaging, is widely documented as a strong predictor of pro-environmental intentions [40], [15]. Other relevant psychological factors often include environmental concern [5], [20], perceived consumer effectiveness [21], and trust in green product claims [26]. It is therefore hypothesized that consumers exhibiting more positive psychological dispositions (such as favorable attitudes towards green packaging and higher environmental concern) will demonstrate a stronger intention to use green packaging.

IV. Methodology

This study employed a quantitative, cross-sectional survey design to investigate the relationships between the independent variables (Social influence, Situational factors, Personal factors, Psychological factors) and the dependent variable (Intention to use green packaging) among consumers in Vietnam. This design is appropriate for identifying associations between variables and testing the proposed hypotheses at a specific point in time [9].

A. Population and Sampling

The target population for this study comprised consumers residing in Vietnam, mainly in big cities, including Hanoi, Ho Chi Minh city, which are major urban centers with significant consumption levels, increasing environmental awareness initiatives, and substantial plastic waste challenges, making it a relevant context for studying green consumer behavior [38].

A convenience sampling technique was utilized for data collection due to practical constraints of accessing a perfectly random sample of the general population. Enumerators distributed questionnaires in public places such as shopping

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malls, supermarkets, and community areas, approaching individuals who met the basic criterion of being adult consumers responsible for household purchasing decisions. While convenient, this method limits generalizability, and potential sampling biases exist (e.g., overrepresentation of readily accessible individuals).

Following the sample size guideline n > 50 + 8p suggested by Tabachnick and Fidell [47] for multiple regression (where p is the number of independent variables). With 4 primary independent constructs and potentially demographic controls, a conservative estimate would require over 100 participants. the study collected 220 responses which satisfies this condition).

B. Measurement Instruments

A structured questionnaire was developed based on the instrument. All items were measured using a 5-point Likert scale, ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"), following general practice for such scales (e.g., similar to the scale usage described by Wuensch et al. [52] in a different context, though a more direct citation for Likert scale development like Likert, 1932, or a general methodology text would also be appropriate if it was in the reference list). The constructs and sample items are:

- Social Influence (TK): (6 items) e.g., "I decide to use green packaging based on advice from colleagues" (TK1); "...advice from family/friends" (TK2); "...recommendations from experts" (TK3); "...referencing opinions of previous users" (TK4); "...advice from sales staff" (TK5); "...encouragement for green consumption by the state" (TK6).
- Situational Factors (HC): (5 items) e.g., "I won't buy green packaging if payment methods are too complex" (HC1 - reverse coded logic implied); "I won't buy green packaging if my preferred brand isn't available" (HC2 - reverse coded logic implied); "I decide to use green packaging immediately upon seeing it in the store/location" (HC3); "I only use green packaging at conveniently located points of sale" (HC4); "I only use green packaging from reputable brands (with stamps/certificates)" (HC5). Note: Reverse coding needs to be consistently applied if negatively worded items are used to measure a positive construct.
- Personal Consumer Factors (CN): (6 items initially, 4 retained after reliability) e.g., "I have a habit of choosing products good for the environment" (CN1); "I like experiencing the benefits of green packaging" (CN2); "If I could decide again, I would still choose green packaging" (CN3); "I decide on the product/brand before going to the store" (CN4 - Dropped); "I decide to use green packaging because I intend to try it" (CN5); "I decide to use green packaging due to industry characteristics" (CN6 - Dropped).
- Psychological Factors (TL): (4 items) e.g., "I am eager to buy after seeing advertisements for this product" (TL1); "I only buy green packaging following current consumer trends" (TL2); "I decide to use green packaging because of a current promotion" (TL3); "I only buy green packaging when necessary" (TL4).
- Intention to Use Green Packaging (QD): (3 items) e.g., "I will decide to use green packaging in the future" (QD1); "Green packaging is my first choice to replace plastic bags" (QD2); "I will encourage relatives/friends to buy green packaging" (QD3).

C. Data Analysis

Data analysis was conducted using IBM SPSS Statistics version 20. The following statistical procedures were performed:

Descriptive Statistics: Frequencies, percentages, means, and standard deviations were calculated to describe the sample characteristics and the central tendency/dispersion of responses for key variables.

Reliability Analysis: Cronbach's Alpha coefficient was calculated for each multi-item scale (TK, HC, CN, TL, QD) to assess internal consistency reliability. Items reducing reliability below acceptable thresholds (typically $\alpha > 0.6$ or 0.7) were considered for removal.

Validity Assessment: Ensured through basing items on existing literature and expert review. Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were performed to assess the suitability of the data for factor analysis (as reported in the original Vietnamese study). While EFA was not explicitly reported beyond these tests in the source, they suggest the data has patterned relationships suitable for examining underlying structures. Ideally, EFA would be run to confirm items load onto their intended factors, and Convergent/Discriminant validity assessed.

Correlation Analysis: Pearson correlation coefficients were calculated to examine the bivariate relationships between the independent variables and the dependent variable, and also among the independent variables to check for potential multicollinearity issues.

Multiple Regression Analysis: Hierarchical or standard multiple regression was used to test the proposed hypotheses (H1-H4). The dependent variable was Intention to Use Green Packaging (QD), and the independent variables were Social Influence (TK), Situational Factors (HC), Personal Factors (CN), and Psychological Factors (TL). Demographic variables were initially included as controls. Assumptions of multiple regression were assessed.

V. Research Results

A. Measurement Model Assessment

Reliability Analysis: After removing two items (CN4, CN6) with low item-total correlations (a standard procedure in scale refinement), all scales demonstrated acceptable internal consistency. The final Cronbach's Alpha coefficients were: Social Influence (TK) = 0.822, Situational Factors (HC) = 0.722, Personal Factors (CN - 4 items) = 0.776, Psychological Factors (TL) = 0.625, and Intention to Use Green Packaging (QD) = 0.739. While the alpha for TL (0.625) is marginal (below the often-preferred 0.7 threshold), it meets the minimum 0.6 criterion sometimes accepted in exploratory research (Hair et al., 2010 [53].

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Validity Assessment: The KMO measure of sampling adequacy was 0.648, exceeding the recommended minimum of 0.50, and Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 127.344$, df = 153, $p < 0.001$). These results indicate that the correlations between items were sufficient for factor analysis or, more broadly, that the data was suitable for multivariate analysis examining underlying relationships between variables (as discussed in Tabachnick & Fidell [47]).

B. Hypothesis Testing

Multiple regression analysis was conducted to test the influence of Social Influence (TK), Situational Factors (HC), Personal Factors (CN), and Psychological Factors (TL) on the Intention to Use Green Packaging (QD). Demographic variables were entered as controls but did not show significant effects and were removed from the final model presented here for parsimony. The results of the regression analysis are summarized in Table 1.

TABLE 1. Multiple regression results for Factors Predicting Intention to Use Green Packaging (QD)

Variable	Unstandardized Coeff. (B)	Standardized Coeff. (β)	Sig. (p-value)	VIF
(Constant)	3.355		< .001	
Social Influence (TK)		0.182	.008	1.399
Situational Factors (HC)		0.175	.011	1.287
Personal Factors (CN)		0.022	.721	1.209
Psychological Factors (TL)		-0.173	.012	1.321
Model Summary				
R-squared	0.089			
Adjusted R-squared	0.068			
F-statistic	4.159		.003	
Durbin-Watson	1.713			
N = 175				

The overall regression model was statistically significant ($F(4, 170) = 4.159$, $p = 0.003$), indicating that the predictor variables collectively explain a significant portion of the variance in the intention to use green packaging. However, the Adjusted R-squared value was 0.068, suggesting that only 6.8% of the variance in intention was explained by these four factors, indicating a low level of overall explanatory power.

The Durbin-Watson statistic of 1.713 falls within the acceptable range (typically 1.5 to 2.5), suggesting no significant first-order autocorrelation among residuals. The Variance inflation factor (VIF) values for all predictors were well below the common threshold of 10 (and even below 2.5), indicating that multicollinearity was not a concern among the independent variables. These diagnostic checks are standard procedures in regression analysis (e.g., discussed in texts like Tabachnick & Fidell [47] or Bryman & Bell [9]).

Individual hypothesis results:

- H1 Supported: Social Influence (TK) was found to have a significant positive effect on the intention to use green packaging ($\beta = 0.182$, $p = 0.008$).
- H2 Supported: Situational Factors (HC) also showed a significant positive effect on intention ($\beta = 0.175$, $p = 0.011$).
- H3 Not Supported: Personal Consumer Factors (CN) did not have a statistically significant influence on intention ($\beta = 0.022$, $p = 0.721$).
- H4 Supported: Psychological Factors (TL) demonstrated a significant negative effect on intention ($\beta = -0.173$, $p = 0.012$).

Comparing the standardized beta coefficients, Social Influence (TK) had the slightly stronger positive influence, followed closely by Situational Factors (HC). Psychological Factors (TL) exerted a negative influence of comparable magnitude to the positive drivers.

VI. Research Discussion

This study investigated the factors influencing Vietnamese consumers' intention to adopt green packaging in Hanoi. The empirical results largely confirmed the hypothesized relationships for three out of four factors, albeit with limited overall explanatory power. Specifically, social influence (recommendations, norms) and favorable situational factors (availability, convenience, trust) emerged as significant positive drivers of green packaging adoption intention. Conversely, the psychological factors measured in this study acted as a significant barrier, negatively impacting intention. Personal consumer factors, as operationalized here, did not show a direct significant effect. The model, while statistically significant overall, explained only a small fraction of the variance in consumer intention.

The Power of the Social and the Situation: The significant positive influence of Social Influence (TK) aligns strongly with the subjective norm component of TPB ([1]) and extensive empirical evidence highlighting the role of social pressure and peer behavior in pro-environmental choices [41], [15]. This finding may be particularly salient in Vietnam's socio-cultural context, where collectivist tendencies and sensitivity to social harmony can amplify the impact of reference group opinions. It suggests that interventions leveraging social networks, endorsements, and community-based initiatives could be effective. Similarly, the significance of Situational Factors (HC) underscores the practical importance of Perceived Behavioral Control ([1]). Removing barriers related to availability, accessibility, convenience, and building trust through reliable branding/certification (HC5) is crucial for translating potential positive attitudes into action [29], [43]. Convenience often trumps environmental concern if the green option requires significant extra effort or cost [31].

The Ambiguity of Personal Factors: The non-significant finding for Personal Consumer Factors (CN) is noteworthy. While broader literature often links environmental knowledge, habits, or values to intention [39], [40], the direct effect was absent here. This could be due to several reasons: (1) Measurement limitations – the CN scale might not have

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adequately captured the most relevant personal predispositions. (2) Indirect effects – personal factors like knowledge or values might influence intention indirectly through shaping attitudes (which were part of the problematic TL factor here) or perceived norms/control. (3) Contextual irrelevance – perhaps in this specific context, social pressures and immediate situational constraints overshadow individual habits or general environmental leanings when it comes to the specific, potentially low-involvement, decision of choosing packaging.

Unpacking Psychological Barriers (TL): The most intriguing finding is the significant negative impact of the Psychological Factors (TL) construct. This contradicts the typical expectation (as hypothesized in H4 based on general theory) that positive psychological elements like attitude or concern drive green behavior. Examining the items within TL (desire driven by ads, following trends, promotion-driven purchase, necessity-driven purchase) suggests this factor captured not positive environmental attitudes, but rather potential barriers like:

- Skepticism/Reactance: A negative association might indicate consumer skepticism towards advertising claims (TL1) or promotions (TL3) for green products, possibly due to perceived greenwashing or inauthenticity [12].
- Lack of Intrinsic Motivation: Reliance on trends (TL2) or promotions (TL3) points towards extrinsic rather than intrinsic environmental motivation. The negative coefficient might suggest that consumers primarily driven by these factors are less likely to consistently adopt green packaging, perhaps abandoning it once the trend fades or the discount ends.
- Perceived Burden/Inconvenience: Buying only when necessary (TL4) could reflect a perception that green packaging is a burden or inconvenience adopted only reluctantly.

This finding highlights the critical importance of addressing consumer skepticism, building genuine trust, and fostering intrinsic environmental motivation rather than relying solely on trends or temporary incentives. It suggests a potential psychological 'cost' associated with adopting green packaging that outweighs perceived benefits for some consumers.

Low Explanatory Power (Adjusted R^2): The finding that the model explains only 6.8% of the variance is a crucial result. It strongly suggests that while the identified factors (TK, HC, TL) are statistically significant predictors, they represent only a small piece of the puzzle. Other factors not included in this model likely exert substantial influence. These could include: deeper cultural values, trust in institutions (government, corporations), specific product category effects, actual past behavior, perceived product quality/performance trade-offs [43], or more nuanced psychological constructs like perceived consumer effectiveness (PCE) [21], specific environmental beliefs.

VII. Policy Implications

The findings offer several actionable implications:

For businesses:

Firstly, utilize testimonials, user reviews, influencer endorsements (authentically), and community marketing to tap into social influence (TK). Highlight adoption by peers. Secondly, prioritize making green packaging options readily available, visible, and easy to purchase across diverse retail channels (HC). Simplify choices at the point of sale. Thirdly, use clear, verifiable labeling and certifications (HC5). Communicate environmental benefits transparently to combat skepticism (related to negative TL). Avoid hype or potentially misleading promotional tactics (TL1, TL3). Fourthly, ensure green packaging performs adequately for its intended use to overcome potential negative perceptions of quality or durability. Fifthly, while price matters, emphasize other benefits (e.g., health, environmental contribution, brand image) as promotions alone may not drive sustained adoption (TL3 implication).

For policymakers and regulators:

First and foremost, develop clear, mandatory standards for green packaging claims and ensure robust verification/certification processes to build consumer trust and combat greenwashing (related to HC5, TL). Moreover, implement public awareness campaigns that emphasize the growing social norm of using green alternatives and highlight collective benefits (TK). Support community initiatives. Additionally, invest in waste management infrastructure (especially for composting/recycling newer materials) and potentially incentivize retailers to stock and promote green options (HC). And,while tax incentives for green packaging or levies on conventional plastics (as suggested in original) can influence cost (HC), their design must avoid creating loopholes or disproportionately burdening low-income consumers. Ensure they complement efforts to build intrinsic motivation. Finally, encourage research and development into cost-effective, high-performance green packaging materials suitable for the Vietnamese market.

This study aimed to unravel the complex factors influencing Vietnamese consumers' decisions to use green packaging. The findings underscore that this decision is significantly driven by the social environment and situational convenience. Positive social cues and easy access act as key enablers. However, significant psychological barriers, potentially related to skepticism, perceived effort, or lack of intrinsic motivation, act as deterrents. Notably, individual factors like habits or general environmental predisposition did not emerge as direct significant predictors in this model, and the overall explanatory power was limited.

VIII. Conclusion

The primary contribution of this research lies in providing empirical evidence from Vietnam, highlighting the simultaneous positive influence of external enablers (social, situational) and the negative influence of psychological barriers. It suggests that simply raising awareness or relying on personal environmentalism may be insufficient. A multi-pronged approach addressing social norms, ensuring practical convenience, and actively mitigating psychological resistance

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is necessary to foster widespread adoption of green packaging. While the transition away from conventional plastics is imperative, facilitating this shift requires a nuanced understanding of consumer motivations and barriers within specific socio-economic contexts.

This study is subject to several limitations that offer avenues for future research. The data were collected at a single point in time, limiting the ability to infer causality or track changes in intentions or behavior over time. Longitudinal studies are needed. Moreover, intentions were self-reported and may be subject to social desirability bias, where respondents overstate their pro-environmental intentions. Research incorporating actual behavioral measures is desirable. Additionally, the limited variance explained by the model indicates that significant influencing factors were omitted. Future research should explore additional variables, such as specific environmental beliefs (VBN components), perceived consumer effectiveness (PCE), trust in institutions, cultural values, emotional factors, detailed cost perceptions, and actual behavioral habits. This study focused on intention. Future research should explicitly investigate the gap between stated green packaging intentions and actual purchase/use behavior in the Vietnamese context, exploring the situational or psychological factors that moderate this relationship. Finally, complementary qualitative research (e.g., interviews, focus groups) could provide deeper insights into the reasoning behind consumer choices, particularly regarding the identified psychological barriers and the non-significant personal factors. Addressing these limitations through future research will provide a more comprehensive and robust understanding of green packaging adoption dynamics in Vietnam and other emerging economies.

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